

DESIGN AND DEVELOPMENT OF WEBSITE FOR SHEGAON SIDDHAPEETH



The Project submitted to
Sant Gadgebaba Amravati University, Amravati
Towards partial fulfilment of the Degree of Bachelor
of Engineering
In
Information Technology

Guided by

Prof. Mrs. S.N.Khandare

Submitted by

Shruti Kalaskar (23)
Pratiksha Dalimkar (17)
Dhanashri Shegokar (05)
Sudhir Ghagare (69)

DEPARTMENT OF INFORMATION TECHNOLOGY
SHRI SANT GAJANAN MAHARAJ COLLEGE OF
ENGINEERING, SHEGAON (M.S.)
2022- 2023

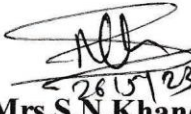
**SHRI SANT GAJANAN MAHARAJ COLLEGE OF
ENGINEERING, SHEGAON**





2022-2023

CERTIFICATE

This is to certify that **Ms Shruti Kalaskar, Pratiksha Dalimkar, Dhanashri Shegokar, Sudhir Ghagare** students of final year B.E. (Information Technology) in the year 2022-2023 of the Information Technology Department of this institute have completed the project work entitled “**Design and Development of Website for Shegaon Siddhapeeth**” based on syllabus and has submitted a satisfactory account of his/her work in this report which is recommended for the partial fulfilment of the degree of Bachelor of Engineering in Information Technology.


28/5/23
Prof. Mrs. S. N. Khandare
(Project Guide)


Dr. A S Manekar
Head of the Department
SSGMCE, Shegaon


Dr. S. B. Somani
Principal
SSGMCE, Shegaon

**SHRI SANT GAJANAN MAHARAJ COLLEGE OF
ENGINEERING, SHEGAON**



2022-2023

CERTIFICATE

This is to certify that the project work entitled “**Design and Development of Website for Shegaon Siddhapeeth**” submitted by Ms. **Shruti Kalaskar, Pratiksha Dalimkar, Dhanashri Shegokar, Sudhir Ghagare**, students of final year B.E. (Information Technology) in the year 2022-2023 of the Information Technology Department of this institute, is a satisfactory account of his work based on the syllabus which is approved for the award of the degree of Bachelor of Engineering in Information Technology.

Internal Examiner

External Examiner

Date:

Date:

ACKNOWLEDGEMENT

It is our proud privilege and duty to acknowledge the kind of help and guidance received from several people in preparation for this project report. It would not have been possible to prepare this project report in this form without their valuable help, cooperation and guidance.

*First and foremost, we wish to record our sincere gratitude to the **Management of this college** and to our beloved **Principal, Dr S B Somani**, for their constant support and encouragement in the preparation of this project and for making available internet, library and laboratory facilities needed to prepare this project.*

*Further our sincere thanks to **Dr. A S Manekar, Head of the Department, Information Technology**, for his valuable suggestions and guidance throughout this project.*

*We express our sincere gratitude to our guide, **Prof. Mrs. S. N. Khandare**, for guiding us in investigations for this project and in carrying out relevant work. Our numerous discussions were extremely helpful. We received her esteem guidance, encouragement and inspiration.*

*Last but not the least, We wish to thank our **parents** for financing our studies in this college as well as for constantly encouraging us to learn. Their sacrifice in providing this opportunity to learn engineering is gratefully acknowledged.*

Student Names

- 1. Shruti Kalaskar (23)*
- 2. Pratiksha Dalimkar (17)*
- 3. Dhanashri Shegokar (05)*
- 4. Sudhir Ghagare (69)*

ABSTRACT

Design and Development of Website for Shegaon Siddhapeeth is a ecommerce website. It includes User Registration, login, User dashboard , Admin dashboard, Shop, Cart and Bank deposit as a payment option. The website contain social media integration,interated google map and a contact page for user convenience. It also include FAQ ,mission,vision and award page in order to create better customer relationship. Header and navigation menus are designed such that the user can easily navigate through the website and can find whatever he needs on the website. To reach and connect to the wider audience, to serve as a medium of information for visitors to inform them about the products and services being offered, to create brand awareness, to expand customer base, to build a good customer relationship this website is designed and developed.

TABLE OF CONTENTS

Chapter	Title	Page no.
1	Introduction	1
	1.1 Preface	1
	1.2 Statement of problem	3
	1.3 Objectives of Project	7
	1.4 Scope and Limitations of the Project	10
	1.5 Organization of the Project	13
2	Literature Survey	17
3	Analysis	27
	3.1 Detailed Statement of the Problem	27
	3.2 Requirement Specifications	30
	3.3 Functional Requirements	36
	3.4 Non Functional Requirement	36
	3.5 Feasibility Study	37
	3.6 Use Case Diagram	39
	3.7 Use Case Specification	39
4	Design	41
	4.1 Design goals	41
	4.2 Design Strategy	42
	4.3 Module Diagram	43
	4.4 Collaboration Diagram	44
	4.5 Architecture Diagram	44
	4.6 Class Diagram	46
	4.7 Sequence Diagram	46
	4.8 State Chart Diagram	47
	4.9 Activity Diagram	48
5	Implementation	51
	5.1 Implementation Strategy	51
	5.2 Hardware Platform Used	53
	5.3 Software Platform Used	54
	5.4 Deployment Diagram	56
	5.5 Implementation Level Details (Algorithms)	58
	5.6 Testing	60
6	Conclusion	62
	Future Work	65
	User Manual	67
	References	77
	Source code Listings	81

1. INTRODUCTION

1.1. Preface

Now a days people order goods and products online over the internet with the help of ecommerce. Ecommerce allows people to purchase from a vast pool of products and goods in considerable prices. Products get delivered to their home. Payment options like cash on delivery, bank deposit, UPI transaction are available which makes transaction a smooth experience. During pandemic more and more people turned to ecommerce. Ecommerce has successfully changed the behavior of the consumer the way they purchase and consume goods and services. Many ecommerce platforms like Amazon, Flipkart, Nykaa, Meesho has gained popularity in India. According to Forbes ecommerce market is expected to increase up to \$8.1 trillion worldwide by the end of 2026. Also 20.8% of retail purchases are going to shift toward ecommerce and online purchases in 2023. One of the greatest benefits of ecommerce is the visibility it provided. Small businesses can also reach out to the worldwide consumers and sell their goods worldwide. As many ecommerce websites are available today it is very easy for customers to switch between different ecommerce websites and prefer one over the other. So, understanding what affects the consumer behavior is very important. One study showed that 48% of the consumers leave ecommerce website because of the extra cost or fees on the goods. 24% because they are required to create an account, 18% because they don't trust the site with credit card information, 17% because of complicated checkout process. So, giving attention to the design of the ecommerce website is crucial for the success of the ecommerce website. E-commerce as anything that involves an online transaction. E-commerce provides multiple benefits to the consumers in form of availability of goods at lower cost, wider choice and saves time. The general category of e-commerce can be broken down into two parts: E-merchandise: E-finance. E commerce involves conducting business using modern communication instruments: telephone, fax, e-payment, money transfer systems, e-data interchange and the Internet. Online businesses like financial services, travel, entertainment, and groceries are all likely to grow. Forces influencing the distribution of global e-commerce and its forms include economic factors, political factors, cultural factors and supranational institutions. It has an impact over the economy of many

countries among which India is on the top of that list. It has named as new gold rush in e-commerce. E-commerce has many reasons that why it is very crucial in developing the country. For the study we have taken several parts of the world such as North America, Latin America, Europe, Middle-East, Africa and South Asia, and Australia. E-commerce has an intent to bring some transformation in the society and that's the reason its essential for the B2B and B2C commerce. The Internet is dramatically expanding opportunities for business-to-business (B2B), Business-to-consumer (B2C) e-commerce transactions across borders. For B2C transactions especially, the Internet sets up a potential revolution in global commerce: the individualization of trade. It gives consumers the ability to conduct a transaction directly with a foreign seller without traveling to the seller's country. While this could be done in the past by post, telegram, phone, or fax, such sales were relatively rare because the consumer had to know in advance where to make contact and what to buy. The Internet allows sellers to put their storefronts, in the form of Web pages, in front of consumers all over the world. Technology has expanded the consumer marketplace to an unprecedented degree, and it will change the way we think about trade. The main thing, which has been kept in mind during this e-commerce based Web development, is our best efforts to make it easy, attractive & user friendly. E-commerce or electronic commerce refers to a business model that involves sales transactions being done on the web. Virtually every online shopping website - big or small - follows this structure. Any site where you can obtain items for sale over the internet is considered an e-commerce website. eBay and Amazon, the grandfathers of e-commerce, paved the way for a newer and more convenient way of shopping. They are actually not that old to be called grandfathers, but a higher level of respect is implied there. Of course, online buying and selling were already a thing before, but because of these companies, e-commerce websites became an easier and more preferred platform to a lot of consumers. People were very skeptical to use these sites to purchase their items there because they are prone to fraudulent activities and scamming schemes. It is still evident up to this day, but developers come up with solutions to better people's shopping experience. Examples of these solutions are reviews, return policy, and cash on delivery. These features help consumers decide if they should purchase items from an e-commerce website or not. One of the obvious

differences between an ecommerce website and an ordinary business or company website is in the features that it supports. A company website may just house information on the brand's products and services so users will need to contact the company directly if they want to do business with them. Meanwhile, an ecommerce website works pretty much like how a physical store works. Users can purchase items, arrange for delivery, and payments on the same site without the need to call a human person to help them with their order. When you start learning how to create ecommerce website content, you'll find that it's a bit more complicated to put up an online store compared to an ordinary website because of the features and design elements that the former requires. There are a lot of ecommerce selling a variety of items now. From clothing pieces to food items to gardening materials, one must be creative to make his or her brand more unique than the other. Even social media accounts are becoming ecommerce platforms and are developed to be ecommerce websites nowadays. The only difference is that on an e-commerce website, you don't have to deal with a human to be able to buy and get your items delivered to your doorstep. An ecommerce website must be as functional as it is with or without the owners or managers monitoring the site and dealing with their customers every second of the day.

1.2 Statement of Problem

A need to have an online presence, an impediment to reach wider audiences ,Poor customer accessibility, Less brand awareness ,A need to reach out to a more potential customer base out there ,Absence of a medium and tool which can act as a connector between business and customer , to overcome all these problems there is a need to create an ecommerce website. Having an online presence can make or break business, especially for small business owners. The time dedicated to building an online presence for your business is time well spent. Here are five reasons why it's so important to build an online presence, especially for a small business owner. Here's the point: having an online presence can make or break a business, especially for small business owners. The time dedicated to building an online presence for a business is time well spent. Here are five reasons why it's so important to build an online presence, especially for a small business owner:An online presence enhances

accessibility: A huge reason to build an online presence is because your competition is probably building an online presence. If a consumer is able to Google your products or services in your city or town, and you are nowhere to be found, then they have no way to find out about you. Even worse, they'll likely come across your competition and take a look at them online instead of seeking you out offline. To make sure your name appears at the top of Google's search results, check out our tips for SEO. Having an online presence increases accessibility for your clients or consumers. It's an effortless way for them to browse prices and hours and compare all these factors with your competition with a simple click. And it's important that it's effortless—nothing should take too long to load, and nothing should be difficult to find. Any questions they may need answered should be readily available on the site itself, and if they're not, then you should really be sure that your contact information is displayed in an obvious way.

An online presence reaches a wider audience: An online presence also allows the customer to come to you. Even when you're closed, customers will be able to purchase goods and services online. Basically, they're doing your work for you, even when you're not working yourself. There's no better give and take for a business than that. You'll be able to reach a wider audience, such as people who are unable to make it to your physical shop for whatever reason, be it disabilities, lack of transportation, or even because they're in another country.

Enabling your business to reach the widest audience possible will only be beneficial. The best part? When customers like what they see, they're willing to share the news of your products and services with others. Allowing these secondary customers to see that your site is up-to-date will ensure that you come across as professional. To enhance this, having active social media accounts will allow your products and services to be shared easily between customers, and then you'll have even more customers coming to your site.

Win-win!

An online presence builds customer relationships and trust: The beauty of having a site, blog, and social media accounts is that they enable reviews and comments about your products. As an expert in your business, you'll be able to answer any queries quickly and thoroughly. Any glowing praise that is publicly available will build your online presence and show even brand-new customers that you're a reputable business. Even where there are less-than-kind reviews or comments, you can reach out to unhappy customers and resolve the issue so that your good name

stays intact. It's better to know about an unhappy client so you can make amends and carry your name forward, rather than having an angry customer sharing their distaste for your business without you even knowing they were unhappy in the first place. Being able to right wrongs only helps to build customer loyalty. If you're not forgiven, at least other clients and customers can see that you tried and that you're willing to do everything in your power to keep customers happy. An online presence enables effortless marketing: Selling your products and services becomes an effortless process thanks to your online presence. Consumers will be able to browse your products and ensure that they're happy with their choice without feeling pressured by sales associates. And, as we said, you don't have to be there for this entire process to take place. Even at night, customers will be buying. Not only is the process no longer limited, but it's also never-ending (in a good way!). Marketing yourself online can cost as much or as little as you decide. You don't have to mail out coupons or flyers; you can simply share them with the click of a button. You can advertise your products and services for free across your social media sites and on your blog. And, if you focus on improving your SEO, then the search engines will work in your favour. An online presence shows you what works—and what doesn't: Finally, an online presence allows you to see the effects of all these efforts. Tracking the metrics of your site and social media accounts is quite simple. You'll be able to see numerical proof of what works and what doesn't. If you share a new blog post and see a huge spike in visits, then you'll know you've hit on some content that your audience likes to see. Being able to see the results of your efforts will allow you to make improvements in every aspect of your business. Building an online presence isn't just beneficial to growing a small business—it's absolutely essential. By creating a blog, maintaining your site, and becoming active in social media, you'll be more accessible to a wider audience. You'll also build consumer trust and be able to market effortlessly. Best of all, you'll always be able to make improvements in all these areas. What is importance of brand awareness? As consumers, we often reach for the same brands every time we make a purchase. You might grab Colgate toothpaste without so much as glancing at the Sensodyne, or reach for the Dairy Milk without considering any other chocolate. But why is that? As 95% of our purchase decisions are subconscious, cultivating brand awareness is vital for your company to stand out. We tend to pick up the same brands

based on visual signifiers because we trust them. Why would you pick a service or product that you don't know? Shoppers want evidence that a brand, product or service is trustworthy and will deliver exactly what they're looking for before committing to a purchase. Achieving customer loyalty stems from having brand awareness, so making your brand the go-to choose is the ultimate road to success. But how do you build an awareness of your brand in the first place? The Different level of brand awareness- Before you start building your brand awareness, you need to understand the different levels of awareness that impact a buyer's journey. There are four levels of brand awareness that can be visualised by using a brand awareness pyramid. Based on marketing mogul, David Aaker's brand loyalty pyramid, the levels of brand awareness are zero awareness, recognition, brand recall, and top of the buyer's mind. Let's break down each level of brand awareness to better understand their significance. A need to reach out to a more potential customer base out there -Your customer base is the group of people who repeatedly buy your company's products or use your organization's services. These customers frequently engage with your business and provide the most financial value to your company. Depending on the industry, your customer base can be a specific group or a target audience based on a buyer personal. It's essential to identify your customer base because these people are incredibly valuable to your business. They buy your products the most and rely on your company to help them achieve their goals. Recognizing these customers will help your marketing, sales, and customer service teams build a productive relationship with your customer base. Within your customer base is a subset of customers referred to as your installed customer base. These customers are at a specific point in the customer journey that differentiates them from the rest of the people in your customer base. Absence of a medium and tool which can act as a connector between business and customer - Communication is neither transmission of message nor message itself. It is the mutual exchange of understanding, originating with the receiver. Communication needs to be effective in business. Communication is essence of management. The basic functions of management (Planning, Organizing, Staffing, Directing and Controlling) cannot be performed well without effective communication. Business communication involves constant flow of information. Feedback is integral part of business communication. Organizations these days are

very large. It involves number of people. There are various levels of hierarchy in an organization. Greater the number of levels, the more difficult is the job of managing the organization. Communication here plays a very important role in process of directing and controlling the people in the organization. Immediate feedback can be obtained and misunderstandings if any can be avoided. There should be effective communication between superiors and subordinated in an organization, between organization and society at large (for example between management and trade unions). It is essential for success and growth of an organization. Communication gaps should not occur in any organization. Business Communication is goal oriented. The rules, regulations and policies of a company have to be communicated to people within and outside the organization. Business Communication is regulated by certain rules and norms. In early times, business communication was limited to paper-work, telephone calls etc. But now with advent of technology, we have cell phones, video conferencing, emails, satellite communication to support business communication. Effective business communication helps in building goodwill of an organization.

1.3. Objectives of the project

To serve as a medium of information for visitors to inform them about the products and services being offered. To create brand awareness: Brand awareness is a measure of how well people recognize your brand, including how “aware” they are that your brand exists at all. Rather than a simple individual metric, brand awareness is a concept that touches on many different KPIs, from traffic to social share of voice. Why does brand awareness matter? Strong brand awareness and brand recognition means your brand is top of mind when people think about the category of products or services you sell. They recognize your logo or tagline, making it easier to communicate effectively through social content, especially in images or short-form video. Brand awareness is a required first step before building brand loyalty. After all, customers can't love your brand until they know and recognize it. Think about it as the difference between Coke and store-brand generic cola. No one's wearing a T-shirt showing their love of generic cola. Sure, people buy it – usually because it's the cheapest option. But no one is evangelizing for the generic brand. The most valuable

brands are usually the most recognizable. Nike is the most valuable apparel brand. Apple wins the consumer technology category. And, yes, Coca-Cola is tops in food and beverages. You don't need to reach the level of these behemoths to benefit from brand awareness, but there's a lot you can model in the way these companies have built their brands.

A step to build a recognizable brand: Brand building is an important first step for brand awareness. That means you need to have a clear idea of what your brand is and what it represents. What does your brand look like? Sound like? Stand for?

To be a Brand voice: Brand aesthetic ,Consistency is key to brand building and brand awareness. That's true for your look as well as your words. What are your brand colours? Fonts? What is your overall look on visual platforms. For example, look at these Instagram posts from Old Navy, Banana Republic, and The Gap. All three brands are owned by the same company, but each targets a different demographic, with a social aesthetic to match.

To expand customer base: Offer a free newsletter Free is something that everyone can afford, from small businesses to global corporations. When you offer a free newsletter, you are informing your potential customers that you are willing to provide free information from the start. If you provide good content, customers will know more about your business. Increase your customer base by asking for opinions. Before a web visitor leaves your website, request that they complete a short survey related to your business. People are happy to express themselves and often enjoy telling you about their online and offline experiences. You can use a survey to conduct industry research, customer experience or measure customer satisfaction. Keep up and maintain excellent customer support and service A customer who contacts customer support about their first order is just as important as a customer who contacts customer service about their tenth order. Treat each customer with respect and take appropriate action. A happy customer is likely to tell at least three friends about a positive experience and great customer service leads to increased sales.

To provide a fresh website content: Fresh and informative content is one of the main elements that pull in new visitors and potential customers. Keep your content fresh by publishing a blog that reports the latest business news, key-takeaways from whitepapers and hot topics within your industry. Fresh content will also help your website be found in search engines.

To Promote business online: Facebook users have an average of 338 friends. When you create new content, launch a new product or run

a new campaign, be sure you share this across the social media channels you are active in. There is no easier way to grow your customer base than providing value and then having your customers promote your brand for you. To build a good customer relationship :Building better customer relations might seem like a complicated process, but the following steps can streamline the effort. Communicate well, whether it be consistent, thoughtful newsletters, follow-up phone calls, or even the occasional check-in text message, consistent communication is the best way to reach customers and build lasting connections. Ask for (and respond to) customer feedback. Having an open line of communication that allows clients to offer suggestions on improvements or changes is critical to keeping those clients happy. Seeking feedback in the form of a survey or other outreach is another good way to show you care about the customer experience. To Build trust through website: Trust is critical to any good working relationship. Customers expect a certain level of quality, timeliness, and consistency. Don't let them down, and if you do, explain exactly what happened and what changes you are making to ensure it doesn't happen again. Treat them like humans. At the end of the day, customers are human beings and want to be treated with respect and kindness. Never forget that there is a person on the other end of that phone call or email. Reward loyalty. Incentives such as discounts for repeat customers or VIP customer rewards programs can go a long way toward securing loyal customers for life. Don't be afraid to contact customers and let them know you appreciate and value them. Handling a business successfully is interesting but challenging too. It is not like the regular 9 to 5 jobs where one has to do some mundane tasks and fulfill one's duties and responsibilities. But with business, everything takes a different turn. When you are an owner of the business, only you are solely responsible for its success and failure, you tend to always think about the inherent risks and the constant need to satisfy your customers. Now, earlier businessmen used to only rely on traditional marketing techniques by creating a physical presence and marketing their products & services through brick-and-mortar stores. But for the past few decades the vision of business owners have changed and besides traditional marketing, they have started marketing their products online. Here, the term Ecommerce and objective of ecommerce comes into the picture. No one exactly knows when people started trading with each other – or how. What we do know is that for about 2500 years now people

have been using metal coins to buy and sell stuff. From horses and handcarts to trucks, airplanes, and ships, the necessity to trade goods has encouraged innovations in transportation for just as long. Though, the scenario today has all changed. Now, many of us are buying and selling through a brand new advanced form of commerce that demands neither money nor transportation—at least not in the traditional sense. You just click your mouse a few times or surf through your mobile from the comfort of your couch, enter your credit or debit card number, and wait for the products to appear on your doorstep. Ecommerce, as this is known, has flourished exceptionally in the last two decades, rendering life more convenient for consumers and uncovering all kinds of latest opportunities for businesses. Let's take a closer look at what Ecommerce and objective of ecommerce is! Electronic Commerce, in short Ecommerce, refers to the trading of goods and services through an online platform. It has been so named because Ecommerce involves trading i.e. buying and selling of products over an electronic network, primarily called the internet. Ecommerce operates in various kinds of market segments and can be carried out over laptops, computers, smartphones, tablets, and other smart devices. Almost every product and service imaginable is available through ecommerce transactions, including movie tickets, flight tickets, train tickets, music, books, household goods, financial services such as online banking and stock investing and many more.

1.4. Scope and Limitation of the Project

E-commerce or Electronic commerce is termed as selling and buying behaviour of products and services over the internet. It is also referred to as the sales of different items on the marketplaces in which money transaction activity takes place. There are many e-commerce marketplaces like Amazon, Flipkart, Paytm, Snapdeal, Shopclues, etc. in which commercial transactional activity is going on. Nations are developing faster and so as the technology is also developing. The advanced Smartphones, Computer Systems, Web Access speed, etc has made it easy for the users to execute their task in a short interval of time and scope of ecommerce achieve high growth in the future. E-commerce shopping made the online shopping experience safe and secure with an additional layer of security. The scope of ecommerce is expanding day by day due to the heavy number of internet users all over the world. People are

spending more time in doing online shopping for various products available on the ecommerce platforms. According to Demand Sage, 2.14 billion people are shopping through e-commerce as of 2022. People spend more time online shopping for various products available on e-commerce platforms. Amazon offers items in almost every category to all the users. The project scope includes:

Fast Shipping: It is always a good idea to go with the best shipping partner when dealing in an ecommerce platform. As an ecommerce seller, you must have to process all the orders within 24 to 48 hours. Shipping is also a big reason in the scope of the ecommerce sector. For Timely shipping, it is always advisable to have the correct address in the customer's account panel. However, If you want to change shipping address in amazon or in any other e-commerce marketplace then you must have to contact the support team or do it manually.

Customer service: It is what it takes to last long in online business. If proper service is provided to the customers, then it will certainly boost the customer satisfaction in the customers' mind. As soon as the product is delivered to the customer, it is always recommended to send the feedback and rating emails so that you can understand the user experience and also make some changes in product improvement with feedback.

Complicated ecommerce policies: Every e-commerce portal has its policies that the seller must comply with. Companies like Amazon, Flipkart, Paytm, Myntra, etc, have business policies. Sellers register on these platforms, and often these platforms do not give them full rights to operate in the marketplace. This limits their business, and if they violate these rules, their account may be permanently suspended.

Reach to More Audience: The best advantage of having your own website or on the ecommerce website is that your business is not limited to just a single place. The customers can visit your website through any part of the world and purchase your items or services. There are people all around the globe who regularly shops online. Social media have played a huge role in expanding e-business.

Advertising: In the initial stage of selling your products online, Advertising is the best and first priority option to go with. However, the advertising budget will totally depend on the sellers. Sellers can generate more sales with advertising. On the other hand, promotion also helps in reaching a larger audience. It is very easy to advertise on Google, Facebook, Instagram. Through advertising any seller can showcase the products on the first page of search engines or on the e-commerce

marketplaces. It is always recommended to optimize the listings first and then make promotions and advertising tasks.

B2C and B2B Offering: The scope of e-commerce has been extended to the next level when dealing online. Sellers can offer both pricing b2b and b2c both when listing items on the e-commerce website like Amazon. Business customers are able to see bulk pricing if they are on the platform for bulk purchasing. In this way sellers can get both type of customers at the same time. Some e-commerce marketplaces are only designed for b2c type. Those marketplace does not allow b2b deals on the items. The best marketplace for b2b business is Alibaba and Amazon. However, Amazon is more concentrated towards b2c business.

Less Employees: Setting up an online business does not require more employees to execute the tasks. One or two account managers are enough to operate different marketplaces at the same time. As the business remains completely online, Customer service is the prime concern for any business owner. Along with that, It is always recommended to start the online business on any e-commerce platform with their policies in mind.

Limitations: While the project has a wide scope and potential impact, there are some limitations that should be considered, including:

- Huge technological cost.** Since everything is online, it requires the use of creative resources and also a large amount of investment. The costs have become very high due to an excessive 4G and 5G data usage for online work.
- Security:** This is one of the most common issues that many e-commerce businesses and customers face. There are many websites that are not capable of authenticating transactions nor have those features. This may lead to numerous fraudulent activities and threaten the business. Also, many businesses need to save various customer information like customer's name, address, contact number, email id, age, etc. This requires a huge investment to secure the data, so it is not misused.

