A
Project Report
on

Eloqify: Intelligent Interview Companion

Submitted to

Sant Gadge Baba Amravati University, Amravati

Submitted in partial fulfilment of
the requirements for the Degree of
Bachelor of Engineering in
Computer Science and Engineering

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SHRI SANT GAJANAN MAHARAJ COLLEGE OF ENGINEERING,

SHEGAON – 444 203 (M.S.)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that **Ms. Eisha Gopal Nikam, Ms. Samruddhi Jivan Katole, Ms. Sanika Prakash Dose and Ms. Vaishnavi Sanjay Avadhut** students of final year Bachelor of Engineering in the academic year 2024-25 of Computer Science and Engineering Department of this institute have completed the project work entitled "**Eloqify: Intelligent Interview Companion**" and submitted a satisfactory work in this report. Hence recommended for the partial fulfilment of degree of Bachelor of Engineering in Computer Science and Engineering.

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Abstract

In today's competitive job market, candidates aiming for technical roles must engage in focused preparation supported by real-time, unbiased feedback. Eloqify is a web-based, AI-driven mock interview platform developed to streamline and personalize technical interview preparation. The system supports three user roles: Admin, Candidate, and Evaluator. Admins manage platform content and user access, Candidates participate in AI-generated mock interviews, and Evaluators review performances and provide additional insights. At its core, Eloqify utilizes Google's Gemini API to dynamically generate technical questions tailored to job roles and skill areas. The platform evaluates candidate responses and provides detailed, actionable feedback on communication clarity, technical depth, and problem-solving approach.

Built using Next.js (backend), React.js (frontend), Clerk (authentication), and Neon serverless Postgres (database), Eloqify ensures a scalable, secure, and responsive environment. The interactive dashboard enables users to monitor their performance through metrics such as question-wise ratings, interview summaries, and personalized improvement suggestions. By combining AI-based assessment with modern web technologies, Eloqify delivers a structured, adaptive, and highly efficient mock interview experience—bridging the gap between preparation and real-world technical success.

Keywords: *AI-driven assessment, technical interview preparation, mock interviews, personalized feedback, Google Gemini API, performance analytics.*

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CHAPTER 1

INTRODUCTION

INTRODUCTION

1.1 PREFACE

In today's rapidly evolving digital era, the competition for technical roles has reached unprecedented levels. With the surge in demand for software developers, data scientists, and other technology professionals, recruiters are now prioritizing candidates with strong practical skills, hands-on experience, and real-time problem-solving abilities. Despite this shift, the conventional education system continues to focus primarily on theoretical knowledge, which often leaves students underprepared for the practical challenges of the hiring process.

Academic curriculums are structured around fixed syllabi, examinations, and theoretical assessments that rarely mirror the dynamic expectations of real-world technical interviews. As a result, graduates—even those with impressive academic records—find themselves overwhelmed when faced with live coding rounds, algorithmic challenges, system design questions, and behavioral evaluations that demand clarity, efficiency, and a practical approach.

In such a scenario, candidates usually rely on multiple external platforms to fill this gap—one for coding practice, another for mock interviews, and yet another for performance analytics. However, this fragmented approach not only makes the preparation journey disjointed but also consumes a significant amount of time and effort, often leading to inconsistent learning and increased anxiety.

This growing disconnect inspired the creation of Eloqify, a one-stop AI-powered platform tailored specifically for technical interview preparation. Eloqify is not just another practice tool; it is a comprehensive solution that leverages modern artificial intelligence to deliver smart, adaptive, and role-specific preparation experiences. By integrating question generation, interactive simulations, real-time feedback, and a personalized dashboard into a single seamless platform, Eloqify aims to redefine how candidates prepare for their dream roles in the tech industry.

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1.2 MOTIVATION

The motivation to develop Eloqify stemmed from observing the common struggles faced by job seekers in the tech domain. While a wealth of resources exists for interview preparation, most are generic, non-personalized, or overly focused on passive learning. There remains a significant void in solutions that actively adapt to an individual's goals, experience, and learning style, thereby truly guiding them toward excellence in technical interviews.