Employee cost is also a limitation of e-commerce business. For any business, whether online or offline, having dedicated employees is crucial. You need a professional team to execute different tasks and fulfill the organization's objective. Whether your startup is small or big, you need employees to yield great results. Therefore, you will have to incur costs on hiring and paying employees' remuneration. Huge advertising cost in order to promote your business, a lot of money must be spent advertising initially. Advertising has the potential to increase your reach, and this way, you can reach maximum people. However, advertising in several

mediums can be expensive. Advertising costs can pose a disadvantage if the business cannot make the deal convertible. Various advertising mediums have varied costs, and many online advertising portals usually charge on a pay-per-click basis. Cost of packaging: Packaging, whether Primary, Secondary, or Tertiary, involves a lot of costs. The cost depends upon the nature of the product. It may cost a lot if the package is bulky and large. Heavy items may even involve a higher shipping cost, increasing the overall cost of transporting the product. B2C transactions have a lower packaging cost since a few products are being dispatched. However, B2B products or transactions involve the high cost of Packaging. Complicated ecommerce policies: Every e-commerce portal has its policies that the seller must comply with. Companies like Amazon, Flipkart, Paytm, Myntra, etc., have business policies. Sellers register on these platforms, and often these platforms do not give them full rights to operate in the marketplace. This limits their business, and if they violate these rules, their account may be permanently suspended.

1.5 Organization of Project

An E-Commerce Organisational unit is the organisational structure with which a company operates its online business. The basic parameters and requirements for this organisational unit are usually defined within the framework of an E-Commerce distribution strategy or the individual channel strategies. Regardless of which of the three E-Commerce pillars (Online Marketplaces, Third Party retailers, Direct Sales & Affiliates) are actively being pursued by a company, certain basic rules exist for ensuring high performance. According to our experience, the most important of these is that a global, dedicated E-Commerce Organisational unit is set up for the successful pursuit of online business. The two main aspects of this are as follows: Global: A characteristic of online commerce that is easily apparent but typically goes unconsidered from an organisational perspective is that it essentially has no national boundaries. Particularly in the case of simplified international trading within Europe, this means that end consumers, presented with an ever-greater decline in shipping costs, perceive cross-border trade to be completely normal – if they even notice it at all. What is true for end consumers also applies to international purchasing organisations, such as those from large online marketplaces like Amazon. In the case

of cross-border sourcing, the manufacturer's organisational structure is exploited by buyers, who purchase from different country organisations depending on the destination country (e.g., Germany). Against this backdrop, a global E-Commerce Organisational unit is needed to control and coordinate online business in the interests of the company. Isolated solutions that attempt to dock country-specific online units to existing matrix-like organisational structures can only ever serve as transitional solutions. They may serve the interests of individual country organisations, but do not contribute to the overall success of the system. Dedicated: In many companies, online business accounts for a smaller share than brick-and-mortar business, at least initially. Companies tend to approach the online segment as an additional business area that can be accommodated for with the existing organisational structure and resources. Experience shows, however, that systematic, successful E-Commerce development can only be achieved with a dedicated organisational unit and corresponding resources. Existing sales forces typically lack both the necessary global reach (see above) and resources (in regard to specific e-commerce know-how) to develop the business quickly and sustainably. In simplified terms, a global, dedicated Ecommerce Organisational unit consists of the three core areas – as shown in figure.

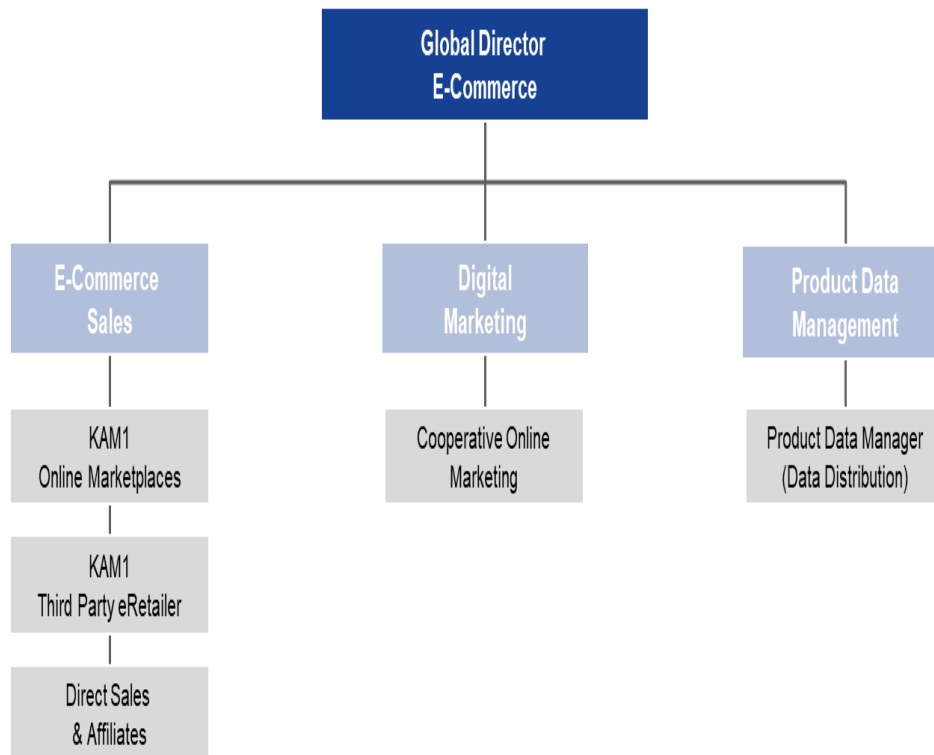


Fig 1.5: Simplified schematic representation of a global E-Commerce Organisational unit

E-Commerce sales: Depending on the E-Commerce distribution strategy, the roles of different channel-specific key account managers can be combined. Further dedicated sub-organisations may exist depending on the size of the individual channels (e.g., an Amazon unit with vendor account management). Digital marketing: Central coordination of online marketing activities. This foundation may be modified slightly for specific channels, but does not deviate significantly from a set of key tasks. Product data management: As an interface between product management and marketing, this section is responsible for the central provision and administration of product data required for various online channels. This basic structure is too supplemented according to the respective requirements of the online business (according to a pre-defined e-commerce distribution strategy). Broadly speaking, however, an effective E-Commerce Organisational unit must cover the functions. Depending on the degree of maturity of E-Commerce operations and the

associated organisational structure, a number of functions can be assigned to a single position, depending on the extent to which task differentiation with different resources is required. When it comes to building ecommerce websites, there are best practices that you must take note of to ensure the success of your new venture.

Photos: You want to make sure that you are using high-quality product images to help users decide whether or not your product is suitable for their needs. If you can add action shots or photos of the products being used, and different angles for each, it would be really helpful.

Description: You also want to provide detailed product descriptions to help users make informed decisions about your product. This is very crucial for every e-commerce website. As much as possible, add a detailed description of your item's color, sizes, and functions. This helps you dispute when there are "not as described" comments or reasons for return.

Policy: Terms and conditions are vital for every business. This protects both the buyer and the seller from any scamming schemes. Include your return policy and payment method options somewhere where they are seen easily. Some e-commerce website put their policies on their checkout page just before the customer pays for an item.

Prices: There are some laws that require retail businesses to post prices on all of their items. This lessens unnecessary interactions between consumers and suppliers thus making it more convenient for customers to buy their products in a few clicks.

LiveChat: As much as it is our goal to lessen consumer-supplier interaction, a live chat feature should be in place for them to contact you directly whenever they get stuck while putting in an order on your website or if they have product-related queries.

Tracking: Number Every transaction should generate a code for them to follow. Place a feature on your e-commerce website that could show the status of their orders. This gives your customer proper expectations and a better shopping experience.

Always prioritize user experience so make it easy for your potential customers to complete purchases with just a few clicks. The information they are looking for should also be readily available on your website. The information that you will be getting from your customers should only be as minimal and necessary as possible to make it a hassle-free and trustworthy experience.

Online shopping has gotten better over the years. More and more people are feeling more secure in buying and selling online because of its development.

2. LITERATURE SURVEY

Paper - 1: Design and Development of Ecommerce Website

Description: Now a days people order goods and products online over the internet with the help of ecommerce. Ecommerce allow people to purchase from a vast pool of products and goods in considerable prices. Products get delivered to their home. Payment options like cash on delivery, bank deposit, UPI transaction are available which makes transaction a smooth experience. During pandemic more and more people turned to ecommerce. Ecommerce has successfully changed the behavior of the consumer the way they purchase and consume goods and services. Many ecommerce platforms like Amazon, Flipkart, Nykaa, Meesho has gained popularity in India. According to Forbes ecommerce market is expected to increase up to \$8.1 trillion worldwide by the end of 2026. Also 20.8% of retail purchases are going to shift toward ecommerce and online purchases in 2023. One of the greatest benefits of ecommerce is the visibility it provided. Small businesses can also reach out to the worldwide consumers and sell their goods worldwide. As many ecommerce websites are available today it is very easy for customers to switch between different ecommerce websites and prefer one over the other. So, understanding what affects the consumer behavior is very important. One study showed that 48% of the consumers leave ecommerce website because of the extra cost or fees on the goods. 24% because they are required to create an account, 18% because they don't trust the site with credit card information, 17% because of complicated checkout process. So, giving attention to the design of the ecommerce website is crucial for the success of the ecommerce website. To design and develop the ecommerce website which will stand out from all the crowd require following features. User friendly interface is the most important feature to have in an ecommerce website. Search bar, clickable images help to create user friendly interface. High-resolution visual content help to attract customer. Website design should be adaptable with the mobile web as 2/3 of the world's population prefer their mobile devices to make online purchases. When it comes to ecommerce it is very important that the customer is getting the product, he wanted in the least number of steps for this reason website should have a good search

and filtering functionality. Match the theme of website with the products that are for sell on the website. Simple and functional shopping cart, good product description, contact page also plays big role in making website interactive. Attach social media accounts to the website so the customers can checkout other customer's experiences.

Front-end development for an e-commerce website involves creating the user-facing interface and experience that customers interact with when browsing products, adding items to their cart, and checking out. Here are some key aspects of front-end development for an e-commerce website:

User Interface (UI) Design: Create visually appealing and user-friendly UI designs that reflect the branding and identity of the e-commerce website. Design intuitive and easy-to-navigate layouts that allow customers to find products quickly and easily. Use appropriate color schemes, typography, icons, and other visual elements to enhance the overall user experience.

Responsive Design: Ensure that the e-commerce website is responsive, meaning it is optimized for various devices such as desktops, laptops, tablets, and mobile phones. Implement responsive design techniques, such as fluid grids, flexible images, and media queries, to ensure that the website looks and functions well across different screen sizes.

Front-end Technologies: Utilize front-end technologies such as HTML, CSS, and JavaScript to create the structure, layout, and interactivity of the e-commerce website. Use modern frameworks and libraries, such as React, Angular, or Vue, to build dynamic and interactive user interfaces. Implement accessibility features, such as proper semantic HTML markup, alt tags for images, and keyboard navigation, to ensure the website is accessible to all users, including those with disabilities.

Product Catalog: Implement a product catalog that allows customers to browse products by categories, filter products based on various attributes (e.g., price, color, size), and view product details (e.g., images, descriptions, specifications). Provide search functionality that enables customers to search for products based on keywords, and display search results in a relevant and organized manner.

Shopping Cart and Checkout: Develop a shopping cart feature that allows customers to add products to their cart, view their cart contents, and manage items in their cart. Implement a checkout process that guides customers through the steps of entering shipping and payment information, and completing the purchase. Incorporate security measures, such as SSL encryption and PCI compliance, to protect customer information during the checkout process.

Payment Gateway Integration: Integrate with one or more payment gateways to allow customers to securely make payments using various payment methods, such as credit/debit cards, PayPal, or other popular payment options. Implement error handling and validation to ensure that payment transactions are processed accurately and securely. User Registration and Login: Implement user registration and login functionality that allows customers to create accounts, login securely, and manage their account information. Provide password recovery and account management features, such as updating personal information and viewing order history, to enhance the user experience and build customer loyalty. Performance Optimization: Optimize front-end performance by minimizing load times, reducing the number of HTTP requests, and optimizing images and other assets. Implement caching mechanisms and content delivery networks (CDNs) Testing and Debugging: Conduct thorough testing of the front-end functionality, layout, and usability of thesecommerce website across different browsers, devices, and screen sizes. Debug and fix any issues or bugs that ariseduring testing to ensure a smooth and error-free user experience. Front-end development for an e-commerce website requires a keen eye for design, attention to detail, and expertise in front-end technologies. Following best practices for front-end development, usability, and accessibility will help create a compelling and seamless user experience for customers visiting the e-commerce website. Back-end development for an e-commerce website involves creating the server-side logic and functionality that powers the website's operations, such as processing customer orders, managing product inventory, and handling payment transactions. Here are some key aspects of back-end development for an e-commerce website:Server-side Technologies: Choose appropriate server-side technologies, such as PHP, Python, Ruby, Java, or Node.js, to build the back-end logic and functionality of the e-commerce website. Utilize frameworks and libraries, such as Laravel, Django, Ruby on Rails, Spring, or Express, to accelerate development and streamline the codebase. Database Design and Management: Design and implement a robust database schema that efficiently manages product data, customer data, orders, and other relevant information. Choose an appropriate database management system (DBMS), such as MySQL, MongoDB, PostgreSQL, or SQLite, and implement effective database queries and operations to store, retrieve, and manage data. APIs and Web Services:

Develop APIs (Application Programming Interfaces) and web services that allow the front-end of the e-commerce website to interact with the back-end for various functionalities, such as product search, cart management, and order processing. Implement RESTful APIs or other appropriate API standards for secure and efficient communication between the front-end and back-end. Payment Gateway Integration: Integrate with one or more payment gateways to securely handle payment transactions, such as credit/debit cards, PayPal, or other popular payment options. Implement server-side logic for processing payment transactions, handling payment callbacks, and managing payment status updates. Order Management: Develop order management functionality to handle customer orders, including order processing, tracking, and fulfillment. Implement server-side logic for order validation. User Authentication and Authorization: Implement authentication and authorization functionality to secure user accounts, protect sensitive information, and manage user roles and permissions. Utilize industry-standard authentication methods, such as Security Measures: Implement appropriate security measures, such as data encryption, input validation, and protection against common web vulnerabilities, such as SQL injection, cross-site scripting (XSS), and cross-site request forgery (CSRF). Follow best practices for securing user data, protecting against data breaches, and complying with relevant data privacy regulations, such as GDPR or CCPA. Performance Optimization: Optimize back-end performance by optimizing database queries, caching frequently accessed data, and improving server-side processing speed. Implement appropriate caching mechanisms, load balancing, and performance monitoring to ensure smooth and efficient operation of the e-commerce website. Testing and Debugging: Conduct thorough testing of the back-end functionality, including data validation, error handling, and integration with external APIs and services. Debug and fix any issues or bugs that arise during testing to ensure the reliability and stability of the e-commerce website. Back-end development for an e-commerce website requires expertise in server-side technologies, databases, APIs, and security measures. Building a scalable, secure, and high-performing back-end is critical to the overall success and functionality of an e-commerce website. Database design plays a crucial role in the development of an e-commerce website, as it determines how the website's data will be organized, stored, and retrieved. Here are

some key considerations for database design in an e-commerce website: **Data Modeling:** Identify the various entities and their relationships in the e-commerce domain, such as products, customers, orders, and payments. Use appropriate data modeling techniques, such as entityrelationship diagrams (ERDs) or class diagrams, to create a visual representation of the database structure. **Database Management System (DBMS):** Choose an appropriate DBMS based on the requirements of your ecommerce website. Popular options include MySQL, MongoDB, PostgreSQL, or SQLite, each with its own strengths and weaknesses. Consider factors such as scalability, performance, security, and ease of use when selecting a DBMS. **Normalization:** Follow the principles of database normalization to eliminate redundancy and ensure efficient storage of data. Normalization involves organizing data into tables with minimal duplication and properlydefining relationships between tables to minimize data redundancy and inconsistencies. **Table Design:** Create tables that represent the entities identified in the data model. Define appropriate data types for each field, establish primary keys for uniquely identifying records, and define foreign keys toestablish relationships between tables. Consider indexing fields that are frequently used in queries to improve query performance. **Data Integrity:** Implement data integrity constraints, such as unique constraints, foreign key constraints, and check constraints, to maintain data consistency and prevent data anomalies. Use triggers or stored procedures to enforce business rules and maintain data integrity at the database level. **Scalability:** Plan for scalability by designing the database to handle increasing amounts of data and user traffic. Consider factors such as table partitioning, caching, and sharding to distribute data across multiple servers and optimize performance as the website grows. **Security:** Implement appropriate security measures to protect the data stored in the database. Use techniques such as encryption, hashing, and salting to protect sensitive data, such as customer passwords or payment information. Regularly update and patch the DBMS to address security vulnerabilities. **Backups and Disaster Recovery:** Implement regular backups of the database to protect against data loss due to hardware failures, software issues, or other unforeseen events. Establish a disaster recovery plan to quickly restore the database to a previous state in case of data loss or other emergencies. **Performance Optimization:** Optimize database performance by optimizing database queries, indexing, and

caching frequently accessed data. Monitor and analyze database performance regularly to identify and resolve performance bottlenecks. Testing and Validation: Thoroughly test the database design and functionality during development and conduct rigorous testing to ensure data integrity, consistency, and performance. Validate data input and output to prevent data-related errors and ensure the accuracy of data stored in the database. Proper database design is crucial for the smooth and efficient operation of an e-commerce website, as it directly impacts the performance, reliability, and security of the website.

Paper-2: Evaluating website quality: which decision criteria do consumers use to evaluate website quality?

Description: The purpose of this paper is to determine which design and operational attributes of e-commerce websites consumers use to assess website quality. Cue utilization theory is used to examine the explanatory power, robustness and relevance of the WebQual model. Results indicate which WebQual dimensions are the most relevant and salient to website users. These dimensions are categorized by their perceived and confidence values. A second study is conducted about how website users evaluate and utilize the Web to the this is how the qual of Qual dimensions. Survey methodology was utilized to provide insight into the nomological validity of the WebQual model by examining it through a cue utilization lens. The first study categorizes the WebQual dimensions on their ability to provide a diagnostic measure of website quality, and consumer confidence in their ability to use these cues when judging the website's overall quality. The second study presents results of each dimension in relation to the quality evaluation of an actual e-commerce website. Additional analysis also revealed gender differences in cue utilization. This study provided insight into WebQual-based research and identified original differences in cue utilization across genders. Results suggest that it may be beneficial for brand managers to focus on a subset of quality dimensions, rather than assume that consumers are comfortable using all website attributes to formulate quality judgments. These, results contribute to multiple literatures by providing a model that developers can utilize to focus on the deterministic characteristics of overall website

quality. Further, the cue utilization perspective provides additional avenues for fruitful further research into consumer decision-making in the e-commerce context.

Paper-3: Knowledge Based Chatbot as Virtual Assistant in University

Description: Students face many difficulties and face many challenges with selecting the right route that interests them and this is where a problem arise with student advising systems that are available to not only undergraduates but postgraduates as well seeing as how the advising system is the key if not one of the most important aspect for the student registration. Web based interfaces are usually used in order to help the staff that mostly newly got their jobs and lacking the sufficient experience that would help with choosing the right path for the students to register. Many students register into fields that doesn't meet their expectations or they get shocked at how this differ from what they were expecting to specialize in as our high school system doesn't provide sufficient data if at all for the students to choose their path and the required info are gathered usually after they are already registered. According to statistics compiled by ACT (American College Testing Program) 51% of four-year college students in the United States graduated after five years due to the lack of academic advising. Moreover, inappropriate course selection has resulted in 58% of students graduating out of the set timeframe (Siegfried, et al., 2003). This can lead to many difficulties in the future, as students feel as if they are forced into a specific path and this leads to them to perform poorly which leads to below the average grades if not failing the course and repeating a whole year or courses. Thus, there is a need for a system that automates and simplifies the process for both students and advisors.

Paper-4: Re-Imaging website Navigation system for User portfolio Management.

Description: An automation, is a replacement of manual operations with computer procedures and other machinery. An automation is required to increase productivity, reduce production time, increase manufacturing flexibility, reduce costs, eliminate human error, reduce labor shortage, high degree of accuracy, performing tasks that are beyond human capabilities of size, weight, speed, endurance, etc. A Library Automation System implemented in University of Toronto Library in 1963-1972 and University of Illinois at Urbana-Champaign 1965-2000, Automated System for

Educational Assessment developed in Nigeria-Learning System, Automated Project Grading and Instant Feedback System are the well-known examples of Automated Systems those have achieved automation in their manual processes and enhance their overall performance. An automation is achieved by converting paper-based system into paperless system. The popular models used in paperless systems are Single Copy model and Form oriented Model. A user interface (UI) is the interaction between a system and a user via commands or procedures to run the system, input data, and use the contents. User interfaces can be found in systems such as computers, mobile devices, games, and so on, as well as application programs and content utilization. UI is an interface where the user interacts with the computer application effectively. From a non-expert perspective, the goal of this paper is to investigate how user experience (UX) effects user pleasure when engaging with digital culture heritage online collections. UX is a study on the all aspects that comprehend users interaction with an interface or a system, which include the influence of usability, usefulness and emotional impact during interaction and savoring the memory after interaction. Users' contentment and discontent are triggered by UX aspects, according to the findings. User satisfaction is subjective and dependent on user's needs, expectations and existing experiences' is an HCI related concept that is widely applied not only in software and hardware development, but also in services, products, processes, society and culture. It was recognized that the style of a navigation menu played an important role in an information system, especially in the case with huge amount of information distributed in the same level of a hierarchy. A good navigation style can definitely help the navigation of e-commerce website help user find information easily and this is the help user find information easily. To propose a solution for the circumstance where a large number of menu items should appear on the same level. An eminent benefit of portfolio management is the consistent collection of project requests in a central information repository. Comparability can be achieved by adopting a common request form for all project kinds and following a standardized acceptance and review process. Through periodic reflections, e-portfolios give extensive possibilities for metacognition, which may help students achieve a variety of goals and skills. Reflection on work saved in e-portfolios can help learners develop personal and academic identities as they finish complicated projects and reflect on their talents and

development. It also helps students integrate learning across courses and time, which facilitates integration. E-portfolios are a valuable resource for both students and instructors to track the progress of essential goals throughout time. E-portfolios are a valuable resource for both students and instructors to track the progress of the work flow of the system goes as follows: The design of any front-end is based on how would a user interact with the website giving them an easy and attractive user experience. It is important to keep a user on the hook by its uniqueness and still not to overlook the concepts a user would be used to. An e-portfolio could be successfully developed with the help of HTML (Hypertext Markup Language), CSS (Cascading Stylesheet) and JS (JavaScript) considering various aspects like design, work experience, about and the navigation throughout the website.

Design: An excellent User Interface will create an instant attraction to your website while a well thought out User Experience will put a lasting impact on your users mind. It is therefore vital to get both of them right to build a relationship with a user. Consistent choice of colours, graphics and branding would help users associate with the developer.

Website Navigation: A well planned and transparent navigation system acts as a road map to direct visitors to various pages and information on your site. It is critical for enticing people to remain, read your information, and have a pleasant user experience. A simple and minimal navigation through the website would appeal to the user. The most abundant navigation technique is a navigation bar. This work proposes a more efficient technique to implement enhancements to portfolio websites while focusing on website navigation. The enhancement is generated by selecting an element of most importance- the navbar and proposing a different and more optimum navigation system to save space, improving usability and enhancing the user experience.

Enhancing UI UX of Website Navigation Features: This procedure begins with a fixed dot approach replacing the fixed navbar approach. The developer or the designer are greeted with some options to place a navigation dot. A navigation dot is a small circle enclosing an arrow icon representing an expansion in that particular direction. The back-end module would be developed with a database management system using MySQL storing work data and contact information about one. The same would be dynamically applied to the website and creating e-portfolios along with all the enhancement features to apply design thinking in the most efficient manner. The

main purpose of an e-portfolio is to create an impact on a recruiter, which requires the process of design thinking and a smooth user experience. This technique re-imagines the importance of the same. With this implementation we are able to implement following features in our proposed system. The features are:

- More space:** By abandoning the standard navigation bar a designer would be greeted with a good amount of space to welcome more content. This would allow a greater canvas of creativity without restrictions for the website header. The need of reserving space in every layout for every website would be considered history.
- Minimal:** The navigation dot is a circle housing an arrow which could be placed at any of the four corners of a website as per the requirement of the user.
- Aesthetic:** The overall target for a UX Designer is to achieve an aesthetic look and feel to a website. This approach takes a huge leap towards the same with respect to website navigation. A simple hover of a cursor expands to dot revealing the menu options for the visitor.
- Ability to implement shortcuts:** The navigation dot has an additional feature, along with a hover option it could also act as a button for the visitor to either take them back to the top of the website or as any other link in the imagination of the developer.
- Ability to choose from multiple layouts:** The traditional navigation bar sticks with the same layout in every framework, restricting front-end.