Many aspiring developers and engineers—especially fresh graduates and early-career professionals—encounter challenges that hinder their confidence and performance during interviews:

1. **Fragmentation of Resources:** Preparing for technical interviews often demands the use of multiple platforms—one for practicing algorithms, another for mock interviews, and yet another for performance review. This scattered approach leads to cognitive overload, inefficiency, and inconsistent progress.
2. **Lack of Personalization:** Most interview prep platforms offer a fixed set of questions, without considering the user's specific job role, domain, technology stack, or experience level. As a result, users spend time practicing questions that may be irrelevant to their career goals.
3. **Insufficient Feedback Mechanisms:** While many platforms assess correctness, they fail to provide deeper insights into aspects like code readability, logical structuring, problem-solving approach, or efficiency. This leaves users unaware of critical areas that need improvement.
4. **Interview Anxiety and Real-Time Pressure:** Many candidates excel in practice environments but falter under the pressure of real interviews. This is often due to a lack of exposure to real-time coding scenarios and insufficient training in thinking under pressure.
5. **Absence of a Self-Evolving System: Traditional** mock interview systems do not evolve with the user. They don't track progress over time, adapt question difficulty, or tailor content based on performance trends.

Eloqify was born out of the desire to eliminate these bottlenecks and offer a smarter, more adaptive preparation environment. It uses Google Gemini AI to generate tailored questions based on user input like job position, tech stack, and years of experience,

ensuring that every candidate gets a preparation path that aligns with their career aspirations.

The platform not only simulates real interview conditions but also learns from each user's interactions to continuously adapt and refine its feedback. With built-in performance tracking, dynamic difficulty scaling, and instant analysis, Eloqify becomes a personal mentor that grows with the candidate, helping them build confidence and perform at their best when it matters the most.

Ultimately, the motivation behind Eloqify is to empower every candidate with a fair, efficient, and intelligent preparation system, helping them not just prepare for interviews, but truly understand and master the art of technical problem-solving in today's competitive landscape.

1.3 PROBLEM STATEMENT

Job candidates lack personalized feedback and real-time insights to improve their interview skills. Traditional methods don't provide tailored guidance based on individual profiles. The challenge is to build an AI-driven platform that scans resumes, generates personalized interview questions, and delivers real-time feedback through interactive simulations, all while ensuring a seamless and secure user experience.

1.4 AIM & OBJECTIVES

Aim: The AI-driven interview platform is designed to revolutionize interview preparation by providing real-time, personalized feedback through advanced technologies, helping candidates boost their confidence and performance. Grab the opportunity to stand out in a competitive job market and significantly enhance your chances of success.

To fulfill the aim of the project, the following are the objectives:

1.Develop an AI-driven platforsm for real-time interview preparation with accurate feedback and analysis.

2.Generate adaptive, role-specific interview questions using advanced AI technologies.

3.Enable interactive AI-driven mock interviews for personalized preparation.

4.Build a secure authentication system and a responsive, user-friendly interface for seamless navigation and interaction.

1.5 SCOPE OF PROJECT

Eloqify is focused on delivering a full-fledged technical interview preparation platform with the following features:

1. **Custom Question Generation:** Based on the candidate's job role, experience, and skills.
2. **AI-Driven Simulations:** Real-time interview environments using conversational AI.
3. **Performance Analytics:** Dashboard to evaluate clarity, coding efficiency, and problem-solving patterns.
4. **Seamless Experience:** Built with modern web technologies for an intuitive interface and fast response times.
5. **Scalability & Adaptability:** Easily extendable to support new domains, roles, and difficulty levels in future updates

1.6 ORGANIZATION OF PROJECT

Chapter 1: Introduction of the Project

This chapter introduces the Eloqify platform by outlining its vision of transforming technical interview preparation through the use of artificial intelligence. It discusses the motivation behind creating a realistic, AI-powered mock interview system that not only simulates actual interviews but also evaluates candidate responses and provides actionable feedback. The platform is built using modern web technologies, including React.js for the frontend, Next.js for server-side rendering, and Clerk for secure user authentication. The core intelligence is powered by Google's Gemini API, which enables the generation of personalized interview questions and insightful performance analysis. This chapter sets the foundation for understanding the importance of building a scalable, intelligent, and user-focused solution for both individuals and hiring organizations.

Chapter 2: Literature Review

This chapter presents a detailed review of existing mock interview systems, AI-based evaluation tools, and academic research related to automated interview feedback. It

explores different methodologies and platforms that focus on aspects like real-time assessment, behavioral analysis, and AI-driven feedback. The review highlights several limitations in current solutions, such as the lack of customized question generation, minimal feedback depth, and poor user engagement. By analyzing these shortcomings, the chapter justifies the need for a next-generation platform like Eloqify, which aims to bridge these gaps with AI-powered personalization, detailed analytics, and a more interactive user experience.

Chapter 3: Methodology

This chapter explains the overall design, system architecture, and workflow of the Eloqify platform. It introduces the key user roles, including candidates who participate in interviews and evaluators who review the results. The question generation mechanism, driven by the Gemini API, is explained along with the AI-based feedback model that evaluates user responses. The system utilizes Neon serverless Postgres for efficient and scalable data management. The architecture connecting frontend and backend components is outlined, showing how data flows through different modules. The methodology is supported with UML diagrams including use case, class, sequence, and deployment diagrams, which offer a clear visual understanding of the system's behavior, relationships, and deployment structure.

Chapter 4: Implementation

This chapter provides a step-by-step explanation of the platform's implementation. It starts by explaining the rationale behind choosing the tech stack, which includes React.js for building a responsive and dynamic frontend, Next.js for robust server-side rendering and API support, Neon for managing cloud-hosted PostgreSQL databases, and Clerk for handling user authentication securely. The chapter details how users upload job descriptions or resumes, how questions are dynamically generated based on the input, and how the system evaluates and stores feedback. Each module is discussed in terms of its development process, and screenshots are included to showcase the user interface. This chapter also covers testing procedures and integration strategies to ensure all components function cohesively.

Chapter 5: Result and Discussion

This chapter presents the results obtained from the working Eloqify system and discusses its performance based on various criteria such as system responsiveness, feedback accuracy, and user satisfaction. It includes visual representations such as charts showing question-wise rating distributions, overall interview scores, and personalized feedback summaries. The platform's ability to improve candidate performance through AI-driven insights is examined. Feedback from users who experienced mock interviews is analyzed to assess the system's impact on communication skills and technical articulation. The discussion highlights areas where Eloqify performed effectively and outlines key takeaways regarding usability and the quality of AI-generated content.

Chapter 6: Conclusion

The final chapter summarizes the achievements of the Eloqify project and reflects on its contributions to modern technical interview preparation. It emphasizes the platform's innovative approach to simulating real-world interviews with AI-powered feedback and personalized question generation. The conclusion also explores future possibilities, including the integration of voice tone and emotion detection, real-time coding assessments, expansion of question banks, and multi-language support. Additionally, the chapter proposes scaling the platform to other domains such as MBA admissions or civil service exam preparation, demonstrating Eloqify's adaptability as a versatile, AI-driven evaluation solution for diverse fields.

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CHAPTER 2

LITERATURE REVIEW

LITERATURE REVIEW

The literature survey provided encompasses a diverse range of topics within the realm of technology and information management. Communication For the sake of our AI-based mock interview platform development, we read some research papers that provide basic insights into our work.

Suen, H. et al., 2019 [1] The research findings directly support Eloqify's goal of AI-driven interview analysis by providing insights into how machine learning, deep learning, and facial recognition can automate candidate evaluation. Traditional face-to-face interviews require significant time and resources, while Asynchronous Video Interviews (AVI) offer flexibility but still depend on human raters. The research highlights how AI can bridge this gap by automating interview assessments through biometric recognition, facial detection, and deep learning techniques like CNNs.For Eloqify, these findings validate the use of AI-powered tools to assess communication skills and predict personality traits based on video responses. By leveraging TensorFlow-based CNN models, Eloqify can enhance its ability to analyze verbal and nonverbal cues, providing real-time, objective feedback to candidates. This improves accuracy, efficiency, and scalability, making the interview process more streamlined for both recruiters and job seekers. Additionally, the concept of semi-supervised learning ensures that Eloqify can improve its assessment models even with limited labeled data. The integration of AI-driven resume scanning, question generation, and interview analysis aligns with industry advancements, making Eloqify a cutting-edge solution for modern hiring challenges.