3. ANALYSIS

3.1 Detailed Statement of the Problem

E-commerce provides an easy way to sell products to a large customer base. However, there is a lot of competition among multiple e-commerce sites. When users land on an e-commerce site, they expect to find what they are looking for quickly and easily. Also, users are not sure about the brands or the actual products they want to purchase. They have a very broad idea about what they want to buy. Many customers nowadays search for their products on Google rather than visiting specific e-commerce sites. They believe that Google will take them to the e-commerce sites that have their product. The purpose of any e-commerce website is to help customers narrow down their broad ideas and enable them to finalize the products they want to purchase. For example, suppose a customer is interested in purchasing a mobile. His or her search for a mobile should list mobile brands, operating systems on mobiles, screen size of mobiles, and all other features as facets. As the customer selects more and more features or options from the facets provided, the search narrows down to a small list of mobiles that suit his or her choice. If the list is small enough and the customer likes one of the mobiles listed, he or she will make the purchase. The challenge is also that each category will have a different set of facets to be displayed. For example, searching for books should display their format, as in paperback or hardcover, author name, book series, language, and other facets related to books. These facets were different for mobiles that we discussed earlier. Similarly, each category will have different facets and it needs to be designed properly so that customers can narrow down to their preferred products, irrespective of the category they are looking into. The takeaway from this is that categorization and feature listing of products should be taken care of. Misrepresentation of features can lead to incorrect search results. Another takeaway is that we need to provide multiple facets in the search results. For example, while displaying the list of all mobiles, we need to provide facets for a brand. Once a brand is selected, another set of facets for operating systems, network, and mobile phone features has to be provided. As more and more facets are selected, we still need to show facets within the remaining

products commerce provides an easy way to sell products to a large customer base. However, there is a lot of competition among multiple e-commerce sites. When users land on an e-commerce site, they expect to find what they are looking for quickly and easily. Also, users are not sure about the brands or the actual products they want to purchase. They have a very broad idea about what they want to buy. Many customers nowadays search for their products on Google rather than visiting specific e-commerce sites. They believe that Google will take them to the e-commerce sites that have their product. In order to provide the maximum benefit to your online store visitor, your chosen ecommerce technology should be fully capable of being customizable. Additionally, the platform should compliment your business model, and adhere to the existing best practices in offline retail. If you're a retailer foraying into the world of eCommerce, you should have razor-sharp clarity about the functionalities that you do and don't need on an e-commerce website. The features and functionalities in your eCommerce website should be a factor of the following :the industry, the size and type of audience being targeted, and different customer segments your online business aims to serve. And if your business already has an eCommerce presence and is yet to gain complete benefits of eCommerce technology for your business, you must consider a deep website. Online or popular digital marketing encompasses multiple tools for reaching out to the new generation of customers, who are actively engaged in using multiple devices, through search engine optimization, search engine marketing (paid advertisement that includes both cost per click and cost per thousand impressions), social media marketing (that includes both cost per click and cost per thousand impressions), email campaigns, display advertisements using various ad networks, referral programs and re-targeting campaigns. Customers these days are actively seeking to engage with brands to understand the core benefits and unique value proposition that the brand offers, discounts and offers during special seasons, a robust support mechanism for queries/clarifications regarding the products displayed and interaction with customer support executives to know more about policies on returns and exchange, etc. Engaging customers through various social media channels and offering them accurate and context-specific information and content also instils superior trust in the minds of customers. With the advent of sophisticated e-commerce technologies, new age retailers will be able to leverage an

almost one-to-one customer experience and that's the best a customer can really expect. However, it should be noted that to fully leverage best-in-class technology, there needs to be a constant effort to look out for features and functionalities that will enhance the customer experience. Some of the key metrics to measure the health of an ecommerce venture include: Total revenue generated Cost of customer acquisition, Percentage of customers converted, and Percentage of customers visiting ecommerce store through various channels. However, these metrics may vary significantly based on the business objectives and so every business needs a fully customized approach for defining the key metrics and further analysis. Once these are defined and there are a substantial number of customers visiting the website, a deeper level of optimization is needed at 2 levels – on the technology and the business front. Technology – This generally includes optimizing the ecommerce website load speed, shopping cart, check-out and other web pages, a/b and multivariate testing, etc. Creating unique and well-researched blog content, refining the titles & headings in the content, and using engaging meta descriptions are other ways to attract organic traffic to your website. Business – Optimization here includes analysis of the total revenues generated, total spending for running the e-commerce operations, optimizing the gross net margins, conversion rates from each of the various channels, customer loyalty and retention rates, rate of repeat purchase, frequency of repeat customers (across multiple dimensions), % of carts abandoned, etc. Ecommerce brands can optimize these metrics with significant investment in innovative tech solutions available today. Online ratings and review, product recommendations, AI-enabled search features – There are a lot of technically advanced features that you can integrate with your eCommerce website to improve these numbers and enhance online shopping experience. Also Read: [How Product Recommendation Engines are Becoming a Game Changer for Ecommerce Brands?](#) There is a lot of research evidence supporting the incorporation of features like reviews and ratings, and display of the right products either through up-selling or cross-selling. As per market research done by Digital.com, 54% of online shoppers refer to product reviews before making a purchase. 26% of online shoppers marked good reviews as the prime factor for influencing to shop from a particular eCommerce website. The final step in the entire process is about fine-tuning and understanding the product categories that have performed well compared to other products displayed in

the webstore. Assessing this is crucial since each of these categories and products within those categories occupy the prime real estate in the online world – the web store. It also should consist of understanding the customer segments, demographics, profitable customers, source of channels through which the profitable customers came to the web store, % of revenue each profitable customer contributes to and the marketing spends that has gone into acquiring these customers. These metrics are only a small representation of a larger list that can be optimized further. These metrics vary based on the business needs and require a customized approach for defining, monitoring and optimization. In today's "compete hard or perish" environment a holistic e-commerce strategy, if planned and executed well, can be an important means of bolstering revenues, increasing brand awareness, providing best in class support and shopping experience to the new generation of customers. The successful implementation of an e-commerce strategy helps in gaining a competitive edge over the existing competitors, no matter whether they are online or offline. It's evident: a clear winner in the game of e-commerce power play will be the one who understands the role of deep integration of these 4 core pillars along with the importance of executing a 7-step approach around these pillars.

3.2 Requirement specifications

There are two ways to build ecommerce websites: one is to plan out what you want to see on your website and then get a professional website developer to handle the project for you; the other way is to use a free e-commerce website builder. There is no right or wrong way of building an online store. It all depends on your budget and how much time you are willing to spend on this task. If you do want to go the do-it-yourself route and use a site builder, the first step is to find the best ecommerce website builder for small business. Building your website on your own might sound intimidating, but one of the best innovations the world of programming shared with us is website builders. If you're worried about the look of your site, there are eCommerce website templates you can choose from that would fit your branding. If you want to dip your toes into the world of eCommerce but you are hesitant about making a

huge investment, strikingly can help you set up your online store for free. Its website eCommerce platform called Simple Store is available even for free accounts. Once you're ready to take the plunge and sell more products, this site builder can help you scale up with even more options on the paid accounts. HTML stands for: Hypertext Markup Language (HTML). It's a tag-based language that you can use to make websites. It was created by Tim Berners-Lee in the 1980s and is a way for anyone to code their own website. HTML allows you to add all kinds of images, audio files, videos, formatting styles, and layouts to a web page, which is the HTML definition in a nutshell. The different words in HTML and break things down: Hypertext: A text that is coded to contain links to other texts. That is what makes linking to pages possible. Hypertext can be more than just text; it can mean pictures, video, and sound. You activate hyperlinks by clicking on them with your mouse. Think of it as a method to link and cross-reference different things. You can be completely static or as dynamic as you want with hypertext. Markup language: This is a system to annotate a document to differentiate the extra information in the document easily. Think of it like the extra notes a teacher might write on your tests with a red pen, along with corrections of your spelling, punctuation, or content. These come together to form Hypertext Markup Language or HTML. What is HTML Used For? HTML forms the skeleton of the web page that you look at when searching online. Learning HTML is often the first step in creating websites—it's simple and deceptively powerful. All HTML files are written in ASCII text (American Standard Code for Information Interchange), so you can use any text editor to write a page. You don't need fancy tools, and you can view the results of your work in any browser because it's universally supported, which is one of the most significant HTML advantages there it is. But even if you code a website in HTML, more will need to be done. That's because you need to dress up your HTML with CSS to make it look attractive and then add JavaScript to it to make it come to life, which is one of the most prominent features of HTML. How Does HTML Work? Every single HTML file contains a bunch of nested elements, along with the tags. Just about anyone can write up a .html file with a basic text editor and

then upload it to the internet to start making their own website. Next, web data servers need to know what to do with the files you upload and how to send them to the client's computer to understand them. That is what the code in the HTML is used to decide. It's the glue that holds everything together. Your HTML page will contain many elements, which are thankfully easy to understand because they go by names that describe what they are (i.e., header tags, paragraph tags, image tags). All web pages are made up of these tags. Then the plain-text content on your website —what you want the user to see— is wrapped up neatly in a bundle of tags to tell the page what kind of content it is. That helps the web browser understand how it has to display each type of content in the HTML file. The paragraph tag puts your content into neat little paragraphs, and the header tag puts the words as a proper title on a page. You have to begin a tag, include the plain-text content in the middle, and then close the tag to let the computer know you're done using that tag. This style sheet language also allows you to add effects or animations to your website. You can use it to display some CSS animations like click button effects, spinners or loaders, and animated backgrounds.

Internal CSS: Internal or embedded CSS requires you to add `<style>` tag in the `<head>` section of your HTML document. This CSS style is an effective method of styling a single page. However, using this style for multiple pages is time-consuming as you need to put CSS rules on every page of your website. Here's how you can use internal CSS: Open your HTML page and locate `<head>` opening tag. Put the following code right after the `<head>` tag. Since we only add the code within the same HTML file, you don't need to upload multiple files. **Disadvantages of Internal CSS:** Adding the code to the HTML document can increase the page's size and loading time.

External CSS: With external CSS, you'll link your web pages to an external `.css` file, which can be created by any text editor in your device (e.g., Notepad++). This CSS type is a more efficient method, especially for styling a large website. By editing one `.css` file, you can change your entire site at once. Follow these steps to use external CSS: Don't forget to change `style.css` with

the name of your .css file. Advantages of External CSS: Since the CSS code is in a separate document, your HTML files will have a cleaner structure and are smaller in size. You can use the same .css file for multiple pages. Disadvantages of External CSS: Your pages may not be rendered correctly until the external CSS is loaded. Uploading or linking to multiple CSS files can increase your site's download time.

Inline CSS: Inline CSS is used to style a specific HTML element. For this CSS style, you'll only need to add the style attribute to each HTML tag, without using selectors. This CSS type is not really recommended, as each HTML tag needs to be styled individually. Managing your website may become too hard if you only use inline CSS. However, inline CSS in HTML can be useful in some situations. For example, in cases where you don't have access to CSS files or need to apply styles for a single element only. Advantages of Inline CSS: a separate document as in the external style You can easily and quickly insert CSS rules to an HTML page. That's why this method is useful for testing or previewing the changes, and performing quick-fixes to your website. You don't need to create and upload. Disadvantages of Inline CSS: Adding CSS rules to every HTML element is time-consuming and makes your HTML structure messy. Styling multiple elements can affect your page's size and download time.

JavaScript: JavaScript is a high-level, interpreted, dynamically typed, or untyped programming language initially implemented within web browsers. It enables client-side scripts to interact with the user, control the browser, communicate asynchronously, and alter the web page's Document Object Model (DOM). It is also referred to as the language of the browser. Key features of JavaScript Interpreted: JavaScript is considered an interpreted language, meaning that the JavaScript engine (interpreter) reads JavaScript statements one at a time and executes them immediately. Dynamically typed or untyped: This means that you don't need to specify the type of data that your variables can hold. The code snippet below demonstrates dynamic typing in JavaScript. First-class functions are functions that can be used like any other data type in the language. This means you can pass functions as

arguments to other functions or return them from functions. The code snippet below demonstrates first-class functions. Prototypal inheritance: Prototypal inheritance is a language feature that enables you to create objects using other objects as templates. It eliminates the need for classes and allows for the easier inheritance of properties and methods to subclasses. JavaScript is a dynamic computer programming language. It is lightweight and most commonly used as a part of web pages, whose implementations allow client-side script to interact with the user and make dynamic pages. It is an interpreted programming language with object-oriented capabilities. JavaScript was first known as Live Script, but Netscape changed its name to JavaScript, possibly because of the excitement being generated by Java. JavaScript made its first appearance in Netscape 2.0 in 1995 with the name Live Script. The general-purpose core of the language has been embedded in Netscape, Internet Explorer, and other web browsers. Client-Side JavaScript: Client-side JavaScript is the most common form of the language. The script should be included in or referenced by an HTML document for the code to be interpreted by the browser. It means that a web page need not be a static HTML, but can include programs that interact with the user, control the browser, and dynamically create HTML content. The JavaScript client-side mechanism provides many advantages over traditional CGI server-side scripts. For example, you might use JavaScript to check if the user has entered a valid e-mail address in a form field. JavaScript often abbreviated as JS, is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS. As of 2022, 98% of websites use JavaScript on the client side for webpage behavior, often incorporating third-party libraries. All major web browsers have a dedicated JavaScript engine to execute the code on users' devices. JavaScript is a high-level, often just-in-time compiled language that conforms to the ECMAScript standard. It has dynamic typing, prototype-based object-orientation, and first-class functions. It is multi-paradigm, supporting event-driven, functional, and imperative programming styles. It has application programming interfaces (APIs) for working with text, dates, regular expressions, standard data structures, and the Document Object Model (DOM). The ECMAScript standard does not include any input/output (I/O), such as networking, storage, or graphics facilities. In practice, the web browser or other runtime system provides

JavaScript APIs for I/O. JavaScript engines were originally used only in web browsers, but are now core components of some servers and a variety of applications. The most popular runtime system for this usage is Node.js. Although Java and JavaScript are similar in name, syntax, and respective standard libraries, the two languages are distinct and differ greatly in design. Over 80% of websites use a third-party JavaScript library or web framework for their client-side scripting. jQuery is by far the most popular client-side library, used by over 75% of websites. Facebook created the React library for its website and later released it as open source; other sites, including Twitter, now use it. Likewise, the Angular framework created by Google for its websites, including YouTube and Gmail, is now an open source project used by others. In contrast, the term "Vanilla JS" has been coined for websites not using any libraries or frameworks. The standards for JavaScript are the ECMAScript Language Specification (ECMA-262) and the ECMAScript Internationalization API specification (ECMA-402). As soon as one browser implements a feature, we try to document it. This means that cases where some proposals for new ECMAScript features have already been implemented in browsers, documentation and examples in MDN articles may use some of those new features. Most of the time, this happens between the stages 3 and 4, and is usually before the spec is officially published. Do not confuse JavaScript with the Java programming language — JavaScript is not "Interpreted Java". Both "Java" and "JavaScript" are trademarks or registered trademarks of Oracle in the U.S. and other countries. However, the two programming languages have very different syntax, semantics, and use. frameworks, instead relying entirely on standard JavaScript functionality.

3.3. Functional Requirements

Registration Page : Customer can add all the details and create account on to the website. In order to purchase any product and make payments a user need to have a user account on to the website. For this purpose a registration page is required and needed. Login Page : User can log in to the account by entering email-id and password. Online store : Shop page is created where all the latest and trending products are listed. Cart : Shopping cart is created. All the producted which a user selected for purchase are visible inside the cart page. Design of cart page should be

simple but functional. payment option : Bank deposit payment option is to be added to the website. User dashboard : User dashboard is a panel where all user is offered the options such as update billing and shipping address, change password, Order history, logout, etc. Admin dashboard: Admin dashboard is a panel where all the options are listed like order management, update products ,shop setting, website setting, registered customers Location and map: Add integrate Google map into website for better location and address navigation. Product navigation: Add header menus for better product navigation. FAQs: List all the potential questions which a user can ask and answers for with suitable answer. Social media integration: Add Instagram ,facebook, twitter account handles to the website . search bar : Create a search bar so that user can easily search the product he/she is looking for on the website or in the shop. Contact Page: Create a separate and detailed contact page. So user can refer to it.

3.4. Non Functional Requirement

Usability: A website should be easy to use and navigate. Security: The website provides username and password to prevent the website from unauthorized access. The user password must be greater than eight characters. User can log in to the user dashboard of his own account only. Admin can log in to the admin dashboard by using admin user-id and password. Performance: The website response time for every instruction conducted by the user must not exceed more than a minimum of 10 seconds. The website should have high performance rate when executing user's input and should be able to provide response within a short time span usually 50 second for highly complicated task and 20 to 25 seconds for less complicated task. Availability: The website should always be available for access at 24 hours, 7 days a week. Also in the occurrence of any major website malfunctioning, the website should be available in 1 to 2 working days, so that business process is not severely affected. Error handling: Error should be considerably minimized and an appropriate error message that guides the user to recover from an error should be provided. Validation of user's input is highly essential. Also the standard time taken to recover from an error should be 15 to 20 seconds.

3.5. Feasibility Study

The main objective of the feasibility study is to test the technical, economical and operational feasibility of developing a website. This is done by investigating the existing system in the area under investigation and generating ideas about design and development of a website. The development and implementation of a website is definitely expensive. It requires system resources, manpower, time and money. So it increases the necessity of the feasibility study based on the proposed system requirements. During system analysis, the feasibility study of the proposed system is to be carried out. The Study is done in following phases: Technical Feasibility The assessment of technical feasibility must be based on an outline design of system requirements in terms of input ,output ,files ,programs, and procedures .This can be qualified in terms of volume of data ,trends ,frequency of uploading ,cycles of activity etc. in order to give an introduction of technical system. Economical Feasibility: Usually for windows application the costs involved are fairly minimal .Even features like search , Reporting ,functionally for multiple users etc cost very minimal amount. So our project satisfies economical feasibility. Economic analysis is the most frequently used method for evaluating the effectiveness of a candidate system. The execution time is lesser compared to the current software. And it has the more efficient one, because it gives the security of the data. It has less expensive for cost. Operational Feasibility: The windows application is a highly programmable environment that allows mass customization through the immediate deployment of a large and diverse range of application to millions of global users. The proposed system will full fill the organization requirements. That is whether the proposed system covers all aspects of the working system and whether it has considerable all the departments that are included in the organization; themselves have made to establish the financial management system. The shift towards e-commerce is already transforming the behavior of consumers and businesses. ICT applications and services role can be seen across the entire value chain of e-commerce. The e-commerce process can divide into four stages: information gathering, agreement, transaction, and delivery . Information and communication technology is a set of theories and scientific-practical approaches and knowledge that facilitates the process, production, information management, and communication. The combination of three parts

electronic integrated circuits and elements, information processing, and network requirements have led to the concept of information and communication technology . The prosperity of electronic, telecommunication, and computer industries, gives information wave that carries human beings to a new information era. The new technologies provide important features. The Information Management Website will allow the membership process to become transparent. For example, for the first time ever, Management will be able to know as a matter of fact: The total number of members, Those members who need to renew their membership, Those members who are in arrears with their membership fees, Total number of members and accredited members, Forecast for the expected revenue that will be generated in advance and look at historic monthly generated revenues.

3.6. Use Case Diagrams

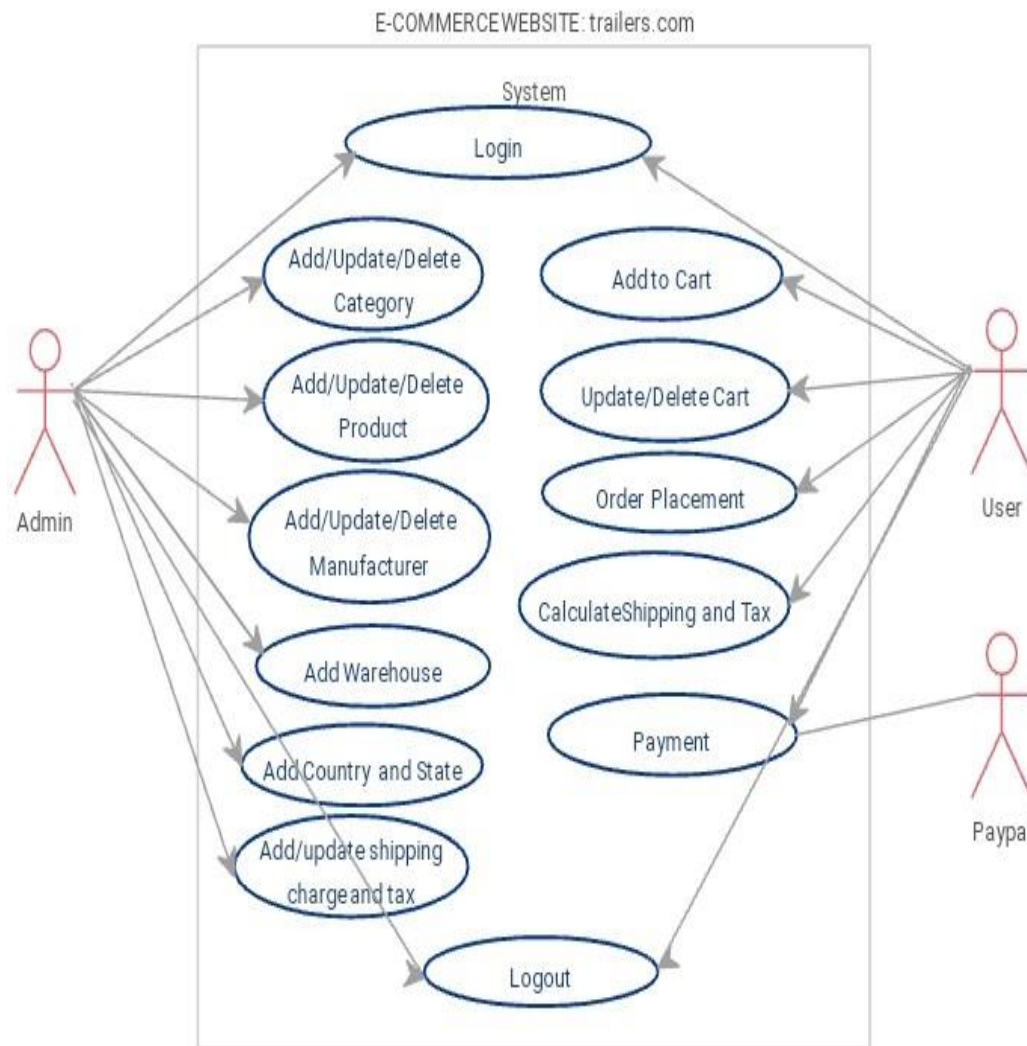


fig 3.6: use case diagram for design and development of website for shegaon siddhapeeth

3.7. Use Case Specification

Registration: Registration is the process of signing up or enrolling in something. Sign up simply refers to the process of registering yourself to create an account. Admin, User has different username and password so that no one access another account details. **Login:** Login simply means to validate the user like authenticating the user. It means the user is identified and authenticated to access the website or a program where he/she is already registered. Login works both in web portals and web applications. In simple terms, it means to open a session with an already created

account. For example, you can login to your Gmail using your credentials meaning you have already created an account with Gmail and your email ID and password is saved with them. By logging in what you simply did is authenticating yourself to gain access to your account. It is just an action which identifies you as a returning user rather than sees you as a new user, in which case you have to sign up. User Dashboard : The user-defined dashboard is a business dashboard that individual users control and customize. Every user controls the data they wish to see as well as the dashboard's structure and layout. User dashboard is a panel where all user is offered the options such as update billing and shipping address, change password, Order history, logout, etc. Update Billing and Shipping Address: This option is provided inside the user dashboard. Here user can update his billing and shipping address. This updated password gets added into the cart at the time of billing. Order history : this is another option given into the user dashboard. All the order history of a user is shown here. Update Password: Change Password from here for a user. Logout: User an logout from the account by clicking here. Cart : Shopping cart is created. All the producted which a user selected for purchase are visible inside the cart page. Design of cart page should be simple but functional.

4.DESIGN

4.1. Design goals

To optimize revenue, bear in mind the following nine principles while designing your ecommerce website.

User-Friendliness: ecommerce sites must be easy to navigate. One way to accomplish that is to group your products under specific categories with a menu at the top that shows all those categories.

Brand Identity: Ensure that your brand is prominently displayed throughout the website. Choose colors that reflect the brand and set a clear style representing your products. To foster a strong brand-customer relationship, ensure that the brand experience is consistent across all channels, whether online, in-store, or mobile.

Trust and Security: Design a site that shoppers can trust because privacy is paramount, i.e., ensure that transactions are secure and that personal data is protected. If shoppers feel your site is not trustworthy, they will shop elsewhere. Also, your payment gateway directly affects revenue; ensure that it's safe and secure.

Searchability: A clearly visible search field must be within reach at all times. That way, your visitors can quickly find what they're looking for without having to navigate multiple times. This feature is particularly attractive to those who already know what products they are interested in.

Product Descriptions: Product descriptions on your site are crucial and can greatly influence purchasing decisions. The more alluring the fonts, the descriptions, the images, and the videos are, the better visitors can relate to their buying needs. Even though product descriptions are not part of the design, paying attention to them can definitely increase your ROI in the long run.

Minimalistic Approach: Typically, eCommerce sites carry a lot of content and visitors must plow through numerous products and related information to pinpoint what they are after. A fancy design would only complicate the picture. Therefore, opt for a minimalistic design with neutral colors, such as a white background. Minimalism is not simplism, however; your website must still reflect professionalism and polish in brand and design. . To foster a strong brand-customer relationship, ensure that the brand experience is consistent across all channels, whether online, in-store, or mobile.

Trust and Security.

4.2. Design Strategy

Keep Visual Hierarchy In mind It's human nature to read from left to right and from top to bottom. When designing your ecommerce website, it's important to consider how your visitors are consuming your content. Keep visual hierarchy, or the strategic layout of your web pages, in mind to ensure that people digest your content as quickly as possible. Many people skim or browse a site that's new to them, so it's critical that your web pages are organized effectively to prevent them from bouncing.

Make Content Readable A website could have extremely valuable content but be of no use if its visitors cannot see or understand the copy. Before launching your site, make sure that the type of font, font color and font size are easily readable. If you're on the fence about a certain font, err on the side of caution and choose another. Be sure to conduct user testing among your colleagues, family or friends to ensure that the content is readable and understandable.

Use Consistent Branding: When visitors land on your site, you're going to want them to know that it's your brand. Avoid confusion and make your eCommerce website easily recognizable by using consistent branding. Use the color scheme of your company logo within your typography so that visitors easily associate your site with your brand. However, just like we mentioned above, be sure that the copy and font color is readable with your color scheme. Using a color that contrasts from your color scheme is okay if it helps make fonts and CTAs more readable.