Narkhede, Vaishnavi, et al. 2023 [2]This research reinforces Eloqify's approach to AI-driven interview automation by demonstrating how AI and ML can streamline the hiring process. Traditional recruitment methods, including resume screening, interviews, and reference checks, are time-consuming and labor-intensive. By leveraging AI, Eloqify can automate these tasks, making hiring more efficient and scalable.The paper highlights key technologies like Natural Language Processing (NLP), Large Language Models (LLM), and Generative Adversarial Networks (GANs), all of which align with Eloqify's vision. NLP enables the system to understand and interpret candidate responses, while LLMs, such as GPT-3, can generate human-like interactions during interviews. Additionally, GANs, particularly Patch-GAN, allow

for realistic avatar generation, creating an interactive and engaging AI interviewer.For Eloqify, integrating these technologies means enhancing candidate experience, automating initial screenings, and providing AI-driven insights into communication and personality traits. This research validates Eloqify's AI-powered interview bot concept, ensuring that the platform remains at the forefront of intelligent hiring solutions.

Nguyen. L. S. et al. 2014 [3] This research provides valuable insights for Eloqify by showcasing how verbal and nonverbal behaviors influence hiring decisions and how AI-driven systems can these behaviors to predict a candidate's suitability. Since employment interviews are inherently social interactions where recruiters form opinions based on a candidate's verbal responses, tone, gestures, posture, and facial expressions, incorporating AI-powered analysis of these elements can make interview assessments more structured and data-driven.The study highlights that nonverbal cues, such as tone of voice, head gestures, and facial expressions, are often unconscious and difficult to fake, making them reliable indicators of personality traits, confidence, and competence. Eloqify can integrate automated audio and video analysis to evaluate these cues, helping employers gain deeper insights into candidates beyond their resumes and verbal responses.Additionally, the research demonstrates how machine learning models can predict hirability scores based on real job interview interactions. By leveraging audio-visual feature extraction and computational inference, Eloqify can build a similar system to automatically assess a candidate's performance, reducing reliance on human raters and making the hiring process more efficient, consistent, and unbiased. The study also suggests that both applicant and interviewer behaviors impact hiring outcomes, meaning Eloqify could explore interactive AI models that consider two-way communication dynamics.Ultimately, this research reinforces Eloqify's vision of developing an AI-driven interview platform that assesses communication skills, personality traits, and interview performance using advanced machine learning techniques, enhancing the overall hiring process for both candidates and recruiters.

Naim, I, et al. 2015 [4]This research is highly relevant to Eloqify as it provides a computational framework for automated interview performance analysis, using AI-driven insights.Multimodal Analysis: The study analyzes facial expressions, language, and prosody (intonation, pauses, and pitch) to predict a candidate's interview performance. Eloqify can integrate similar AI-driven speech and video analysis to provide automated feedback on communication skills. Predictive Capabilities: The

model successfully predicts interview traits like engagement, excitement, and friendliness with a high correlation (≥0.73). Eloqify can use machine learning models to assess these traits and provide candidates with personalized improvement suggestions. Objective Evaluation: The research demonstrates that nonverbal behavior is as important as verbal content in interviews. Eloqify can incorporate automated scoring to reduce human bias in evaluations, helping candidates understand not just what they say, but how they say it. Recommendations for Improvement: The study suggests that fluent speech, fewer filler words, confident tone, and positive body language improve interview outcomes. Eloqify can generate AI-powered recommendations to guide candidates in refining these aspects. Hirability Predicstion: The framework predicts the likelihood of getting hired with an AUC of 0.81, demonstrating the feasibility of AI-driven hiring predictions. Eloqify can implement similar hirability scoring models to help candidates measure and enhance their chances of success.

Narang, Shreya , et al. 2015 [5] Automatic Speech Recognition (ASR) is a process that converts spoken language into text using computational algorithms. It plays a crucial role in various applications, including voice search, call routing, voice-assisted controls, and language learning. Modern ASR systems primarily rely on Hidden Markov Models (HMMs) due to their ability to be trained efficiently and their computational feasibility. Despite advancements, ASR still faces challenges in recognizing speech from multiple speakers and varying environments with complete accuracy.

Jacobsen, Jasper, Lucas, et al. 2022 [6] Prompt engineering is the process of developing and optimizing prompts for generative AI models. I want to look at the typical use case of people trying to learn about generative AI. In my master's thesis, I look at ways to improve the quality of content generated by a certain AI model by developing new tactics that make use of skillfully designed role and tone cues: ChatGPT-3.5: Strong Power. I looked at a variety of AI metrics before choosing to use Rouge-L-Sum and BERTScore to evaluate the performance of the newly generated phrases. I utilize wiki_qa, a Question-Answering dataset consisting of English questions and responses derived from Wikipedia content. This thesis does not specifically address the kind of research where every position is more efficient because it is done globally across the dataset; this may be covered in a future version of the study. However, it is important

to look at existing models in this area, like ChatGPT-3.5-Turbo, as it helps understand deeper models and steps back from the dangerous rush toward ever-more complex, unpredictable black-box models that could emerge.

Ekin, Sabit, et al. [7] A comprehensive guide to mastering prompt engineering techniques, tips, and best practices to achieve optimal results with ChatGPT is provided. Thediscussion starts with an introduction to ChatGPT and the fundamentals of prompt engineering, and then moves on to an exploration of techniques for effective prompt crafting, such as clarity, explicit constraints, experimentation, and leveraging different types of questions. Ultimately, to fully harness the potential of ChatGPT, it is crucial to understand and master the art of prompt engineering—the process of designing and refining input prompts to elicit desired responses from an AI NLP model. Advanced techniques are also covered, including prompt chaining, domain-specific modifications, temperature and token management, and managing ambiguous inputs. Case examples from real- world scenarios show how quick engineering is used in customer service, content creation, retrieving domain-specific knowledge, and interactive storytelling. The effects of efficient rapid engineering on ChatGPT performance, potential avenues for future study, and the significance of encouraging innovation and teamwork within the ChatGPT community are all highlighted in the article's conclusion.

S. Rai, S, et al. 2024 [8] The research paper directly aligns with and significantly strengthens the foundation of Eloqify by addressing the exact pain points your platform aims to solve. It establishes that success in the competitive job market hinges not just on academic qualifications but on a candidate’s preparedness for interviews—a key motivation behind Eloqify. The paper emphasizes the fragmented nature of current interview preparation resources and proposes an all-in-one solution that integrates AI-powered mock interviews, resume building, and technical assessments. Eloqify mirrors this vision by offering a centralized platform that saves candidates from navigating multiple tools. The use of AI and machine learning for analyzing communication skills, facial expressions, tone of voice, and body language in the research validates Eloqify's advanced feedback system, which provides users with real-time, data-driven insights to improve their performance. Additionally, the dynamic resume builder mentioned in the paper supports your inclusion of a customizable CV generation tool tailored to job roles, enhancing user employability. The programming quiz feature suggested in the paper further backs Eloqify's focus on technical readiness, especially for software and IT

roles. Overall, the research offers academic and technical validation for Eloqify's structure and features, proving that your platform not only addresses real-world challenges but also stands on solid research-backed principles, ultimately aiming to transform candidates' interview experiences through continuous improvement, confidence building, and comprehensive preparation.

Rai, S, Navya, et al. 2024[9] This research paper further reinforces the relevance and effectiveness of Eloqify by offering a technical and psychological foundation for its core functionalities. It highlights how AI-based mock interview systems can significantly reduce interview-related anxiety while improving a candidate's emotional readiness, confidence, and knowledge—exactly what Eloqify aims to deliver. The paper's focus on evaluating users through facial emotion incorporating similar parameters—emotion, confidence, and subject knowledge—Eloqify ensures holistic candidate assessment, mirroring this research-driven model Furthermore, the emphasis on first impressions, eye contact, and non-verbal cues in the paper directly aligns with Eloqify's goal to simulate real interview environments and offer feedback on body language, eye contact, and speech. In essence, this paper strengthens Eloqify's credibility by showing that its approach is not only innovative but also academically and practically sound, offering users a psychologically supportive and technically robust platform to prepare effectively for real-world interviews.

Mishra, P. K. et al. 2024 [10] This research paper provides strong technical and conceptual support for developing and enhancing Eloqify. It highlights the limitations of traditional interview prep methods—like generic questions and lack of personalized feedback—and offers a clear case for why AI-driven solutions are superior. The proposed system aligns perfectly with Eloqify's goals: using AI and NLP to generate role-specific questions, analyzing both verbal and non-verbal cues in real-time, and providing performance insights through dashboards. The use of technologies like Next.js, Google Gemini API, PostgreSQL, and speech/text analysis tools validates the tech stack and functionalities that Eloqify either currently uses or plans to integrate. Moreover, its focus on customization, real-time feedback, security, and user-friendly design directly supports Eloqify's aim to deliver a smart, adaptive, and secure interview simulation experience. The paper reinforces that AI-based platforms like Eloqify are not only viable but essential in modern recruitment preparation, showing that such systems are academically backed and practically impactful in refining user performance

and confidence. literature review involves systematically reviewing existing research on a specific topic, providing a critical summary, identifying gaps, and offering insights for future studies. It serves to contextualize, evaluate, and synthesize the current state of knowledge in a particular field.