4.3 Module Diagram

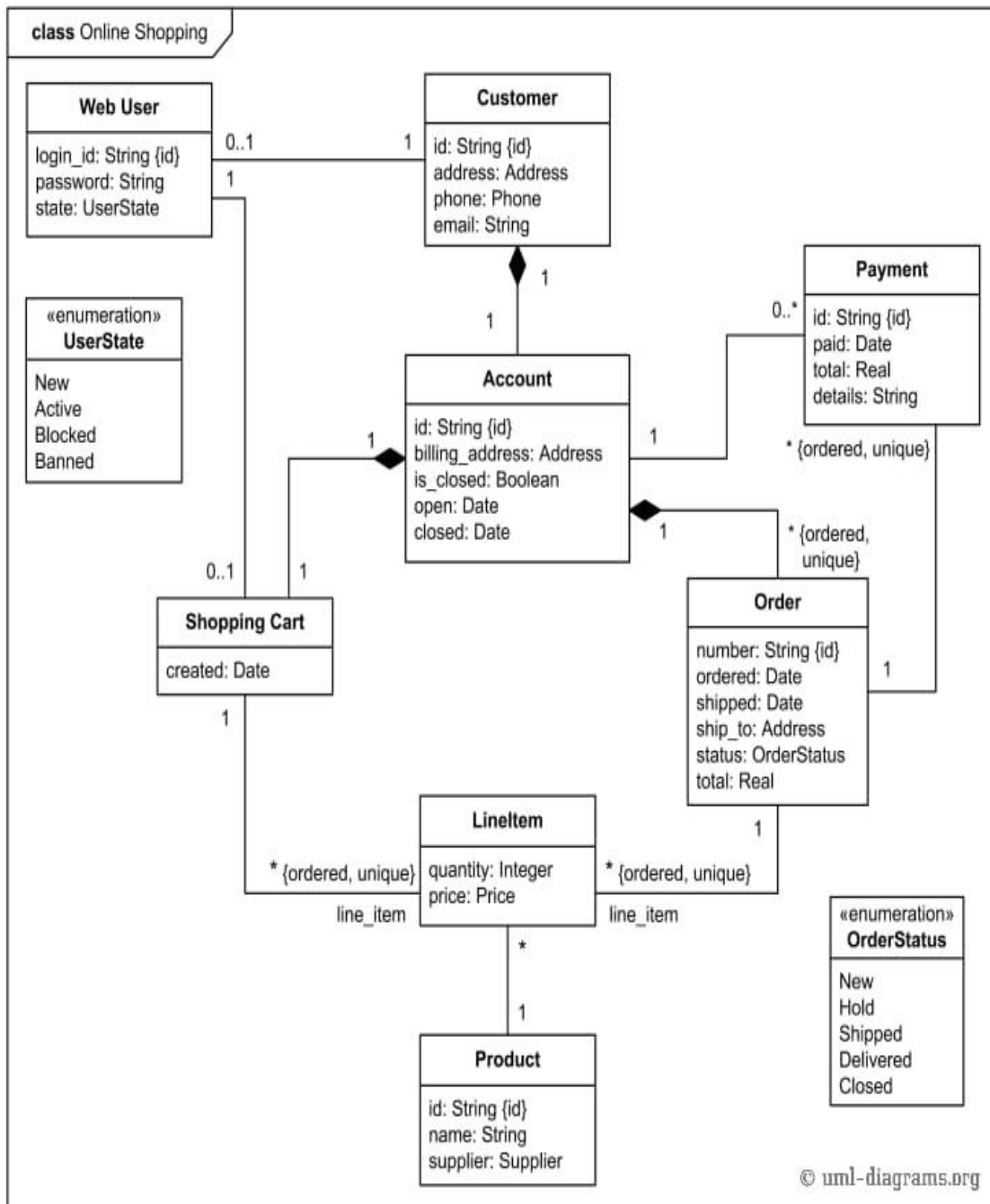


Fig 4.3: Module diagram

4.4 Collaboration Diagram

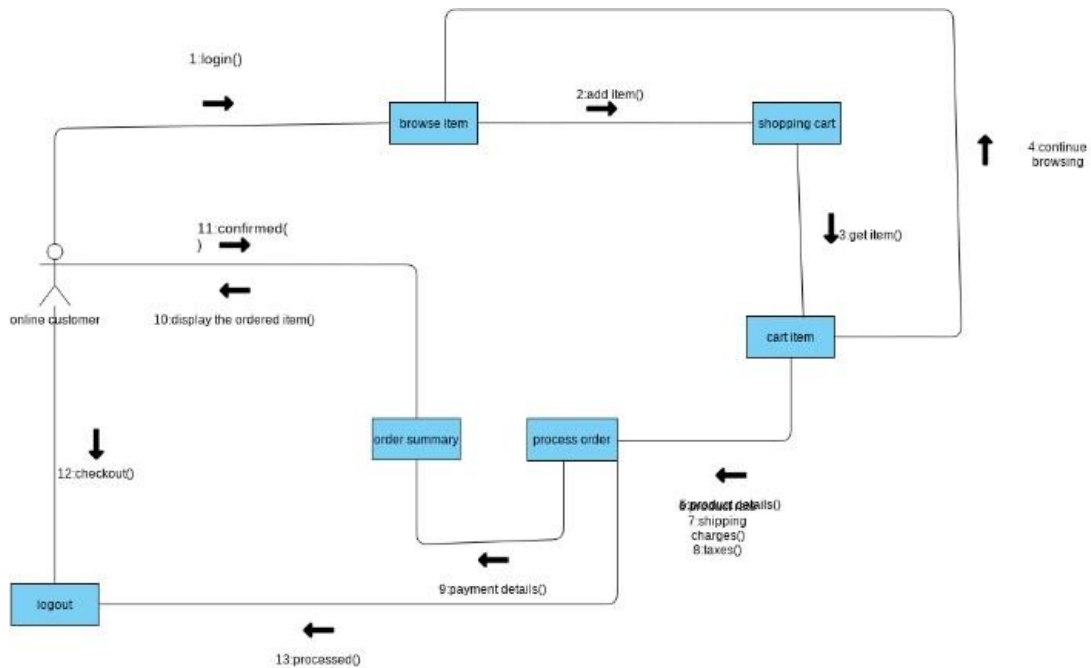


Fig. 4.4 : Collaboration Diagram

4.5 Architecture Diagram

An architectural diagram is a visual representation that maps out the physical implementation for components of a software system. It shows the general structure of the software system and the associations, limitations, and boundaries between each element. Software environments are complex, and they aren't static. In three-tier eCommerce architecture, in addition to client and database, there is an extra middle layer, a server-side. This forms three layers of the architecture: Presentation layer (client) Application layer (business logic). The business layer, also known as the application or service layer, is at the center of the application. It uses business logic, a specific set of business rules, to gather and process information, and it can also add, delete or change information in the data layer. For example, the business layer would be in charge of tracking user preferences as customers navigate the website, view products and make purchases. So, the next time the customer logs into the website, the business layer has already saved the user's preferred shipping and payment methods so they don't have to re-enter them in the future. Ultimately, the goal of your

ecommerce business is to attract more customers and drive more sales — and one of the most effective ways to achieve this is by creating a seamless customer experience. According to a report by [Linnworks](#), 76% of consumers say convenience is a top priority when choosing a retailer, while nine out of ten customers will select an online store that provides a seamless shopping experience. Customers want to be able to navigate your online store quickly and easily, all the way from browsing the homepage to putting items in their shopping cart. And a solid ecommerce architecture is a sure way to create that smooth shopping experience.

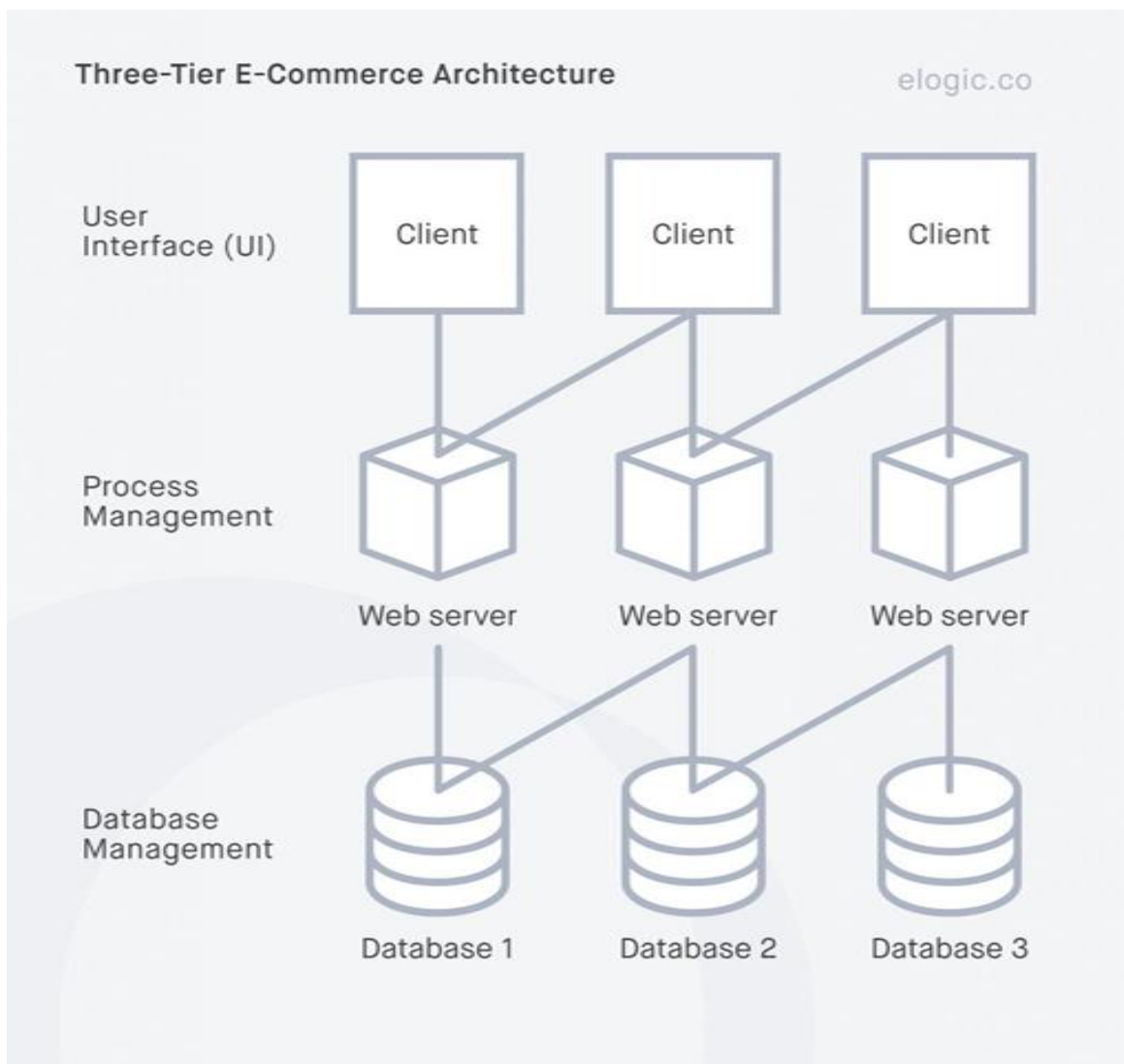


Fig. 4.5: Architectural Diagram

4.6 Class Diagram

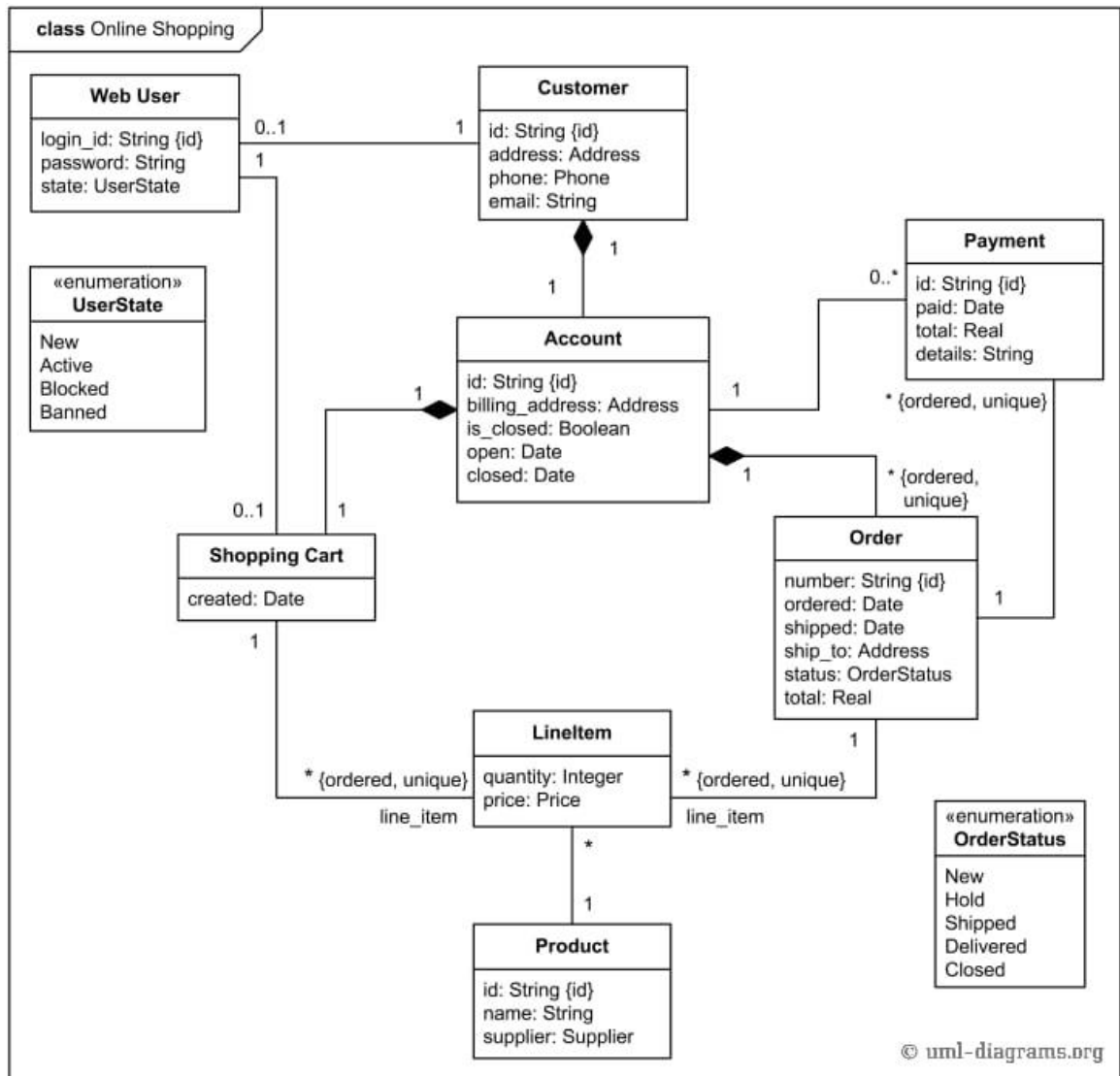


Fig. 4.6: Class Diagram

4.7 Sequence Diagram

A sequence diagram captures messaging between objects in a system and indicates which object is active at any particular point in the process of carrying out operations. Sequence diagrams help a software engineer or developer visualize the order in which events occur and how they trigger activity within the system.

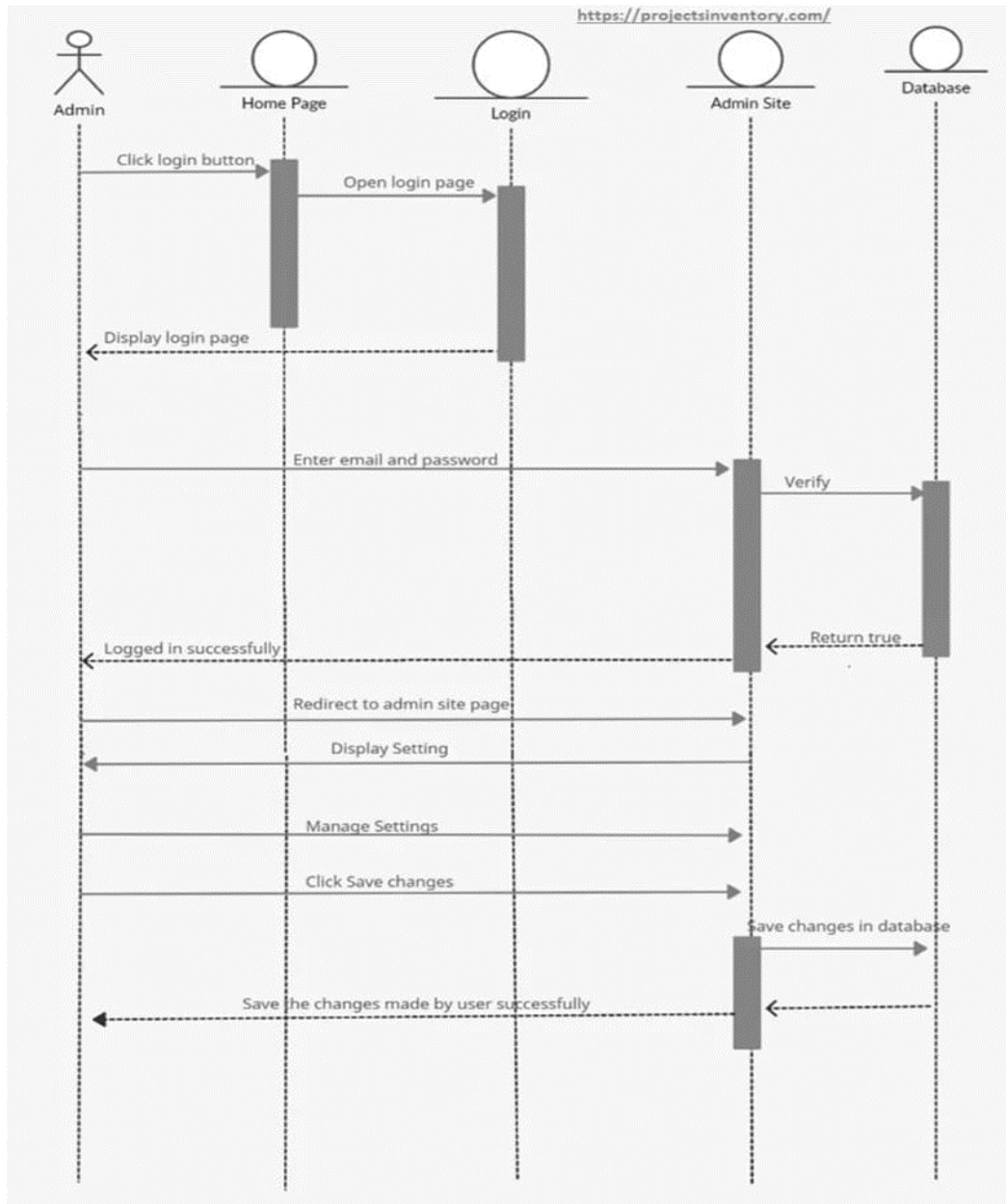


Fig 4.7: Sequence diagram

4.8 State Chart Diagram

A state diagram, also known as a state machine diagram or state chart diagram, is an illustration of the states an object can attain as well as the transitions between those states in the Unified Modeling Language (UML). Statechart diagram describes the flow of control from one state to another state. States are defined as a condition in which an object exists and it changes when some event is triggered. The most

important purpose of Statechart diagram is to model lifetime of an object from creation to termination.

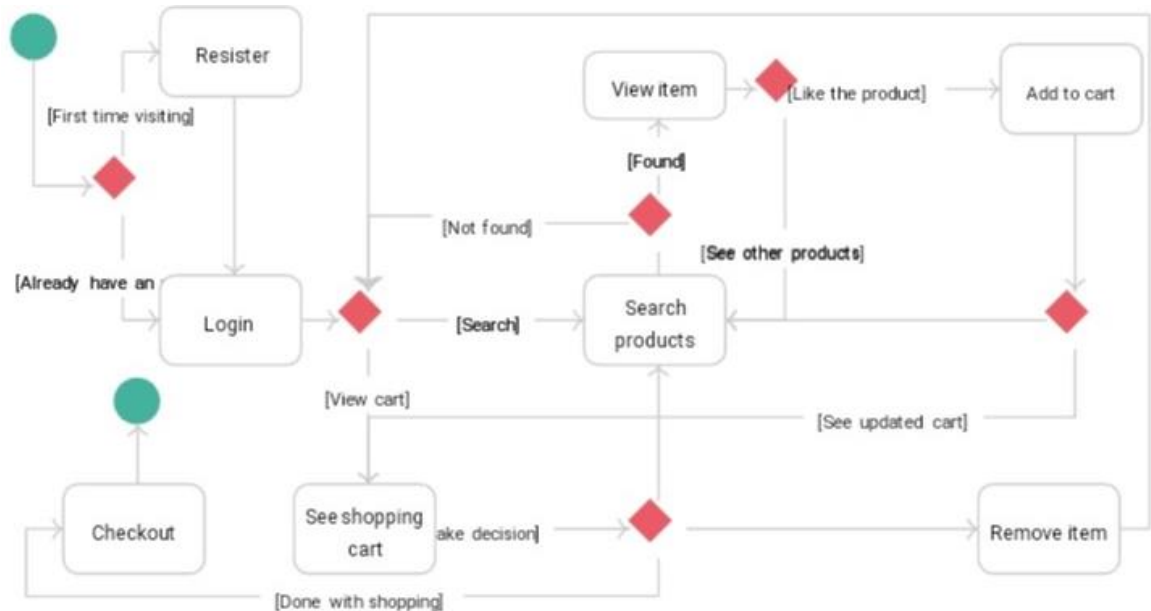


Fig 4.8: State chart diagram

4.9 Activity Diagram

An activity diagram visually presents a series of actions or flow of control in a system similar to a flowchart or a data flow diagram. Activity diagrams are often used in business process modeling. They can also describe the steps in a use case diagram. Activities modeled can be sequential and concurrent. Activity diagram for user side diagram: The activity diagram for e commerce website is one of the behavioral diagrams based on UML. It shows the system's behavior by presenting the flow of activities from one process to another. The possible flow of activities can be in order, split, or continuous. The E-commerce Website Activity Diagram is build-up of activities, decisions, and paths. It uses symbols to define the overall workflow of activity diagram. Activity Diagram illustrates the E-Commerce Website's behavior in terms of interacting with its users. UML Activity Diagram also gives bright ideas and guides the project proponents throughout the software.

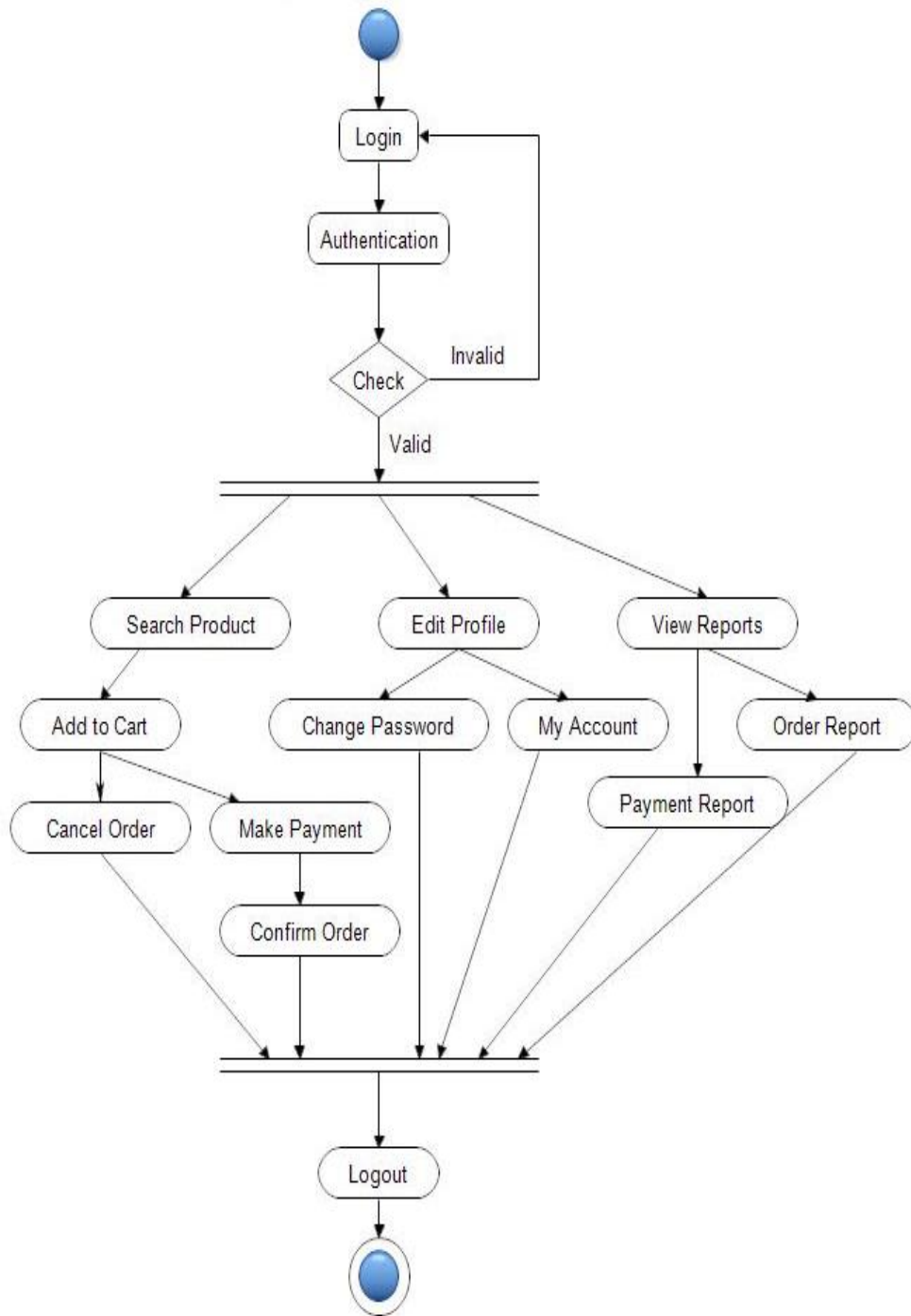


Fig 4.9.1: Activity diagram for user side

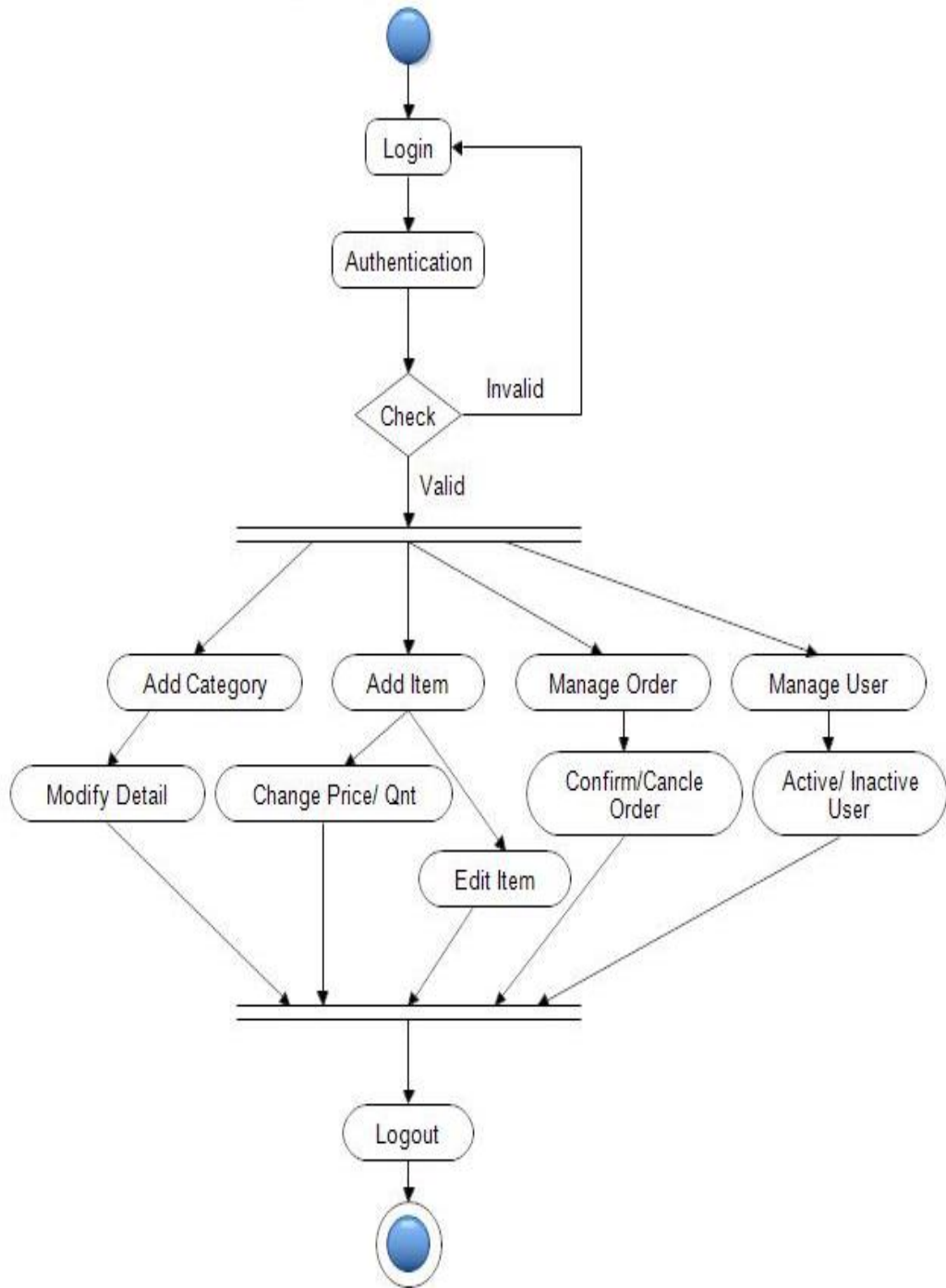


Fig 4.9.2: Activity diagram for admin side

5. IMPLEMENTATION

5.1. Implementation Strategy

Website audit and analysis – In order to provide the maximum benefit to your online store visitor, your chosen ecommerce technology should be fully capable of being customizable. Additionally, the platform should be a good compliment your business model, and adhere to the existing best practices in offline retail. If you're a retailer foraying into the world of eCommerce, you should have razor-sharp clarity about the functionalities that you do and the don't need on an e-commerce website. The features and functionalities in a your eCommerce website should be a factor of the following :the following industry, the size and type of audience being targeted, and different customer segments your online business aims to serve. And if your business already has an eCommerce presence and is yet to gain complete benefits of the as a eCommerce technology for your business, you must consider a deep website audit! A complete assessment of how your eCommerce website can perform better by examining the storefront and customer flow, analysis of competing websites, and identification and implementation of solutions based on the gap analysis should be carried out ('as-is' and 'to-be').