CHAPTER 3

METHODOLOGY

METHODOLOGY

3.1 PROPOSED SYSTEM

To overcome the challenges posed by fragmented interview preparation resources and subjective evaluation methods, Eloqify introduces an AI-powered mock interview platform designed for efficiency, accuracy, and personalization. The system integrates real-time interview simulations, AI-generated technical questions, and instant performance feedback into a single unified interface. This ensures structured, consistent, and objective assessments for candidates. The following sections detail the architecture and core functionalities of the proposed Eloqify system.

3.2 ARTIFICIAL INTELLIGENCE

Artificial Intelligence (AI) is the driving force behind Eloqify, an innovative platform that transforms how candidates prepare for technical interviews in the modern job market. At its core, Eloqify functions as an intelligent mock interview system that bridges the gap between academic learning and industry expectations, delivering a personalized and dynamic preparation experience.

Traditional interview preparation methods often require juggling multiple platforms for coding practice, mock interviews, and feedback analysis. Eloqify eliminates this fragmentation by integrating all essential tools into a single, interactive interface—streamlining the preparation process for maximum efficiency and effectiveness.

With AI at its heart, Eloqify generates job-specific technical questions, simulates real-world interview environments, and offers instant, actionable feedback on a candidate's communication skills, coding quality, and problem-solving approach. The platform adapts to each user's progress and needs, ensuring targeted guidance and continual improvement.

By leveraging advanced AI technologies such as Google Gemini, Eloqify ensures that every mock interview is tailored, relevant, and aligned with the expectations of the tech industry. Its intuitive dashboard enables users to monitor their performance in real-time and focus on areas that require development.

Built using modern frameworks like Next.js and React.js, Eloqify delivers a smooth, engaging, and immersive experience for both individual users and institutions. It also supports scalable assessments for recruiters and educators, ensuring objective evaluation without bias.

Eloqify represents a new era in interview preparation—powered by Artificial Intelligence, it reimagines how candidates gain confidence, sharpen their skills, and step into real interviews fully prepared to succeed.

3.3 TECHNOLOGY STACK

Given below technology stack shows how various technologies are used :

1. Clerk – Authentication

Clerk is used in Eloqify to manage user authentication and identity securely. It provides pre-built components for sign-up, login, password recovery, and session handling, which seamlessly integrate with modern frameworks like Next.js. With support for social logins, email verification, multi-factor authentication, and user management, Clerk ensures that only authorized users can access specific features of the platform. Its ease of integration and strong security features make it ideal for applications like Eloqify, where user privacy and seamless access are priorities.

2. React.js

React.js powers the core user interface of Eloqify. As a JavaScript library designed for building responsive and component-based UIs, React enables a fast and dynamic user experience. It allows developers to break down the interface into reusable components, which simplifies code maintenance and makes development more efficient. React's virtual DOM feature ensures faster updates and rendering, helping create a smooth user interaction, especially critical in applications like live interview simulations and resume-based assessments.

3. Next.js

Next.js serves as the backbone of the Eloqify platform. Built on top of React, Next.js adds powerful features such as server-side rendering (SSR), API routes, and static site generation (SSG), which boost both performance and scalability. Its built-in routing

system and support for backend logic within the same codebase make it a perfect fit for full-stack applications. With Next.js, Eloqify efficiently handles both frontend views and backend logic, ensuring a seamless and fast-performing application.

4. Tailwind CSS

Tailwind CSS is used in Eloqify to style components and layout the interface in a clean, modern, and responsive design. Unlike traditional CSS frameworks, Tailwind uses utility classes that make it easy to apply styles directly within HTML or JSX. This eliminates the need for writing separate CSS files, resulting in faster development and a more consistent design system. Tailwind helps maintain a polished and professional UI, which enhances the overall user experience, especially for a platform that targets job seekers and professionals.