Customer tools as acquisition – Online or popular digital marketing encompasses multiple tools for reaching out to the new generation of customers, who are actively engaged in using multiple devices, through search engine optimization, search engine marketing (paid advertisement that includes both cost per click and cost per thousand impressions), social media marketing (that are as includes both cost per click and cost per thousand impressions), email, charts campaigns, display advertisements using various ad networks, referral material programs and re-targeting campaigns.

Customer engagement – Customers these days are actively seeking to engage with brands to understand the core benefits and unique value proposition that the brand offers, discounts and offers during special seasons, a robust support mechanism for the follwing queries/clarifications regarding the products displayed and interaction with customer support executives to know more

about policies on returns and exchange, etc. Engaging customers through various social media channels and offering them accurate and context-specific information and content also instils superior trust in the minds of customers. Customer retention – With the advent of sophisticated ecommerce technologies, new age retailers will be able to leverage an almost one-to-one customer experience and that is the best a customer can really expect. However, it should be noted that to fully leverage best-in-class technology, there needs to be a constant effort to look out for features and functionalities that will enhance the customer good and the good experience. Optimization based on key metrics – Some of the key metrics to measure the health of an ecommerce venture include: Total revenue is as generated and the Cost of the targeted customer acquisition, targeted and the Percentage of the targeted customers converted, and the necessary as well as the Percentage of customers visiting the ecommerce store through various channels. However, these metrics may vary significantly based on the real life business objectives and so every business needs a fully customized approach for defining the key metrics and further analysis. Once these are defined and there are a substantial number of customers visiting the website, a deeper level of optimization is needed at 2 levels – on the technology and the business front. Technology – This generally includes optimizing the ecommerce website load speed, shopping cart, check-out and other web pages, a/b and multivariate testing, etc. Creating unique and well-researched blog content, refining the titles & headings in the content, and using the engaging meta descriptions are other ways to attract organic traffic to your website. Business – Optimization here includes analysis of the total as the revenues generated, total spending for running the e-commerce operations, optimizing the gross net margins, conversion rates from each of the various channels, customer loyalty and retention rates, rate of repeat purchase, frequency of repeat customers (across multiple dimensions), % of carts abandoned, etc. Ecommerce brands can optimize these metrics with as a significant investment in innovative tech solutions available today. Online ratings and review, product recommendations, AI-enabled advanced such

search features – There are a lot of technically advanced features that you can integrate with your eCommerce website to improve these numbers and enhance online shopping experience. There is a lot of research evidence supporting the incorporation of features like reviews and ratings, and display of the right products either through up-selling or cross-selling. As per market research done by Digital.com, 54% of online shoppers refer to product reviews before making a purchase. 26% of online shoppers marked good reviews as the prime factor for influencing to shop from a particular eCommerce website.

5.2. Hardware Platform Used

RAM: Minimum 4GB RAM; 8GB recommended Random-access memory is a form of computer memory that can be read and changed in any order, typically used to store working data and machine code. A random-access memory device allows data items to be read or written in almost the same amount of time irrespective of the physical location of data inside the memory, in contrast with other direct-access data storage media (such as hard disks, CD-RWs, DVD-RWs and the older magnetic tapes and drum memory), where the time required to read and write data items varies significantly depending on their physical locations on the recording medium, due to mechanical limitations such as media rotation speeds and arm movement. RAM contains multiplexing and demultiplexing circuitry, to connect the data lines to the addressed storage for reading or writing the entry. Usually more than one bit of storage is accessed by the same address, and RAM devices often have multiple data lines and are said to be "8-bit" or "16-bit", etc. devices. Free digital storage : minimum 2GB; 4GB recommended Compute is used to reference processing power, memory, networking, storage, and other resources required for the computational success of any program. For example, applications that run machine learning algorithms or 3D graphics rendering functions require many gigs of RAM and multiple CPUs to run successfully. **Processor:** I5 A processor (CPU) is the logic circuitry that responds to and processes the basic instructions that drive a computer. The CPU is seen as the main and most crucial integrated circuitry (IC) chip in a computer, as it is responsible for interpreting most of computers commands. CPUs will perform most basic

arithmetic, logic and I/O operations, as well as allocate commands for other chips and components running in a computer. The term processor is used interchangeably with the term central processing unit (CPU), although strictly speaking, the CPU is not the only processor in a computer. The GPU (graphics processing unit) is the most notable example, but the hard drive and other devices within a computer also perform some processing independently. Nevertheless, the term processor is generally understood to mean the CPU. Processors can be found in PCs, smartphones, tablets and other computers. The two main competitors in the processor market are Intel and AMD. The basic elements of a processor include: The arithmetic logic unit (ALU), which carries out arithmetic and logic operation on the operands in instructions. The floating point unit (FPU), also known as a math coprocessor or numeric coprocessor, a specialized coprocessor that manipulates numbers more quickly than the basic microprocessor circuitry can. Registers, which hold instructions and other data. Registers supply operands to the ALU and store the results of operations. L1 and L2 cache memory. Their inclusion in the CPU saves time compared to having to get data from random access memory (RAM). CPU Operations The four primary functions of a processor are fetch, decode, execute and write back. Fetch- is the operation which receives instructions from program memory from a systems RAM. Decode- is where the instruction is converted to understand which other parts of the CPU are needed to continue the operation. This is performed by the instruction decoder. Execute- is where the operation is performed. Each part of the CPU that is needed is activated to carry out the instructions.

5.3. Software Platform Used:

Visual Studio Code: Visual Studio Code (famously known as VS Code) is a free open source text editor by Microsoft. VS Code is available for Windows, Linux, and macOS. Although the editor is relatively lightweight, it includes some powerful features that have made VS Code one of the most popular development environment tools in recent times. VS Code supports a wide array of programming languages from Java, C++, and Python to CSS, Go, and Dockerfile. Moreover, VS Code allows you to add on and even creating new extensions including code linters, debuggers, and cloud

and web development support. The VS Code user interface allows for a lot of interaction compared to other text editors.

JDK : The Java Development Kit (JDK) is a distribution of Java Technology by Oracle Corporation. It implements the Java Language Specification (JLS) and the Java Virtual Machine Specification (JVMS) and provides the Standard Edition (SE) of the Java Application Programming Interface (API). It is derivative of the community driven OpenJDK which Oracle stewards. It provides software for working with Java applications. Examples of included software are the virtual machine, a compiler, performance monitoring tools, a debugger, and other utilities that Oracle considers useful for a Java programmer. Oracle has released the current version of the software under the Oracle No-Fee Terms and Conditions (NFTC) license. Oracle releases binaries for the x86-64 architecture for Windows, macOS, and Linux based operating systems, and for the aarch64 architecture for macOS and Linux. Previous versions have supported the Oracle Solaris operating system and SPARC architecture.

XAMPP: XAMPP is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts – the PHP and Perl programming languages. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server possible as it is. XAMPP's ease of deployment means a WAMP or LAMP stack can be installed quickly and simply on an operating system by a developer, with the advantage that common add-in applications such as WordPress and Joomla! can also be installed with similar ease using Bitnami.

MySQL: MySQL is a relational database management system. Databases are the essential data repository for all software applications. For example, whenever someone conducts a web search, logs in to an account, or completes a transaction, a database system is storing the information so it can be accessed in the future. A relational database stores data in separate tables rather than putting all the data in one big storeroom. The database structure is organized into physical files optimized

for speed. The logical data model, with objects such as data tables, views, rows, and columns, offers a flexible programming environment. You set up rules governing the relationships between different data fields, such as one to one, one to many, unique, required, or optional, and “pointers” between different tables. The database enforces these rules so that with a well-designed database your application never sees data that’s inconsistent, duplicated, orphaned, out of date, or missing. The “SQL” part of “MySQL” stands for “Structured Query Language.” SQL is the most common standardized language used to access databases. Depending on your programming environment, you might enter SQL directly (for example, to generate reports), embed SQL statements into code written in another language, or use a language-specific API that hides the SQL syntax. MySQL is open source. Open source means it’s possible for anyone to use and modify the software. Anybody can download MySQL software from the internet and use it without paying for it. You can also change its source code to suit your needs. MySQL software uses the GNU General Public License (GPL) to define what you may and may not do with the software in different situations. If you feel uncomfortable with the GNU GPL or need to embed MySQL code into a commercial application, you can buy a commercially licensed version from Oracle. See the MySQL Licensing Information section for more information.

5.4. Deployment Diagram

A deployment diagram is a UML diagram type that shows the execution architecture of a system, including nodes such as hardware or software execution environments, and the middleware connecting them. Deployment diagrams are typically used to visualize the physical hardware and software of a system.

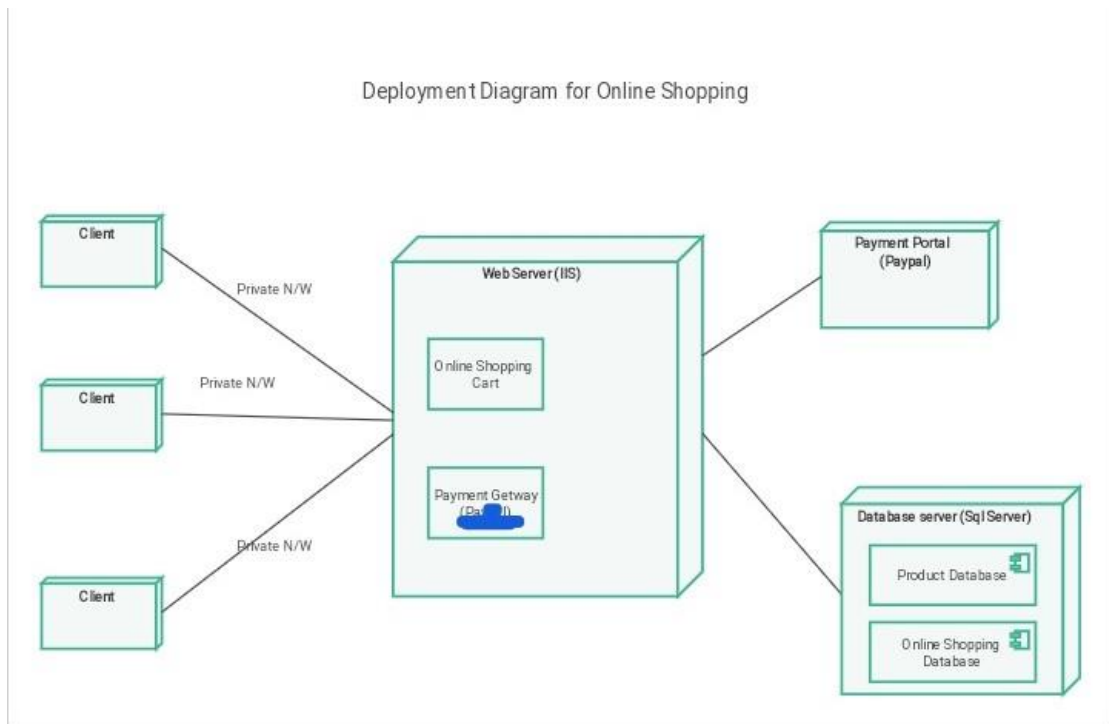


Fig 5.1 Deployment diagram

Choose a hosting provider: There are many hosting providers available, including AWS, Google Cloud, Microsoft Azure, and others. Choose the one that best suits your needs and budget.

Select a deployment method: There are several deployment methods available, including FTP, SFTP, Git, and others. Choose the one that you are most comfortable with.

Prepare your files: Ensure that all your website files are in a directory on your local computer. This directory should include all the HTML, CSS, JavaScript, images, and other files required for your website.

Configure your hosting environment: Set up your hosting environment to match the requirements of your website. This may include installing necessary software, creating databases, configuring web servers, and setting up security measures.

Upload your files: Upload your website files to the hosting provider using the deployment method you have chosen. You may need to use an FTP client or Git to do this.

Test your website: Once your website is uploaded, test it to ensure that everything is working as expected. Check for broken links, images that don't load, and other issues.

Configure DNS settings: If you have a custom domain name, you will need to configure the DNS settings to point to your hosting provider.

Monitor your website: Keep an eye on your

website to ensure that it is running smoothly. Check for any issues that may arise and fix them as soon as possible.

5.5 Implementation Level Detail (Algorithm)

Step 1 Choose your content management system (CMS):The foundation of every website is a content management system (CMS). There are a number of different content management systems to choose from open-source platforms such as WordPress to beginner-friendly all-in-one website builders such as Shopify or Squarespace. Which is right for you and your online store will depend on your budget, experience, and unique e-commerce needs. Here are the most popular content management systems for e-commerce websites: WordPress: The world's leading CMS that is also one of the most customizable. Shopify: An ideal e-commerce solution for building a drop shipping business Squarespace: One of the best website builders for beginners who want to easily build a professional website with no previous web design experience Square Online: Best for existing retailers that are looking to sell in-person and online. Wix: An all-in-one website builder that is both easy to use and highly customizable. For help deciding which is the best CMS for your e-commerce needs, learn more about the best e-commerce platforms.

Step 2 Create an account :Once you have decided which CMS to use, the next step is to create an account—unless you choose WordPress. If you are planning to build your e-commerce site with WordPress, your next step is to get a web hosting plan. The best web hosting services come with a free domain name, a free SSL certificate and one-click WordPress installation, eliminating the need to manually connect your domain and hosting to WordPress. If you're using a website builder such as Shopify, Squarespace, Square Online or Wix, simply navigate to the provider's website and register for an account. If your chosen CMS allows, register your domain name through the CMS to eliminate the need for manual domain configuration process. In the instance where your chosen CMS does not give you the option to get a domain name, register your domain using a domain name registrar. For help choosing one, check out our article on the best domain name registrars.

Step 3 Select an ecommerce theme or template: The first thing you need to consider is a theme for your website. Themes are ready-made

templates that give your website a consistent look and feel. All subscription platforms have tons of templates to choose from, so whether you're building your e-commerce website with WordPress, Shopify, Wix or anything else, you will have prebuilt templates and themes to choose from. Keep in mind that while free templates are generally available across most platforms, some also offer paid (or premium) templates. For example, both WordPress and Shopify offer premium themes that range in price from around \$30 to over \$200. The benefit is that many offer more unique designs, which can help businesses that want a specific look to reduce the amount of time spent customizing their chosen theme.

Step 4 Customize site and build out web pages: The first thing you need to consider is a theme for your website. Themes are ready-made templates that give your website a consistent look and feel. All subscription platforms have tons of templates to choose from, so whether you're building your e-commerce website with WordPress, Shopify, Wix or anything else, you will have prebuilt templates and themes to choose from. Keep in mind that while free templates are generally available across most platforms, some also offer paid (or premium) templates. For example, both WordPress and Shopify offer premium themes that range in price. The benefit is that many offer more unique designs, which can help businesses that want a specific look to reduce the amount of time spent customizing their chosen theme.

Step 5 create product list: No online store is complete with product listings. So once you have built out your website, the next step is to create your product catalog, complete with all of your individual product listings. In this process be sure to organize and categorize your listings so they are easy for your future site visitors to find and for you to manage.

Step 6 Set up payment inventory: After you have populated your e-commerce website, there are a few key aspects of building an e-commerce site to attend to from setting up a payment processor to adding inventory and tax tools. Choose a Payment Gateway When it comes to choosing and setting up a payment gateway, many online retailers opt for third-party tools such as Stripe or PayPal to make the process easier and more secure. If you are redirecting the customer to other websites, you must ensure that the data is fully encrypted before transfer. For a detailed breakdown, refer to our article on the best payment gateways.

Integration If your platform allows it, you should integrate shipping with your e-commerce website for a seamless experience. It will also

simplify operations and you can focus on selling. But before you integrate shipping, determine your shipping policies such as free shipping, variable fee, flat rate, etc. And while you are at it, also establish refund and return policies. Add a Sales Tax Calculator (Optional) Additionally, you may want to consider adding a tax calculator to automatically calculate sales tax, shipping and any other fees at checkout. Step 7 Test and launch e-commerce site: Before launching the e-commerce site to your customers, you must check the site thoroughly. Every button and every link on the site must be working. Even 404 error web pages should be designed according to the theme. Run tests to see if you can add products to the cart and process the payment. Most platforms will allow you to test payment processing without actually charging your credit card. Be sure to check if all the emails are getting sent to the right inboxes after a purchase has been made or declined. And last but not least, check how your site looks and functions on mobile devices. If possible, try to check out the site's performance on different web browsers. Once you have tested and double-checked everything, from product descriptions to category pages, you are ready to launch. Announce the launch of your e-commerce store through your social media pages, guest posts on popular retail blogs in your niche, influencer marketing and to your email lists. If you have the budget, you can also go for paid advertising on Facebook, Google and other platforms.

5.6 Testing

E-Commerce Testing Checklist The following are a few things to test: Is it going to auto scroll? If yes, at what interval will the image be refreshed? When the user hovers over it, is it still going to scroll to the next one? Can it be hovered on? Can it be clicked on? If yes, is it taking you to the right page and right deal? Is it loading along with the rest of the page or loads last in comparison to the other elements on the page? Can the rest of the content be viewed? Does it render the same way in different browsers and different screen resolutions? Search algorithms are very important for the success of a retail site because we can't always place what the users want to see right in front of their eyes. Common tests are: Search based on the Product name, brand name, or something more broadly, the category. Search Results have to be relevant Different

sort options have to be available- based on Brand, Price, and Reviews/ratings etc. How many results to display per page? For multi-page results, are there options to navigate to them Also, search happens in many places. Please take the search drilling down into multiple levels into consideration when validating this functionality. For example: When I search on the home page, I might see something like this: Once a user finds a product either through search or by browsing or by clicking on it from the homepage, the user will be taken to the product information page. Check:Image or images of the productPrice of the productProduct specificationsReviewsCheck out optionsDelivery optionsShipping informationIn-stock/Out of stockMultiple color or variations optionsBreadcrumb navigation for the categories (highlighted in Red below). If navigation such as that is displayed, make sure every element of it is functional. This is the penultimate stage before the user commits to the purchase. Test the following: Add items to the cart and continue shopping. If the user adds the same item to the cart while continuing to shop, the item count in the shopping cart should get increment. All items and their totals should be displayed in the cart. Taxes as per location should be applied. A user can add more items to the cart- total should reflect the same. Update the contents added to the cart- total should reflect that too. Remove items from the cart. Proceed to checkout. Calculate Shipping costs with different shipping options. Apply coupons. Don't check out, close the site, and come back later. The site should retain the items in the cart Check different payment options If allowing check out as Guest, simply finish the purchase and provide an option to register at the end. Returning customers – Login to check out.

6. CONCLUSION

Designing and developing an e-commerce website is a complex process that involves a lot of planning, strategizing, and execution. Here are some key takeaways and conclusions to keep in mind when designing and developing an e-commerce website:

User experience is paramount: Your e-commerce website should be designed with your users in mind. Make sure the site is easy to navigate, products are easy to find, and the checkout process is seamless.

Responsive design is essential: With the increasing number of users accessing websites through mobile devices, it's essential to have a responsive design that adapts to all screen sizes.

Security is crucial: E-commerce websites deal with sensitive customer information, so it's essential to ensure that the website is secure and has proper measures in place to protect user data.

Speed is critical: Users have little patience for slow-loading websites, so make sure your e-commerce website loads quickly.

Content is king: Along with product listings, your e-commerce website should feature high-quality content that engages and informs users.

SEO is important: Optimizing your website for search engines is essential to drive traffic and improve visibility.

Testing and optimization are ongoing processes: Once your e-commerce website is live, it's essential to continue testing and optimizing to improve user experience, conversions, and revenue.

Overall, designing and developing an e-commerce website is a challenging process, but if done correctly, it can be a highly rewarding venture. The internet has opened so many opportunities for doing business online, and e-commerce is one of the most popular ones. Not only does it require low investment, it actually is a type of business that does not require a full-time commitment, especially if you are selling a limited number of products. You just make an online presence and promote the business here and there using both free and paid methods. However, as each business, it has its positive and negative sides. If you want to achieve success, you will have to create an organized strategy which is based on realistic goals and comprehensive analysis of the market. Website maintenance, processing orders, customer services and website analytics are all the tasks you will have to handle once the store is live and running, but this is not a 9 to 5 work. You do not have to be there all the time, sitting by your desk, bound by the fixed working hours.

Instead, e-commerce offers lots of flexibility for the merchants, and this is one of the main characteristics that bring this profession into the list of top desired ones for people nowadays. It brings a level of freedom to manage your own time and work flexible hours, which is a priceless thing to have in life. Even though this is an advantage a lot of work professionals can only dream of, running an e-commerce business also requires being online and available all the time. You always have to monitor the notifications and be ready to help customers. Since e-commerce is not restricted by location or limited work hours, you can accept the orders from anywhere at any time. For you, this means that keeping an eye on the activity and customer support emails is going to be a requirement all the time. And this is important if you want to have a successful business because good customer support is one of the best ways to attract and keep customers loyal. Running an e-commerce business requires a lot of consistency and dedication from your end to create a successful business. You always need to keep it professional and use an approach that is in accordance with your business goals. The first part is the initial one where you are focused on planning and setting up the online business. Besides planning, which will actually be one of the main tasks, you will also have to focus on website development, product page creation, and optimization, etc. Before you make products and services available to the customers, you will also have to do a lot of testing of the website. You should especially focus on testing of the integrations such as checkout page and payment gateways. It is crucial that everything works fine on your website because any loading error will probably turn away the potential customers. The second part of the work is done once the store is published online and these tasks are focused on website maintenance, product promotion, and customer service. Consistency in the approach you use is necessary here as well because each social media post, each newsletter, and each ad represents your company and adds up to the public image you create for the business you run. If you want to be taken seriously, if you want to build a respectable online business, you have to be professional and dedicated to representing your company in the best possible way. After all, every online activity will be scrutinized by potential customers, and you do not want to give them any reason to doubt your credibility. Throughout the ebook, the most important tasks and goals of an e-commerce website have been highlighted. Online marketing, or one of the segments

of online marketing, is mentioned on several occasions. This is because having an e-commerce business requires the usage of online marketing techniques and strategies. You will need SEO to optimize your website. You will have to learn about website analytics to be able to analyze and improve the performance of your website. Promotion of the e-commerce website cannot be done without search engine marketing, social media marketing, email marketing and even affiliate marketing. This means that e-commerce is a part of the system. It is an online business, and as such, it is dependent on the online marketing strategies that can bring success. To make the most out of these strategies and to be sure you are doing all that is possible to promote your e-commerce business, you should explore the topic of online marketing in more details. The focus of this ebook was to show you different aspects of running an e-commerce business, and online marketing and its types are mentioned to a limited extent, which does not mean you should stop there. For example, if you have learned that email marketing can help you with promoting your e-commerce, find relevant resources on email marketing and then explore strategies that can be implemented to your business. Finally, it is necessary to highlight the influence of mobile devices once again. There is no doubt that mobile user experience is one of the primary goals you need to think as the statistics in favor of mobile users are keep growing. This affects the creation of a sub-sector called m-commerce. It is left to be seen how this trend will affect selling online, but what is evident now is that mobile users comprise a significant portion of overall traffic, and as such, they cannot be ignored. You must not neglect the traffic that could help you increase the number of buyers, because, after all, that is what you are trying to do with various promotion strategies. The bottom line is that the internet changed the idea of shopping forever. So many limitations are now extinct because you can buy goods from anywhere in the world. Even so, some boundaries are part of this online experience such as inability to touch and feel the product before it is delivered. All of this changes the way buyers think about shopping, and this is something you, as a business owner, need to think about. This industry is all about consumers. Understanding their needs and expectations, together with defining your business goals and strategies is going to help you with running a successful e-commerce business. Have in mind that the

online world is a very dynamic environment, and to be on top of your game, you need to make industry research and website analysis your top priorities.

6.1.Future Work

The field of e-commerce is constantly evolving, and as a result, there are several areas that designers and developers can focus on to improve the design and development of e-commerce websites. Here are some potential future areas of work:

Personalization: E-commerce websites can benefit from personalized experiences tailored to individual users' preferences, purchase history, and browsing behavior.

AI and Machine Learning: The use of AI and machine learning can help e-commerce websites to predict and analyze customer behavior, making it easier to tailor experiences and product recommendations.

Voice Search: As voice search technology becomes more advanced, e-commerce websites will need to adapt to accommodate voice commands and queries.

Augmented Reality (AR): AR technology can provide customers with an immersive and interactive experience, allowing them to see and experience products in 3D before making a purchase.

Sustainability: As consumers become more environmentally conscious, e-commerce websites can focus on sustainable practices and highlight environmentally-friendly products.

Social Media Integration: Integrating social media into e-commerce websites can help brands connect with customers on a more personal level and improve engagement.

Blockchain: Blockchain technology can be used to improve supply chain transparency, reduce fraud, and ensure secure transactions.

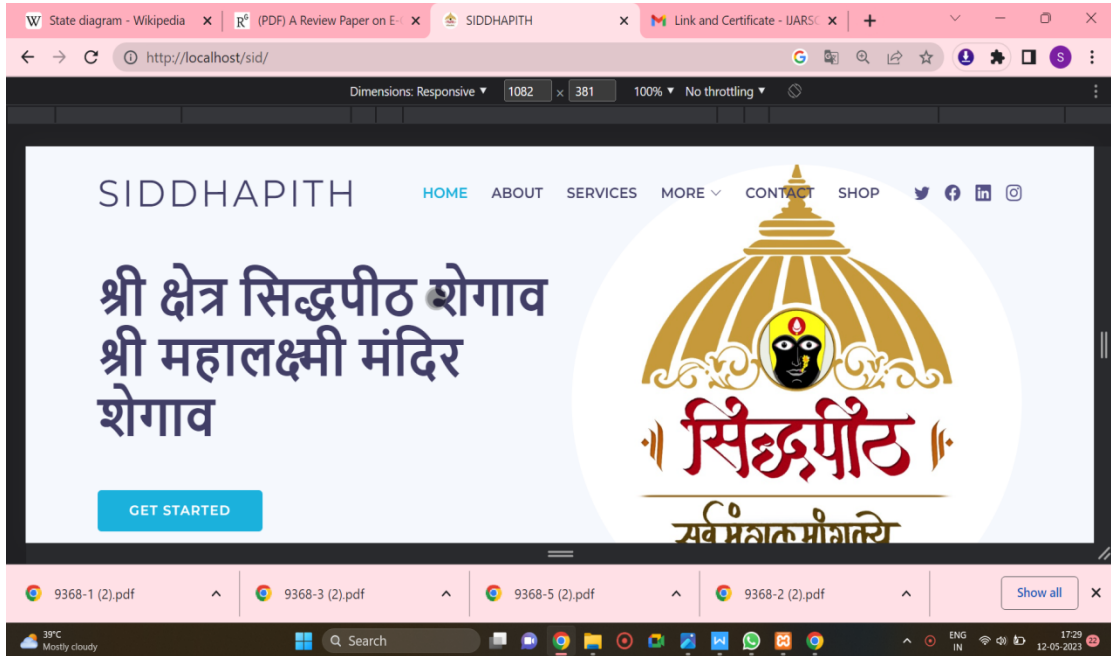
In conclusion, the future of e-commerce website design and development will be characterized by the integration of emerging technologies and a focus on personalized, sustainable, and socially-connected experiences. E-commerce is likely to grow throughout this decade before witnessing a fall. A growth rate of 265%, from \$1.5 trillion in 2015 to \$5.9 trillion in 2023, indicates a steady upward trend for the industry without any signs of slowing down. Another trend in e-commerce is the increasing reliance on mobile phones for online shopping. Wireless e-commerce is also known as mobile commerce, wherein people make purchases using mobile apps. New ways to make the customer experience more seamless will emerge in the industry, and businesses need to keep integrating them for growth. Additionally, players competing on pricing advantage alone may lose the edge in the long run.

Businesses will not only have to maintain the quality of their products but also come up with creative ways to demonstrate their products to the new generation. One such feature is augmented reality or 3D product photos. The idea is to make the online shopping experience more offline-like, where people can feel the fabric or know the product better. The rapidly expanding industry on the back of online business trends has transformed the retail industry. As per an industry report, e-commerce will make up 20.4% of global retail sales by 2023. One of the factors contributing to the increasing share would be the entry-level products targeted at the new-age customer base. More and more businesses will enter the e-commerce industry, and the scope for new products is higher because of the brands' growing understanding of the customers. Available market research is helping soon-to-launched brands curate products that meet the needs of new-age customers. They will be offering more personalized product options and customizations while consumers make purchases online. These factors will play a relevant role in enabling brands to gain success in the competitive environment. E-commerce has a promising future as new technological and commercial breakthroughs open up several growth opportunities. It's an interesting and diversified market to start a business. However, it may also be very competitive, given the growing number of e-commerce websites. While launching an online business, concentrate on three crucial areas – personalisation, automation, and innovation to stand out in the market and increase sales. Customers' online purchasing experiences will be improved by experimenting with new technologies like augmented and virtual reality, while tailored features will promote consumer loyalty. Automation will also free you up to concentrate on raising the calibre of your offerings.

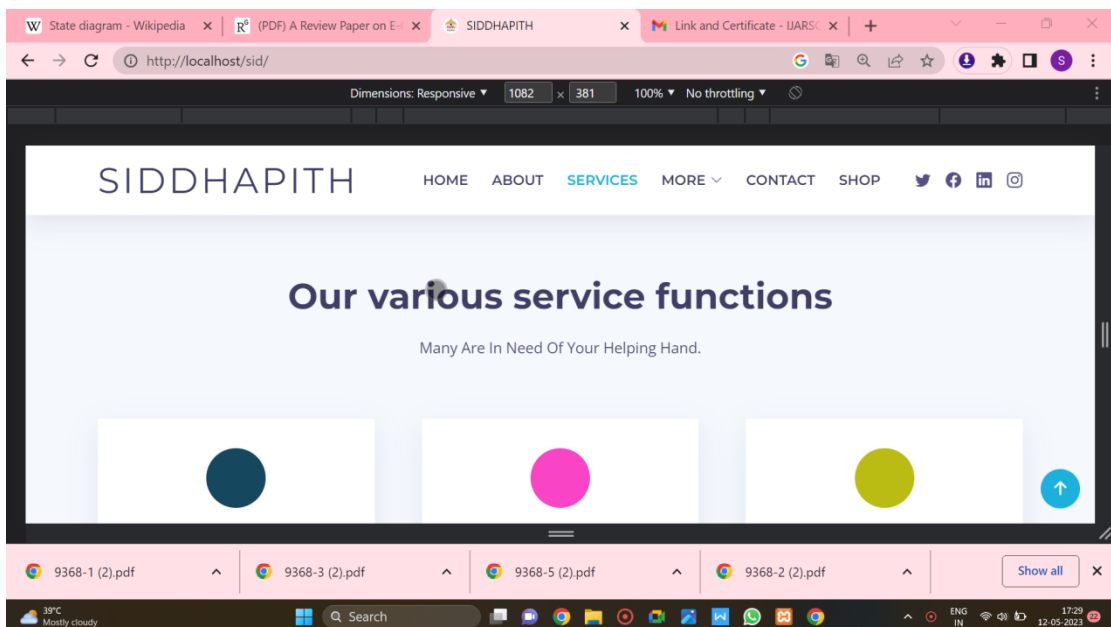
FUTURE WORK

User Manual

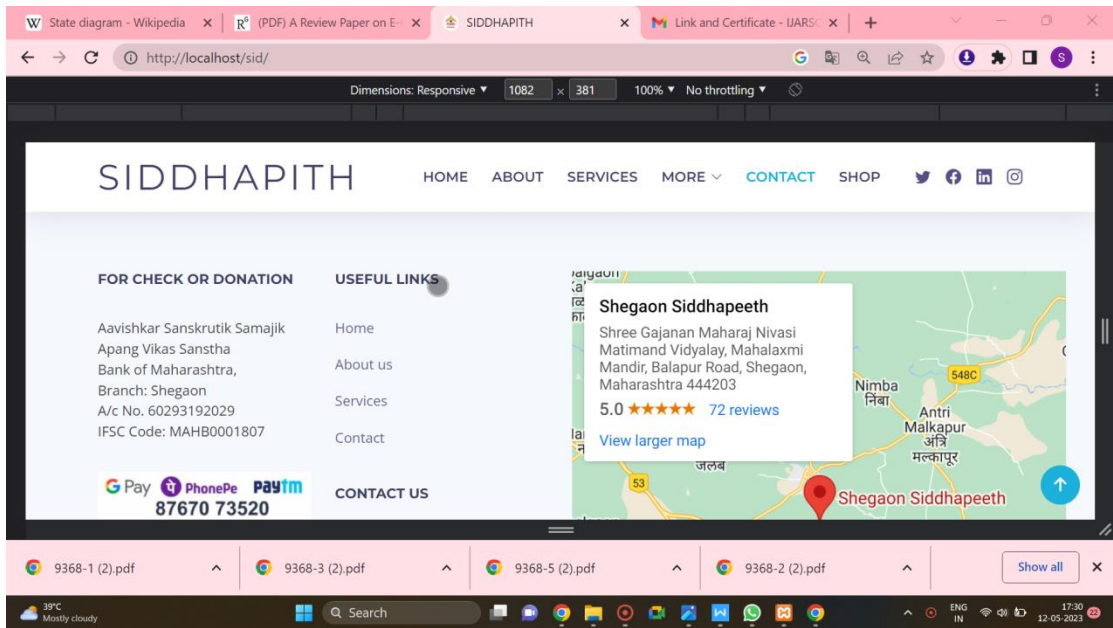
Following are the steps for the User :



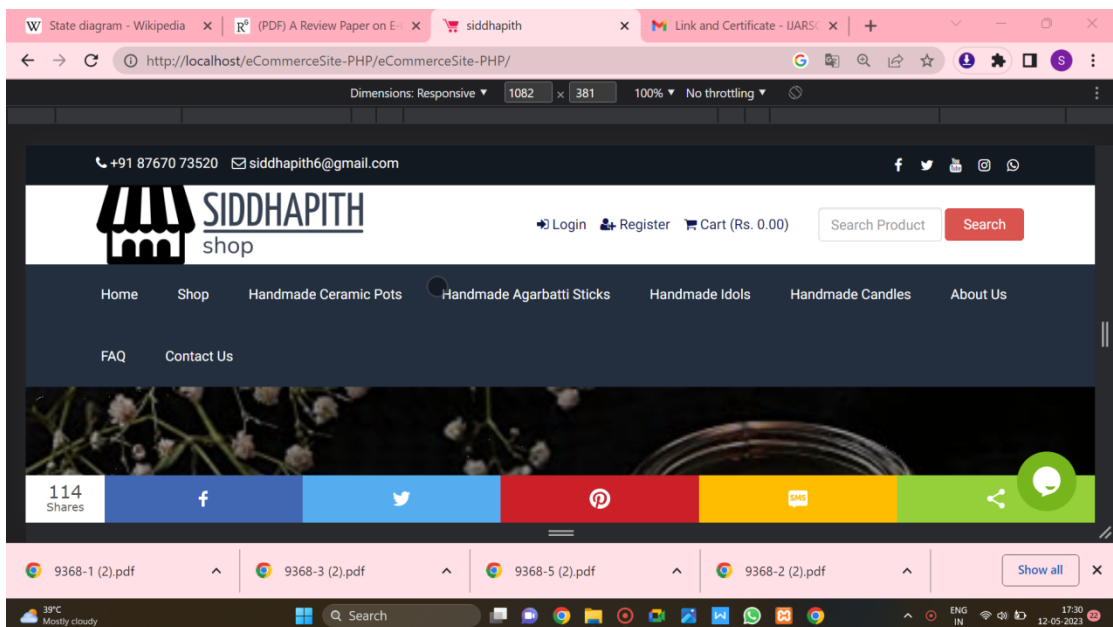
Click on the Home menu to see the home page.



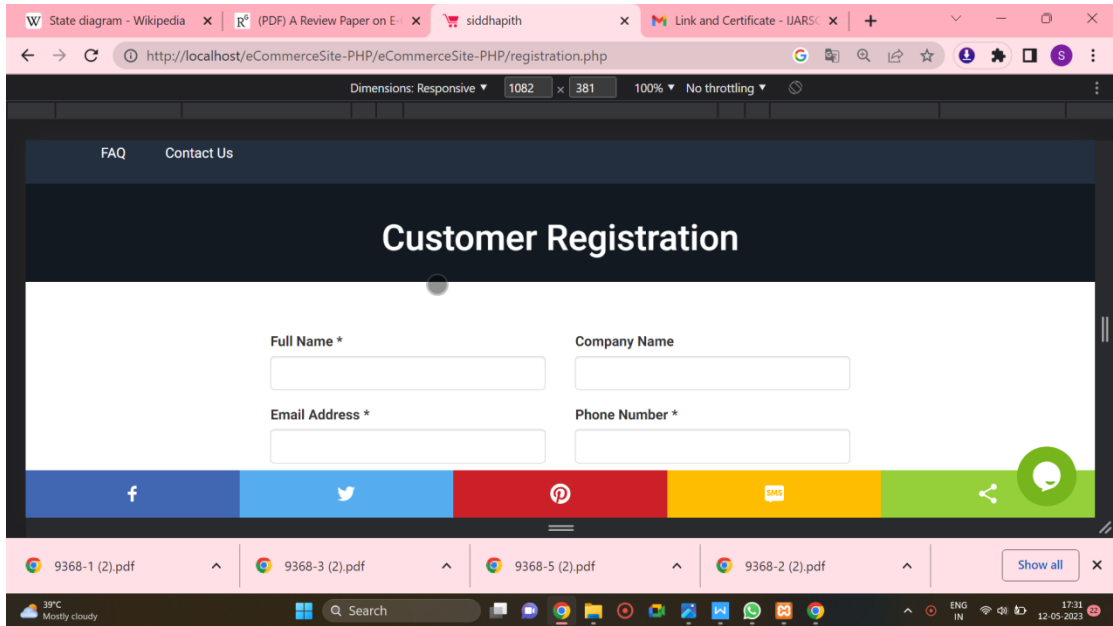
Click on the Services menu to see all the listed services provided by the business.



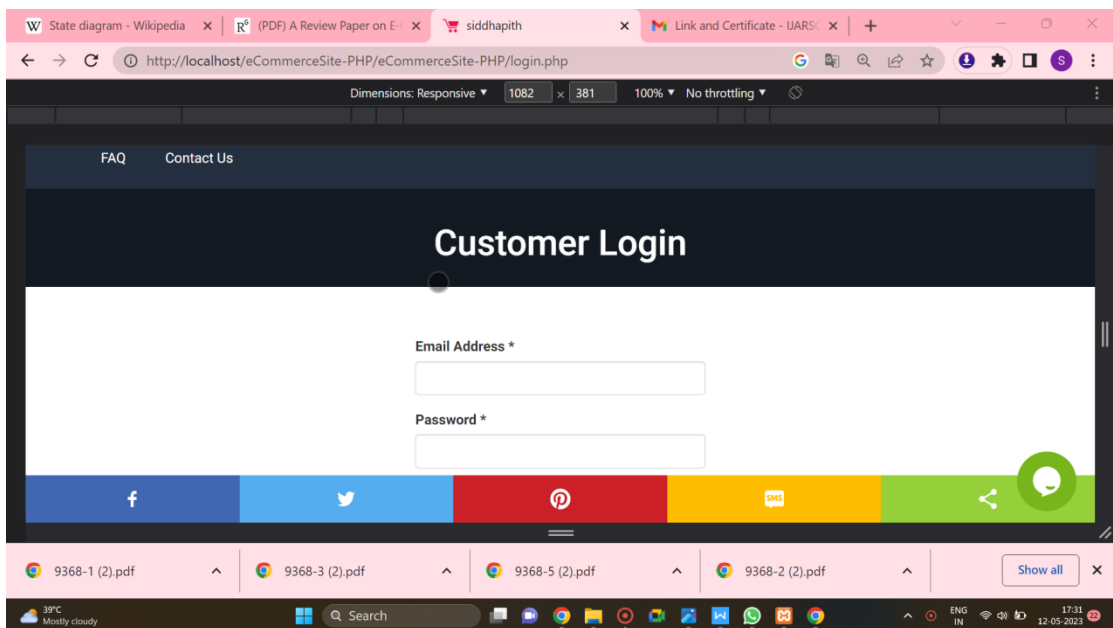
Click on the Contact Page to get the details about the contact.



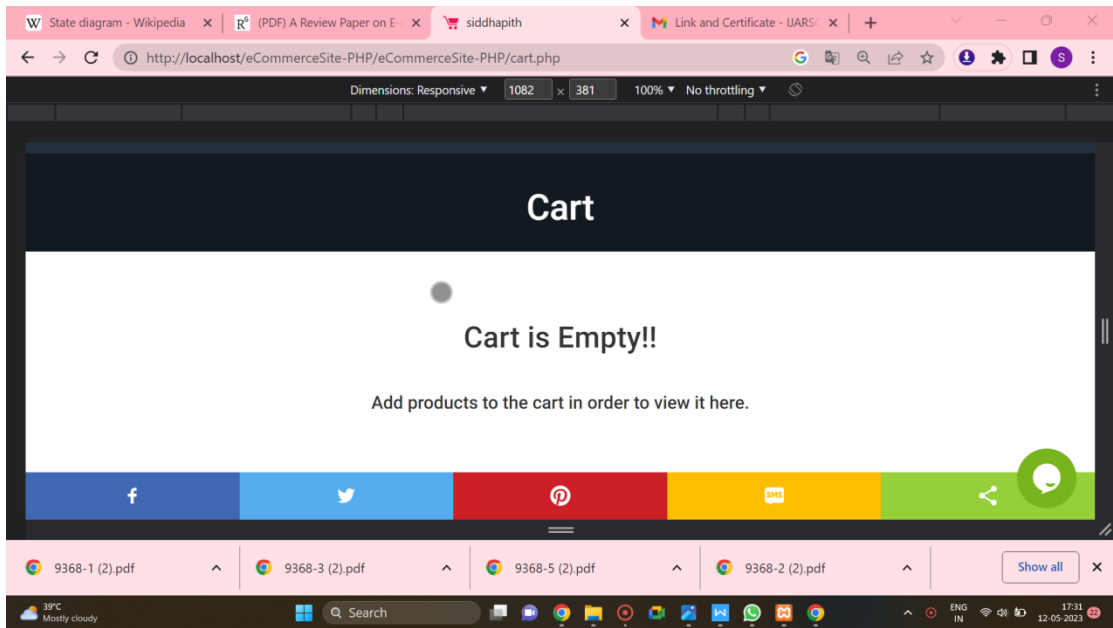
Click on the Shop menu to go the Online Shop .



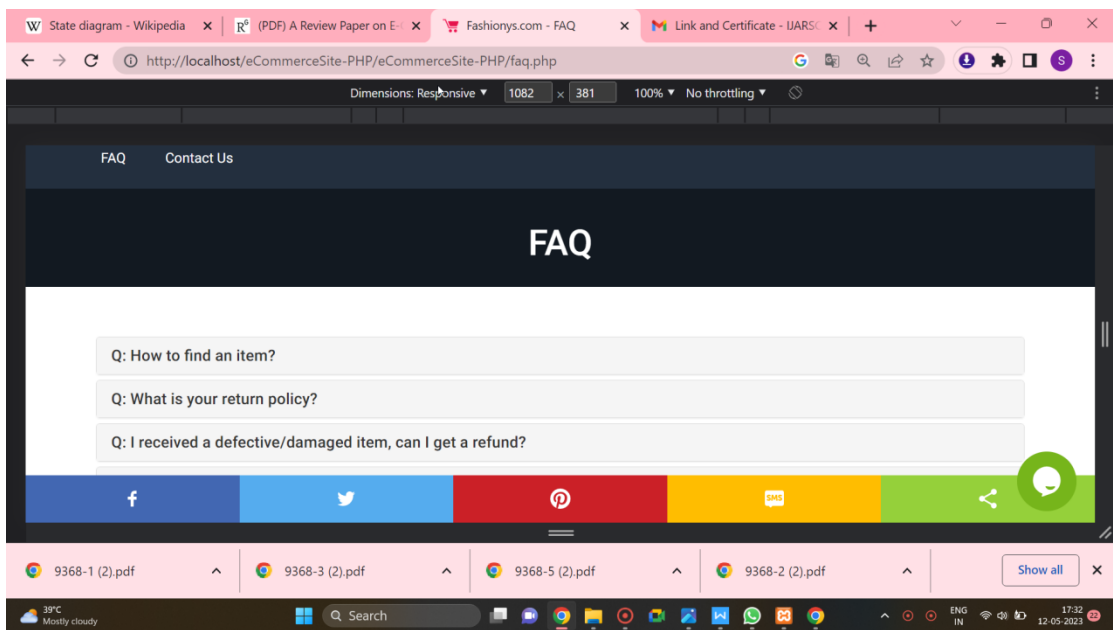
Click on the registration menu to create user registration.



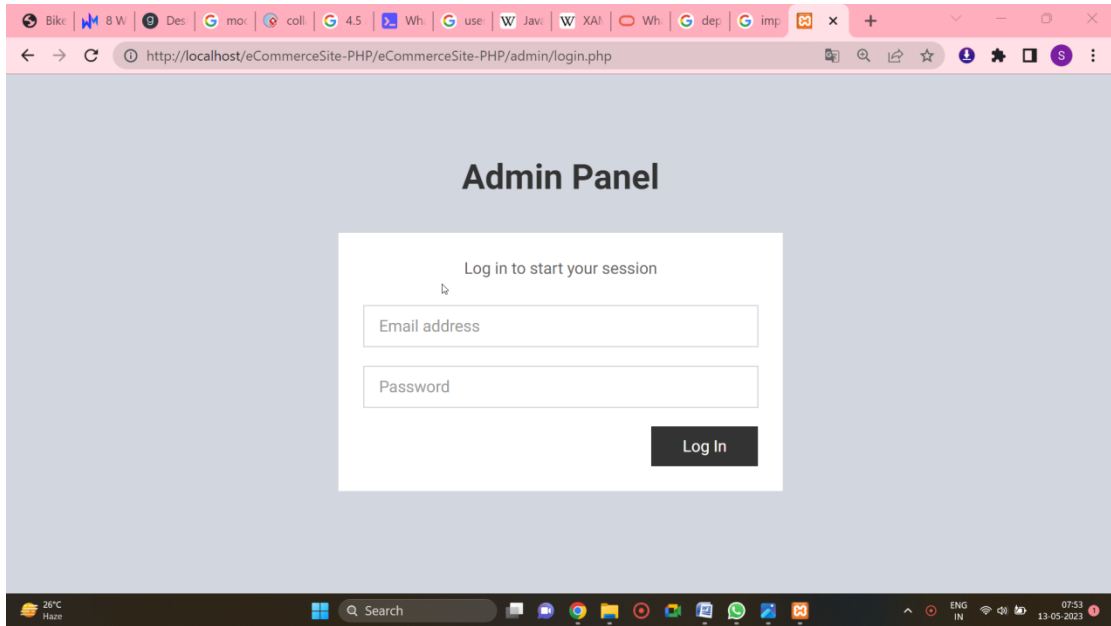
Click on the login menu to login into the user account. Enter email id and password and click onto the login button.



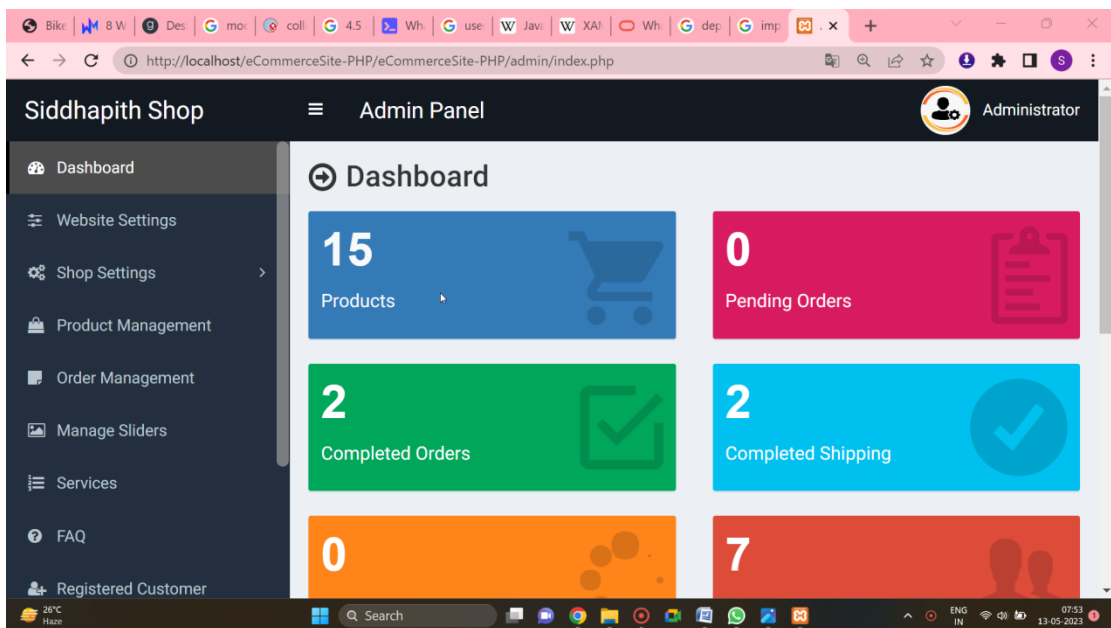
Click on the cart button to see the cart.