5. Google Gemini API

The Google Gemini API plays a vital role in making Eloqify intelligent and adaptive. It leverages Google's large language models to generate personalized interview questions based on the user's resume and job role preferences. The questions are context-aware and aligned with industry standards, ensuring that users get realistic interview practice. By using AI to tailor content for each user, Eloqify offers a highly customized learning experience, making interview preparation more efficient and effective.

6. Speech-to-Text Engine

To simulate real-world interviews more accurately, Eloqify incorporates speech-to-text technology that allows users to speak their answers instead of typing them. This technology transcribes spoken responses into text, which can then be evaluated by the feedback system. It makes the experience more interactive and helps users improve their verbal communication skills. This feature also adds accessibility for users who are more comfortable expressing themselves verbally or have difficulty typing.

7. AI Feedback Engine

After capturing answers, the AI Feedback Engine processes the transcribed responses using natural language processing (NLP) techniques. It evaluates the content based on criteria such as fluency, confidence, clarity, and technical accuracy. The engine then

provides structured feedback, helping users identify their strengths and areas for improvement. This automated analysis replaces manual evaluation, allowing Eloqify to offer instant, unbiased, and consistent feedback at scale, which is crucial for self-paced learning.

8. PostgreSQL

Eloqify uses PostgreSQL as its primary relational database to store structured data like user profiles, resumes, interview history, generated questions, and feedback records. PostgreSQL is known for its robustness, support for complex queries, and data integrity features, making it ideal for applications that rely heavily on accurate data management. Its scalability and security features ensure that user data remains safe while supporting the growing needs of the platform.

9. Neon Serverless

In Eloqify, Neon Serverless is used to manage candidate data and interview session results efficiently by providing a scalable PostgreSQL backend. Its serverless architecture ensures seamless auto-scaling during peak usage, like bulk mock interviews. With branching support, development and testing of new features can be done without disrupting the live environment, enabling faster and safer deployment.

3.4 UML Diagrams for Eloqify

To model the system design and architecture of Eloqify, various UML (Unified Modeling Language) diagrams were created. These diagrams provide a comprehensive view of the system's structure, behavior, and deployment strategy. The following section explains each diagram in the correct order of interpretation.

1. Use Case Diagram

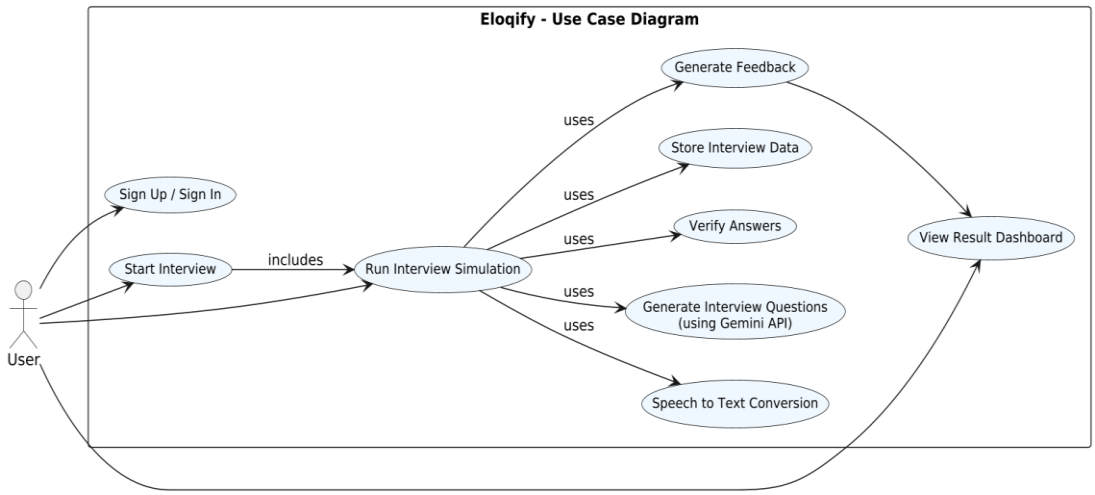


Fig 3.1 Use Case Diagram

This Use Case Diagram for Eloqify outlines how a user interacts with the interview simulation platform. The user starts by signing up or signing in, then initiates an interview session. The Run Interview Simulation is the core function, which includes generating interview questions using the Gemini API, converting speech to text, and verifying the user's answers. As the simulation runs, the system stores interview data and generates feedback based on the responses. Finally, the user can view their performance and feedback on the