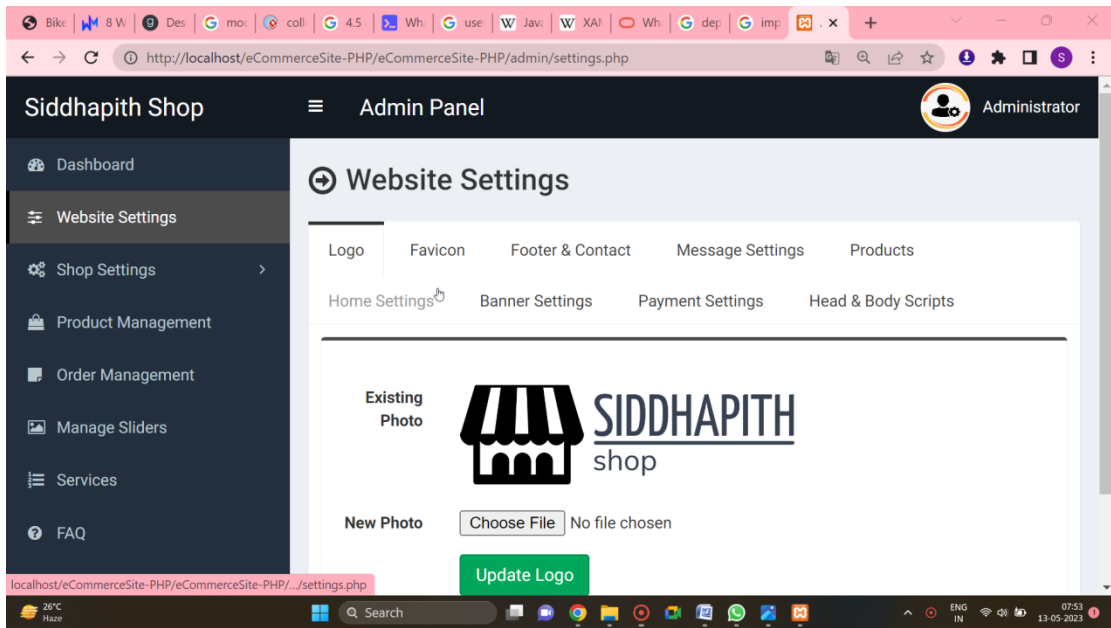
Click on the FAQ menu to see the frequently asked questions and their answers.



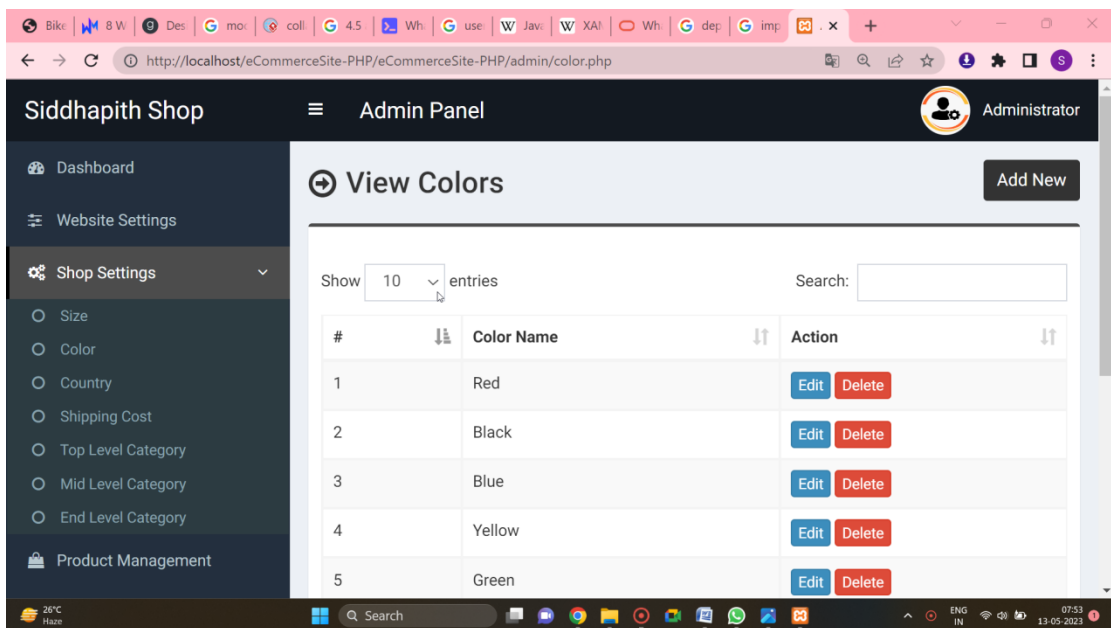
Enter email id and password to login into the admin dashboard .



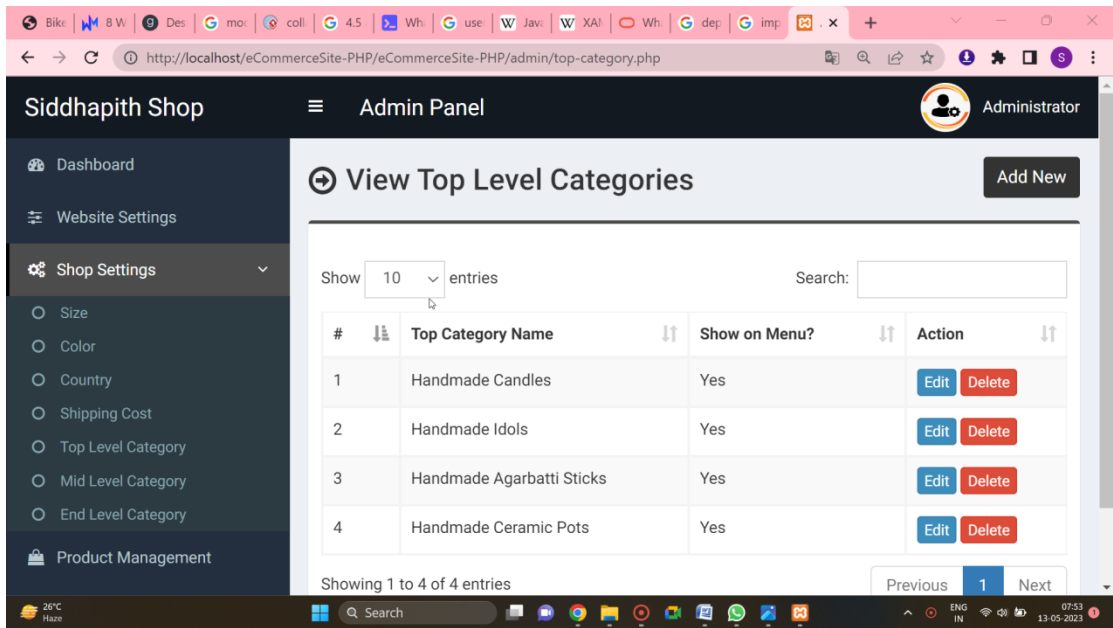
Click on the Dashboard to see the admin dashboard.



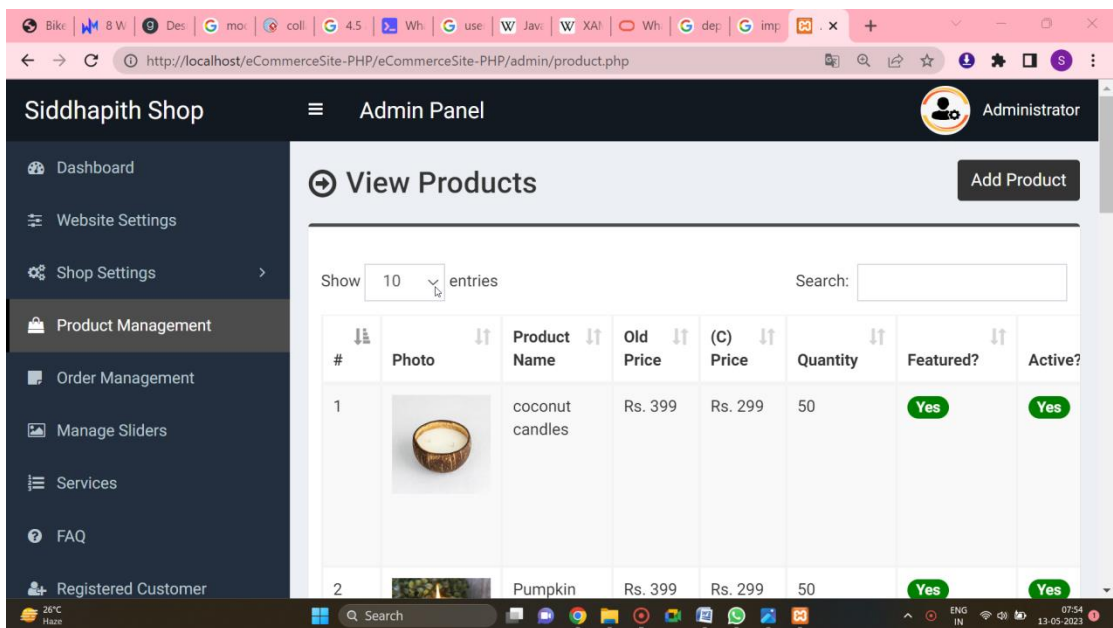
Click on the website setting to open the setting options.



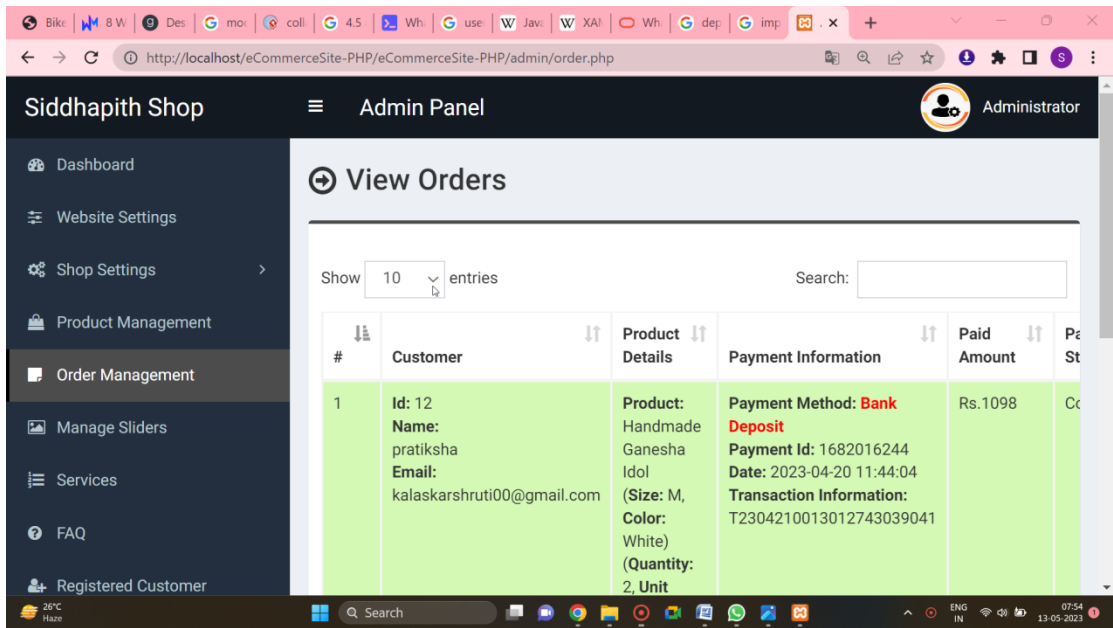
Click on the shop setting to open the above setting options.



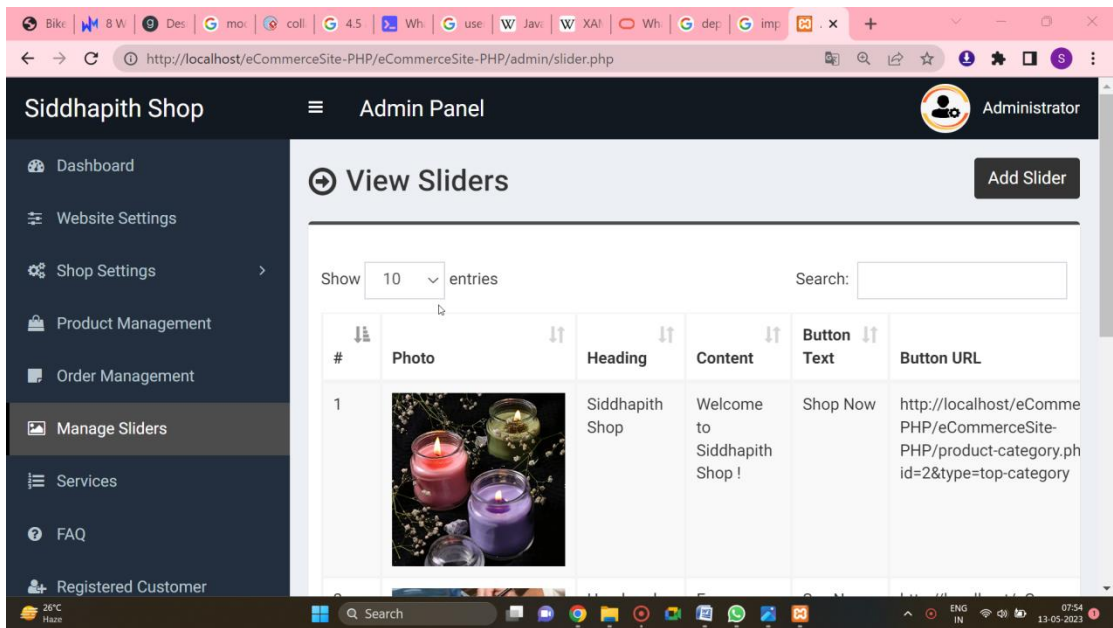
Click on Top Level Category submenu to open the category setting options.



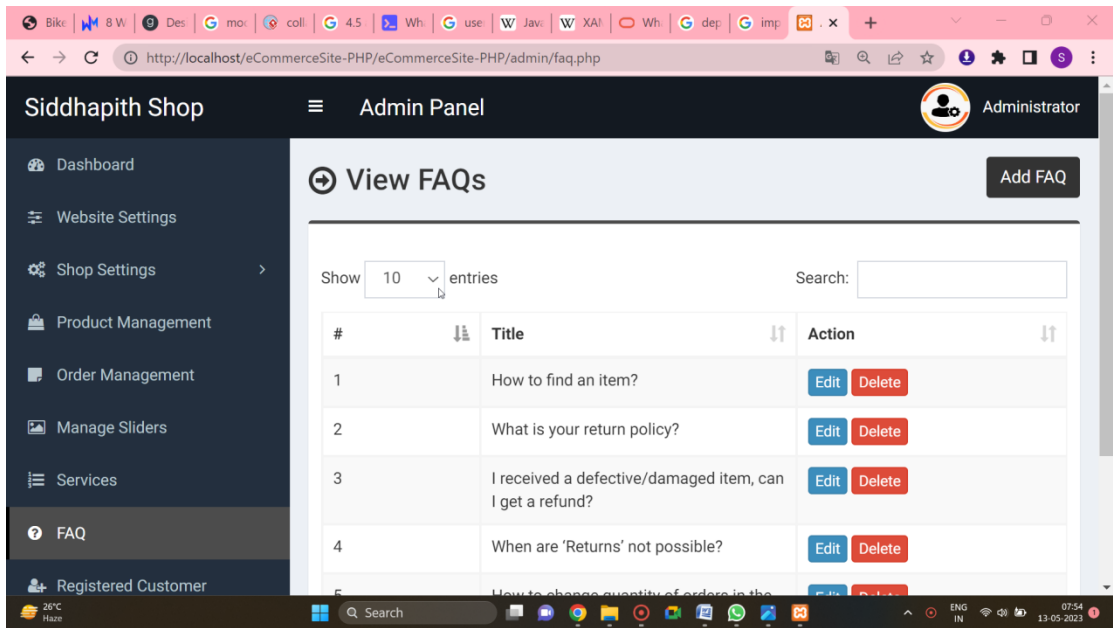
Click on the Product Management option to view and edit the products listed on to the website.



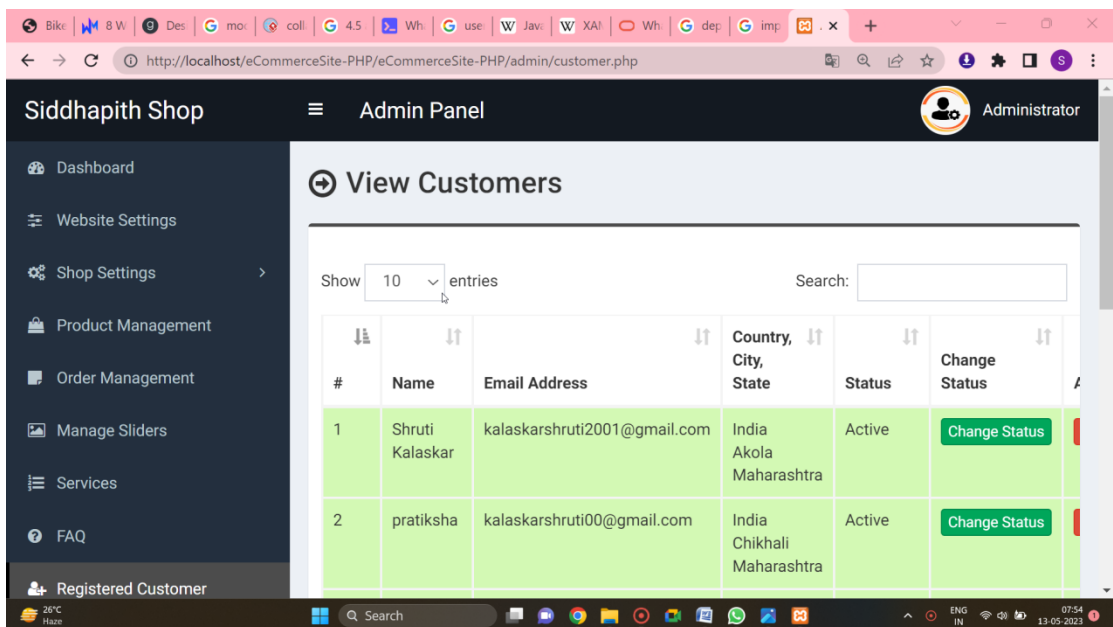
Click on the Order Management option to view the orders with transaction id.



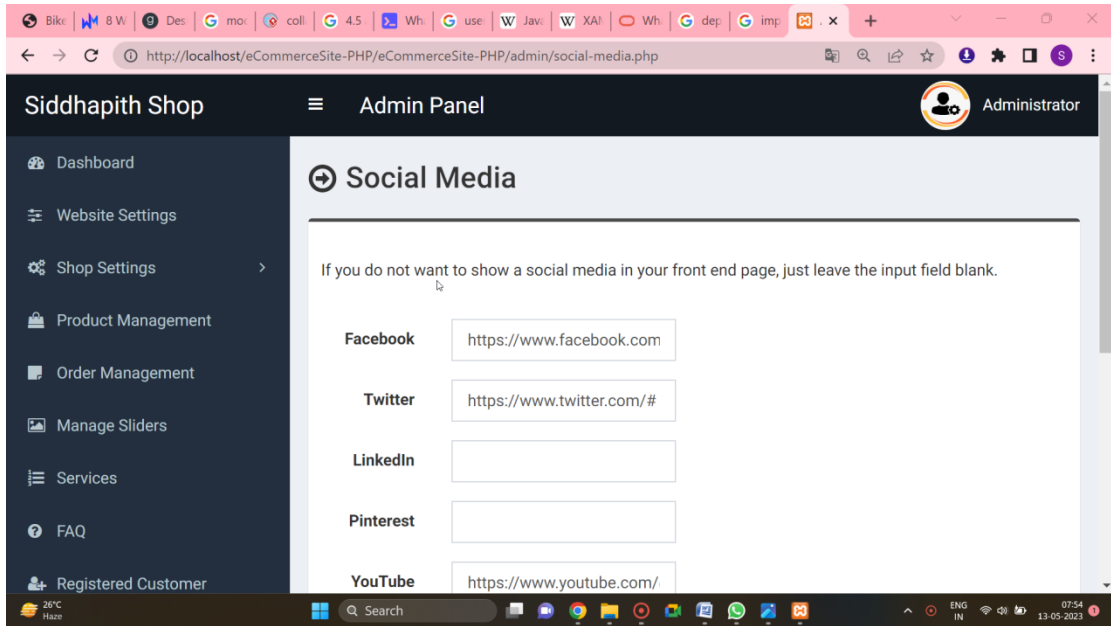
Click on the Manage Sliders option to manage and edit the sliders.



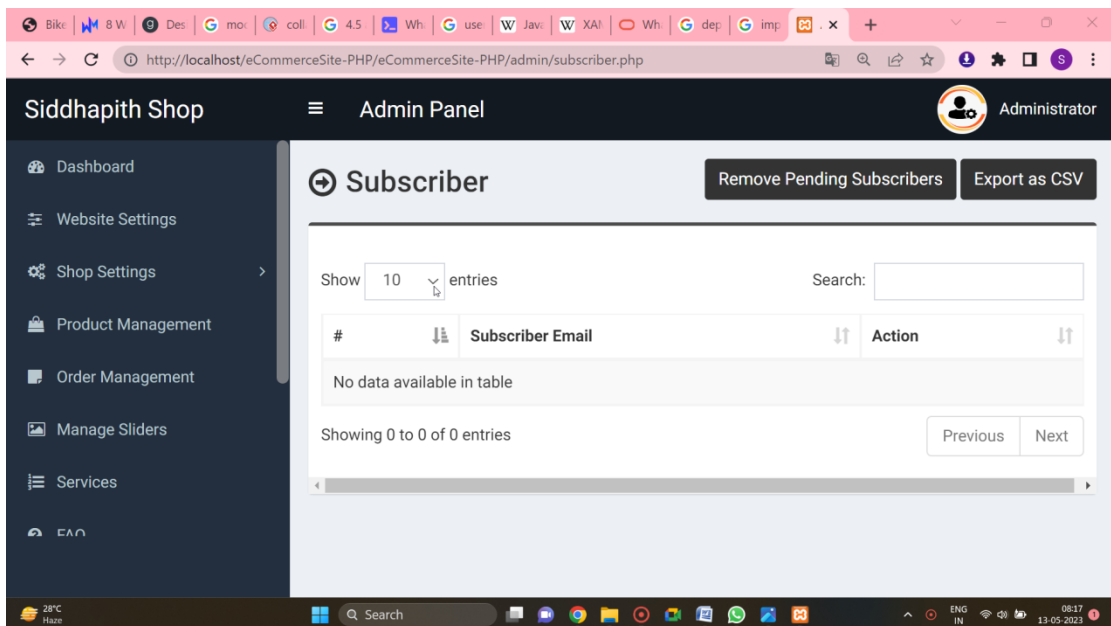
Click on the FAQ to edit the FAQ and their answers.



Click on the Registered Customers to see the list of active account users onto the website.



Click on the Social Media option to add the link of social media accounts onto the website .



Click on the Subscriber option to see the number of subscribers on the website.

REFERENCES

- [1] "Web Performance Optimization of E-commerce Websites: A Review of Techniques" by Muhammad Talha Siddiqui and Seungmin Rho (2018).
- [2] "Design Patterns for E-commerce User Interfaces" by Umar Ruhi, Alexander W. Rudnicky, and Jeffrey S. Nickerson (2003)
- [3] "E-commerce Usability: The Influence of Product Presentation in Online Shopping" by Claudia Loebbecke and Rainer Wichmann (2001).
- [4] "E-commerce User Experience: An Examination of Web Accessibility and Usability" by Sarah Horton and Whitney Quesenbery (2018) .
- [5] "Responsive Web Design: A Comprehensive Study" by Abdullah Almeahmadi and Asadullah Shah (2017).
- [6] "Scalability and Performance of E-commerce Systems: A Comparative Study of Java, .NET, and PHP Technologies" by Olegas Vasilecas, Jonas Mockus, and Arturas Mazeika (2015).
- [7] "Securing E-commerce Transactions: Techniques and Challenges" by William Stallings and Lawrie Brown (2008).
- [8] "A Comparative Study of E-commerce Platforms: Magento, OpenCart, and WooCommerce" by Dimitrios Koukopoulos, Stylianos Nistazakis, and Christos Douligeris (2017)..
- [9] "Database Design for E-commerce: An Entity-Relationship-Based Approach" by El-Sayed Atlam and Mohamed E. El-Sharkawi (2008).
- [10] "Building E-commerce Applications: An Ontology-Based Approach" by Jelena Zdravkovic, Mirjana Ivanovic, and Marijana Despotovic-Zratic (2013)
- [11] "Design and Implementation of E-commerce Database System" by Yang Wang, Jing Wang, and Qianqian Yan (2012) .
- [12] "Database Design and Implementation for E-commerce Systems" by Christoph Becker and Florian Matthes (2013) .
- [13] "Data Modeling for E-commerce Systems: An Ontology-Based Approach" by Michael Felderer, Alexander Felfernig, and Dietmar Jannach (2012).
- [14] "An Efficient and Scalable Architecture for E-commerce Database Systems" by Seyedeh Parisa Kamali, Alireza Mahdian, and Sabah Mohammed (2016) .

- [15] "E-commerce Database Design: Entity-Relationship Modeling" by Chaitali Chakrabarti and Indranil Bose (2014) .
- [16] "The Influence of Website Design on Online Consumer Behavior: A Literature Review" by Xiaojing Liu (2003).
- [17] "Designing E-commerce Websites: A Structured Approach" by Kelvin Yeo and Lai-Peng Chan (2008) .
- [18] "Designing Trustworthy E-commerce Websites: A User-Centric Approach" by Pieter Desmet, Hendrik N.J. Schifferstein, and Janneke C. Oosterhof (2009) .
- [19] "E-commerce User Experience Design: Key Dimensions and User Preferences" by Xing Huang and Ping Zhang (2017).
- [20] "Designing for Trust in E-commerce: The Effect of Website Design on User Trust and Purchase Intention" by Muhammad Usama, Sarah Taylor, and M. Sadiq Sohail (2019) .
- [21] "E-commerce Personalization Techniques: A Systematic Literature Review" (2020) by Carneiro, Juliana; et al. Published in: Computers in Human Behavior
- [22] "The Role of Social Commerce Website Quality in Building Customer Loyalty: A Trust-Commitment Perspective" (2020) by Hussain, Zunaira; et al. Published in: International Journal of Information Management
- [23] "The Impact of Website Quality on Customer Satisfaction in Online Retailing: A Meta-Analysis" (2020) by Wang, Dan; et al. Published in: Computers in Human Behavior
- [24] "Investigating Factors Influencing User Perceptions of Responsiveness and Trust in Mobile Commerce Websites" (2020) by Tan, Xuehua; et al. Published in: Journal of Retailing and Consumer Services
- [25] "Investigating the Impact of User-Generated Content on Online Purchase Intentions: A Moderated Mediation Model" (2020) by Wu, Sijie; et al. Published in: Journal of Interactive Marketing
- [26] "The Role of Product Recommendation Systems in E-commerce: A Comprehensive Review" (2020) by Nguyen, Trang; et al. Published in: Journal of Retailing and Consumer Services

- [26] "The Impact of Website Design on Online Purchase Behavior: A Literature Review and Research Agenda" (2020) by Abideen, Adewale; Saleem, Saqib; Warraich, Anwar Published in: Journal of Theoretical and Applied Electronic Commerce.
- [27] "The Influence of Product Image Quality on Consumers' Online Shopping Behavior" (2020) by Huang, Mengya; et al. Published in: Information Systems Frontiers
- [28] "The Influence of Visual Aesthetics on Users' Perceived Trust in Online Marketplaces" (2020) by Huang, Xiaoxiao; et al. Published in: Electronic Commerce Research and Applications
- [29] "Exploring the Impact of Web Accessibility on Online Shopping Behavior" (2020) by Mahmood, Zaigham; et al. Published in: Electronic Commerce Research and Applications
- [30] "Understanding Consumer Adoption of Voice Shopping Assistants: An Integrated Perspective of Technology Readiness and Privacy Concerns" (2020) by Jang, Soyoung; et al. Published in: Journal of Interactive Marketing
- [31] "The Influence of Social Commerce Website Quality on User Satisfaction and Purchase Intention: A Trust-Commitment Perspective" (2020) by Hussain, Zunaira; et al. Published in: International Journal of Information Management
- [32] "The Role of Online Reviews in Consumer Decision-Making: A Systematic Review and Meta-Analysis" (2021) by Chen, Xiaojing; et al. Published in: International Journal of Information Management
- [33] "The Role of User-Generated Content in E-commerce: A Comprehensive Review" (2021) by Nguyen, Trang; et al. Published in: International Journal of Information Management
- [34] "Exploring the Impact of Mobile App Features on User Engagement and Purchase Intention in Mobile Commerce" (2021) by Bui, The Anh; et al. Published in: Journal of Retailing and Consumer Services
- [35] "The Impact of Personalization on User Satisfaction and Purchase Intention in E-commerce: A Meta-Analysis" (2021) by Zhang, Yawen; et al. Published in: Journal of Retailing and Consumer Services

- [36] "Understanding the Role of Chatbots in E-commerce: A Review and Research Agenda" (2021) Authors: Tran, Trang; et al. Published in: Journal of Retailing and Consumer Services
- [37] "Enhancing Online Trust through Website Design: The Roles of Aesthetics, Expertise, and Site Characteristics" (2021) by Yang, Ailian; et al. Published in: Journal of Interactive Marketing
- [38] "Exploring the Impact of Product Presentation Modes on User Engagement and Purchase Intention in E-commerce" (2021) by Chen, Yani; et al. Published in: Journal of Interactive Marketing
- [39] "The Influence of Social Proof Strategies on Consumer Purchase Decisions in E-commerce: A Systematic Review and Meta-Analysis" (2021) by Huang, Qinyu; et al. Published in: Computers in Human Behavior
- [40] "The Role of Artificial Intelligence in E-commerce: A Comprehensive Review" (2021) by Fan, Shuang; et al. Published in: Journal of Retailing and Consumer Services
- [41] "The Impact of Augmented Reality on Consumer Behavior: A Systematic Literature Review and Research Agenda" (2021) by Zheng, Lina; et al. Published in: Journal of Retailing and Consumer Services
- [42] "The Influence of Gamification on User Engagement and Purchase Intention in E-commerce: A Meta-Analysis" (2021) by Li, Lin; et al. Published in: Computers in Human Behavior
- [43] "The Impact of Personalized Pricing on Consumer Behavior in E-commerce: A Meta-Analysis" (2021) by Zhang, Chun; et al. Published in: Journal of Retailing and Consumer Services

Source Code listings

01test.php
about.php
caup.phpprt.php
cart-item-delete.php
checkout.php
customer-billing-shipping-up.php
customer order.php
customer-password-update.php
customer-profile-update.php
cusdashboardtomer-sidebar.php
faq.php
footer.php
forget-password.php
header.php
index.php
logout.php
payment_success.php
product.php
product-category.php
registration.php
reset-password.php
reset-password-success.php
search-result.php
sidebar-category.php
verify.php
style.css
main.js
ecommerceweb.sql
init.php
animate.css

animate.min.css

bootstrap.min.css

bootstrap-touch-slider.css

font-awesome.min.css

jquery.bxslider.min.css

magnific-popup.css

main.css

owl.carousel.min.css

owl.theme.default.css

owl.theme.default.min.css

rating.css

responsive.css

select2.min.css

spacing.css

tree-menu.css

Project Members Details

Name: Shruti Rajesh Kalaskar

Address: Kothari watika 2 ,Akola

Mobile Number: 9404090816

Email: kalaskarshruti00@gmail.com



Name: Pratiksha Ganesh Dalimkar

Address: Adarsh Society, Chikhali

Mobile Number: 9975483213

Email: dalimkarpratiksha@gmail.com



Name: Dhanashri Shegokar

Address: Milind Nagar, Shegaon

Mobile Number: 9307841801

Email: dhanashrishegokar@gmail.com



Name: Sudhir Tukaramji Ghagare

Address: Omkar Nagar , Nagpur

Mobile Number: 7796407160

Email: ghagaresudhir@gmail.com



Design and Development of Ecommerce Website

Shruti Kalaskar¹, Pratiksha Dalimkar², Dhanashree Shegokar³,
Sudhir Ghagare⁴, Prof. S. N. Khandare⁵

Final Year Engineering Students, Department of Information Technology^{1,2,3,4}

Professor, Department of Information Technology⁵

Shri Sant Gajanan Maharaj College of Engineering, Shegaon, Maharashtra, India

Abstract: *In today's world of Internet e-commerce have seen immense growth and popularity. Ecommerce also known as Electronic-Commerce is nothing but companies and individuals who sell and buy tangible products and services over the Internet. Ecommerce allow businesses to reach wider audiences in more efficient and cost-friendly way. Today ecommerce sells almost every product and service online and is available on many varieties of electronic devices like laptop, computer, PC, smartphones, tablets. But along with all the benefits of ecommerce it is often highly competitive. For this very reason creation of customer interactive and developing a website with customer pleasing design is very much important. Design and development of a website which has a potential to catch the attention of the customer, retain their interest, showcase product and services in a positive light and attract more new customer. In order to achieve all these targets design and development of website becomes a topic of at most importance. Website plays a major role in the success of ecommerce business. This paper discusses the design and development of an ecommerce website.*

Keywords: Ecommerce, Ecommerce Website, HTML, CSS, Bootstrap, JavaScript, PHP, MySQL, Online Shop.

I. INTRODUCTION

Now a days people order goods and products online over the internet with the help of ecommerce. Ecommerce allow people to purchase from a vast pool of products and goods in considerable prices. Products get delivered to their home. Payment options like cash on delivery, bank deposit, UPI transaction are available which makes transaction a smooth experience. During pandemic more and more people turned to ecommerce. Ecommerce has successfully changed the behavior of the consumer the way they purchase and consume goods and services.

Many ecommerce platforms like Amazon, Flipkart, Nykaa, Meesho has gained popularity in India. According to Forbes ecommerce market is expected to increase up to \$8.1 trillion worldwide by the end of 2026. Also 20.8% of retail purchases are going to shift toward ecommerce and online purchases in 2023. One of the greatest benefits of ecommerce is the visibility it provided. Small businesses can also reach out to the worldwide consumers and sell their goods worldwide.

As many ecommerce websites are available today it is very easy for customers to switch between different ecommerce websites and prefer one over the other. So understanding what affects the consumer behavior is very important. One study showed that 48% of the consumers leave ecommerce website because of the extra cost or fees on the goods. 24% because they are required to create an account, 18% because they don't trust the site with credit card information, 17% because of complicated checkout process. So giving attention to the design of the ecommerce website is crucial for the success of the ecommerce website.

II. FEATURES

To design and develop the ecommerce website which will stand out from all the crowd require following features. User friendly interface is the most important feature to have in an ecommerce website. Search bar, clickable images help to create user friendly interface. High-resolution visual content help to attract customer. Website design should be adaptable with the mobile web as 2/3 of the worlds population prefer their mobile devices to make online purchases. When it comes to ecommerce it is very important that the customer is getting the product he wanted in the least amount of steps for this reason website should have a good search and filtering functionality. Match the theme of website with

the products that are for sell on the website. Simple and functional shopping cart, good product description, contact page also plays big role in making website interactive. Attach social media accounts to the website so the customers can checkout other customer's experiences.

III. METHODOLOGY

A. Front End Development

Front-end development for an e-commerce website involves creating the user-facing interface and experience that customers interact with when browsing products, adding items to their cart, and checking out. Here are some key aspects of front-end development for an e-commerce website:

User Interface (UI) Design: Create visually appealing and user-friendly UI designs that reflect the branding and identity of the e-commerce website. Design intuitive and easy-to-navigate layouts that allow customers to find products quickly and easily. Use appropriate color schemes, typography, icons, and other visual elements to enhance the overall user experience.

Responsive Design: Ensure that the e-commerce website is responsive, meaning it is optimized for various devices such as desktops, laptops, tablets, and mobile phones. Implement responsive design techniques, such as fluid grids, flexible images, and media queries, to ensure that the website looks and functions well across different screen sizes.

Front-end Technologies: Utilize front-end technologies such as HTML, CSS, and JavaScript to create the structure, layout, and interactivity of the e-commerce website. Use modern frameworks and libraries, such as React, Angular, or Vue, to build dynamic and interactive user interfaces. Implement accessibility features, such as proper semantic HTML markup, alt tags for images, and keyboard navigation, to ensure the website is accessible to all users, including those with disabilities.

Product Catalog: Implement a product catalog that allows customers to browse products by categories, filter products based on various attributes (e.g., price, color, size), and view product details (e.g., images, descriptions, specifications). Provide search functionality that enables customers to search for products based on keywords, and display search results in a relevant and organized manner.

Shopping Cart and Checkout: Develop a shopping cart feature that allows customers to add products to their cart, view their cart contents, and manage items in their cart. Implement a checkout process that guides customers through the steps of entering shipping and payment information, and completing the purchase. Incorporate security measures, such as SSL encryption and PCI compliance, to protect customer information during the checkout process.

Payment Gateway Integration: Integrate with one or more payment gateways to allow customers to securely make payments using various payment methods, such as credit/debit cards, PayPal, or other popular payment options. Implement error handling and validation to ensure that payment transactions are processed accurately and securely.

User Registration and Login: Implement user registration and login functionality that allows customers to create accounts, login securely, and manage their account information. Provide password recovery and account management features, such as updating personal information and viewing order history, to enhance the user experience and build customer loyalty.

Performance Optimization: Optimize front-end performance by minimizing load times, reducing the number of HTTP requests, and optimizing images and other assets. Implement caching mechanisms and content delivery networks (CDNs)

Testing and Debugging: Conduct thorough testing of the front-end functionality, layout, and usability of the e-commerce website across different browsers, devices, and screen sizes. Debug and fix any issues or bugs that arise during testing to ensure a smooth and error-free user experience.

Front-end development for an e-commerce website requires a keen eye for design, attention to detail, and expertise in front-end technologies. Following best practices for front-end development, usability, and accessibility will help create a compelling and seamless user experience for customers visiting the e-commerce website.

B. Backend Development

Back-end development for an e-commerce website involves creating the server-side logic and functionality that powers the website's operations, such as processing customer orders, managing product inventory, and handling payment transactions. Here are some key aspects of back-end development for an e-commerce website:

Server-side Technologies: Choose appropriate server-side technologies, such as PHP, Python, Ruby, Java, or Node.js, to build the back-end logic and functionality of the e-commerce website. Utilize frameworks and libraries, such as Laravel, Django, Ruby on Rails, Spring, or Express, to accelerate development and streamline the codebase.

Database Design and Management: Design and implement a robust database schema that efficiently manages product data, customer data, orders, and other relevant information. Choose an appropriate database management system (DBMS), such as MySQL, MongoDB, PostgreSQL, or SQLite, and implement effective database queries and operations to store, retrieve, and manage data.

APIs and Web Services: Develop APIs (Application Programming Interfaces) and web services that allow the front-end of the e-commerce website to interact with the back-end for various functionalities, such as product search, cart management, and order processing. Implement RESTful APIs or other appropriate API standards for secure and efficient communication between the front-end and back-end.

Payment Gateway Integration: Integrate with one or more payment gateways to securely handle payment transactions, such as credit/debit cards, PayPal, or other popular payment options. Implement server-side logic for processing payment transactions, handling payment callbacks, and managing payment status updates.

Order Management: Develop order management functionality to handle customer orders, including order processing, tracking, and fulfillment. Implement server-side logic for order validation.

User Authentication and Authorization: Implement authentication and authorization functionality to secure user accounts, protect sensitive information, and manage user roles and permissions. Utilize industry-standard authentication methods, such as OAuth, JWT, or session-based authentication, to ensure secure user login and access control.

Security Measures: Implement appropriate security measures, such as data encryption, input validation, and protection against common web vulnerabilities, such as SQL injection, cross-site scripting (XSS), and cross-site request forgery (CSRF). Follow best practices for securing user data, protecting against data breaches, and complying with relevant data privacy regulations, such as GDPR or CCPA.

Performance Optimization: Optimize back-end performance by optimizing database queries, caching frequently accessed data, and improving server-side processing speed. Implement appropriate caching mechanisms, load balancing, and performance monitoring to ensure smooth and efficient operation of the e-commerce website.

Testing and Debugging: Conduct thorough testing of the back-end functionality, including data validation, error handling, and integration with external APIs and services. Debug and fix any issues or bugs that arise during testing to ensure the reliability and stability of the e-commerce website.

Back-end development for an e-commerce website requires expertise in server-side technologies, databases, APIs, and security measures. Building a scalable, secure, and high-performing back-end is critical to the overall success and functionality of an e-commerce website.

C. Database Design

Database design plays a crucial role in the development of an e-commerce website, as it determines how the website's data will be organized, stored, and retrieved. Here are some key considerations for database design in an e-commerce website:

- **Data Modeling:** Identify the various entities and their relationships in the e-commerce domain, such as products, customers, orders, and payments. Use appropriate data modeling techniques, such as entity-relationship diagrams (ERDs) or class diagrams, to create a visual representation of the database structure.
- **Database Management System (DBMS):** Choose an appropriate DBMS based on the requirements of your e-commerce website. Popular options include MySQL, MongoDB, PostgreSQL, or SQLite, each with its own strengths and weaknesses. Consider factors such as scalability, performance, security, and ease of use when selecting a DBMS.
- **Normalization:** Follow the principles of database normalization to eliminate redundancy and ensure efficient storage of data. Normalization involves organizing data into tables with minimal duplication and properly defining relationships between tables to minimize data redundancy and inconsistencies.
- **Table Design:** Create tables that represent the entities identified in the data model. Define appropriate data types for each field, establish primary keys for uniquely identifying records, and define foreign keys to

establish relationships between tables. Consider indexing fields that are frequently used in queries to improve query performance.

- **Data Integrity:** Implement data integrity constraints, such as unique constraints, foreign key constraints, and check constraints, to maintain data consistency and prevent data anomalies. Use triggers or stored procedures to enforce business rules and maintain data integrity at the database level.
- **Scalability:** Plan for scalability by designing the database to handle increasing amounts of data and user traffic. Consider factors such as table partitioning, caching, and sharding to distribute data across multiple servers and optimize performance as the website grows.
- **Security:** Implement appropriate security measures to protect the data stored in the database. Use techniques such as encryption, hashing, and salting to protect sensitive data, such as customer passwords or payment information. Regularly update and patch the DBMS to address security vulnerabilities.
- **Backups and Disaster Recovery:** Implement regular backups of the database to protect against data loss due to hardware failures, software issues, or other unforeseen events. Establish a disaster recovery plan to quickly restore the database to a previous state in case of data loss or other emergencies.
- **Performance Optimization:** Optimize database performance by optimizing database queries, indexing, and caching frequently accessed data. Monitor and analyze database performance regularly to identify and resolve performance bottlenecks.
- **Testing and Validation:** Thoroughly test the database design and functionality during development and conduct rigorous testing to ensure data integrity, consistency, and performance. Validate data input and output to prevent data-related errors and ensure the accuracy of data stored in the database.

Proper database design is crucial for the smooth and efficient operation of an e-commerce website, as it directly impacts the performance, reliability, and security of the website. It is important to follow best practices and industry standards for database design to ensure a robust and scalable database that meets the needs of the e-commerce website.

IV. ADVANTAGES AND DISADVANTAGES OF E-COMMERCE WEBSITE

A. Advantages of E-commerce Websites:

- **Global Reach:** E-commerce websites have the potential to reach customers worldwide, breaking geographical barriers and expanding the customer base beyond local markets.
- **Increased Sales:** E-commerce websites provide the opportunity to sell products or services 24/7, which can lead to increased sales compared to traditional brick-and-mortar stores that are limited by physical operating hours.
- **Cost-Effectiveness:** E-commerce websites can be more cost-effective compared to physical stores, as they require lower overhead costs, no need for physical inventory storage, and reduced operational expenses.
- **Convenience:** E-commerce websites offer convenience to customers, as they can shop from the comfort of their homes or on the go using their mobile devices, saving time and effort.
- **Personalization:** E-commerce websites allow for personalized marketing and offers based on customer preferences and behavior, leading to better customer engagement and loyalty.
- **Data-driven Insights:** E-commerce websites generate data on customer behavior, preferences, and purchase patterns, which can be used to gain insights and make data-driven decisions to optimize the website and marketing strategies.

B. Disadvantages of E-commerce Websites:

- **Security Concerns:** E-commerce websites are vulnerable to security threats such as data breaches, online fraud, and identity theft, which can result in loss of customer trust and financial damages.
- **Competition:** E-commerce is highly competitive, with numerous websites competing for customer attention and market share. Standing out from the competition and gaining customer trust can be challenging.
- **Technical Challenges:** E-commerce websites require technical expertise in web development, online payment processing, and cybersecurity, which can be complex and time-consuming to manage.

- **Customer Experience:** E-commerce websites may lack the sensory experience of physical stores, such as touch, smell, and feel of products, which can impact customer satisfaction and loyalty.
- **Logistics and Fulfillment:** Managing logistics, order fulfillment, shipping, and returns can be complex and costly, particularly for small or inexperienced e-commerce businesses.
- **Dependence on Technology:** E-commerce websites rely heavily on technology infrastructure, including website hosting, payment gateways, and other third-party services, which can be a single point of failure and impact website performance and customer experience.

It's important to carefully consider the advantages and disadvantages of e-commerce websites before embarking on an e-commerce venture. Proper planning, implementation, and ongoing management can help mitigate risks and maximize the benefits of an e-commerce website.

IV. RESULT AND DISCUSSION

Retail stores generally have higher overhead costs compared to e-commerce websites, including rent, utilities, inventory storage, and staffing. Physical retail stores have limited operating hours, typically based on store hours or days of operation, which may not be convenient for all customers. Physical retail stores are limited by their geographical location, and may not be accessible to customers outside the local area. Ecommerce provide bigger customer base worldwide.

V. CONCLUSION

The design and development of an e-commerce website is a multifaceted process that requires careful planning, attention to user experience, and adherence to best practices in web design and development. The design and development of an e-commerce website requires a user-centered approach, responsive design, robust security measures, a seamless checkout process, and continuous testing and optimization. By adhering to these best practices, e-commerce websites can provide a positive user experience, increase conversions, and ultimately achieve business success in the competitive online marketplace.

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to those who have contributed to the completion of this research paper on the design and development of an e-commerce website. First and foremost, we would like to thank our supervisor Prof. Mrs.S.N Khandare for their guidance, expertise, and invaluable feedback throughout the research process. Their support and encouragement have been instrumental in shaping this paper. The academic environment and facilities provided by the college have greatly facilitated the research process. We are grateful for the opportunities and guidance provided by the college and department that have enriched our learning experience and enabled us to pursue this research paper.

REFERENCES

- [1]. "Web Performance Optimization of E-commerce Websites: A Review of Techniques" by Muhammad Talha Siddiqui and Seungmin Rho (2018).
- [2]. "Design Patterns for E-commerce User Interfaces" by Umar Ruhi, Alexander W. Rudnicky, and Jeffrey S. Nickerson (2003)
- [3]. "E-commerce Usability: The Influence of Product Presentation in Online Shopping" by Claudia Loebbecke and Rainer Wichmann (2001).
- [4]. "E-commerce User Experience: An Examination of Web Accessibility and Usability" by Sarah Horton and Whitney Quesenbery (2018) .
- [5]. "Responsive Web Design: A Comprehensive Study" by Abdullah Almeahmadi and Asadullah Shah (2017).
- [6]. "Scalability and Performance of E-commerce Systems: A Comparative Study of Java, .NET, and PHP Technologies" by Olegas Vasilecas, Jonas Mockus, and Arturas Mazeika (2015).
- [7]. "Securing E-commerce Transactions: Techniques and Challenges" by William Stallings and Lawrie Brown (2008).

- [8]. "A Comparative Study of E-commerce Platforms: Magento, OpenCart, and WooCommerce" by Dimitrios Koukopoulos, Stylianos Nistazakis, and Christos Douligeris (2017)..
- [9]. "Database Design for E-commerce: An Entity-Relationship-Based Approach" by El-Sayed Atlam and Mohamed E. El-Sharkawi (2008).
- [10]. "Building E-commerce Applications: An Ontology-Based Approach" by Jelena Zdravkovic, Mirjana Ivanovic, and Marijana Despotovic-Zrakic (2013) .
- [11]. "Design and Implementation of E-commerce Database System" by Yang Wang, Jing Wang, and Qianqian Yan (2012) .
- [12]. "Database Design and Implementation for E-commerce Systems" by Christoph Becker and Florian Matthes (2013) .
- [13]. "Data Modeling for E-commerce Systems: An Ontology-Based Approach" by Michael Felderer, Alexander Felfernig, and Dietmar Jannach (2012).
- [14]. "An Efficient and Scalable Architecture for E-commerce Database Systems" by Seyedeh Parisa Kamali, Alireza Mahdian, and Sabah Mohammed (2016) .
- [15]. "E-commerce Database Design: Entity-Relationship Modeling" by Chaitali Chakrabarti and Indranil Bose (2014) .
- [16]. "The Influence of Website Design on Online Consumer Behavior: A Literature Review" by Xiaojing Liu (2003).
- [17]. "Designing E-commerce Websites: A Structured Approach" by Kelvin Yeo and Lai-Peng Chan (2008) .
- [18]. "Designing Trustworthy E-commerce Websites: A User-Centric Approach" by Pieter Desmet, Hendrik N.J. Schifferstein, and Janneke C. Oosterhof (2009) .
- [19]. "E-commerce User Experience Design: Key Dimensions and User Preferences" by Xing Huang and Ping Zhang (2017).
- [20]. "Designing for Trust in E-commerce: The Effect of Website Design on User Trust and Purchase Intention" by Muhammad Usama, Sarah Taylor, and M. Sadiq Sohail (2019) .

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN SCIENCE, COMMUNICATION AND TECHNOLOGY

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal



IJARST

CERTIFICATE OF PUBLICATION

INTERNATIONAL STANDARD
SERIAL NUMBER
ISSN NO: 2581-9429

THIS IS TO CERTIFY THAT

Shruti Kalaskar

Shri Sant Gajanan Maharaj College of Engineering, Shegaon, Maharashtra, India

HAS PUBLISHED A RESEARCH PAPER ENTITLED

Design and Development of Ecommerce Website

IN IJARST, VOLUME 3, ISSUE 6, APRIL 2023

Certificate No: 042023-A1479

www.ijarst.co.in



www.crossref.org



www.sjifactor.com



INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN SCIENCE, COMMUNICATION AND TECHNOLOGY

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal



IJARST

CERTIFICATE OF PUBLICATION

INTERNATIONAL STANDARD
SERIAL NUMBER
ISSN NO: 2581-9429

THIS IS TO CERTIFY THAT

Pratiksha Dalimkar

Shri Sant Gajanan Maharaj College of Engineering, Shegaon, Maharashtra, India

HAS PUBLISHED A RESEARCH PAPER ENTITLED

Design and Development of Ecommerce Website

IN IJARST, VOLUME 3, ISSUE 6, APRIL 2023

Certificate No: 042023-A1480

www.ijarst.co.in



www.crossref.org



www.sjifactor.com



INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN SCIENCE, COMMUNICATION AND TECHNOLOGY

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal



IJARST

CERTIFICATE OF PUBLICATION

INTERNATIONAL STANDARD
SERIAL NUMBER
ISSN NO: 2581-9429

THIS IS TO CERTIFY THAT

Dhanashree Shegokar

Shri Sant Gajanan Maharaj College of Engineering, Shegaon, Maharashtra, India

HAS PUBLISHED A RESEARCH PAPER ENTITLED

Design and Development of Ecommerce Website

IN IJARST, VOLUME 3, ISSUE 6, APRIL 2023

Certificate No: 042023-A1481

www.ijarst.co.in



www.crossref.org



www.sjifactor.com



INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN SCIENCE, COMMUNICATION AND TECHNOLOGY

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal



IJARST

CERTIFICATE OF PUBLICATION

INTERNATIONAL STANDARD
SERIAL NUMBER
ISSN NO: 2581-9429

THIS IS TO CERTIFY THAT

Sudhir Ghagare

Shri Sant Gajanan Maharaj College of Engineering, Shegaon, Maharashtra, India

HAS PUBLISHED A RESEARCH PAPER ENTITLED

Design and Development of Ecommerce Website

IN IJARST, VOLUME 3, ISSUE 6, APRIL 2023

Certificate No: 042023-A1482

www.ijarst.co.in

Crossref
DOI: 10.48175/IJARST-9368
www.doi.org

www.crossref.org

7.301
Scientific Journal Impact Factor
Journal Impact Factor

www.sjifactor.com

ISSN 2581-9429
IJARST
Editor-in-Chief

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN SCIENCE, COMMUNICATION AND TECHNOLOGY

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal



IJARST

CERTIFICATE OF PUBLICATION

INTERNATIONAL STANDARD
SERIAL NUMBER
ISSN NO: 2581-9429

THIS IS TO CERTIFY THAT

Prof. S. N. Khandare

Shri Sant Gajanan Maharaj College of Engineering, Shegaon, Maharashtra, India

HAS PUBLISHED A RESEARCH PAPER ENTITLED

Design and Development of Ecommerce Website

IN IJARST, VOLUME 3, ISSUE 6, APRIL 2023

Certificate No: 042023-A1483

www.ijarst.co.in



www.crossref.org



www.sjifactor.com

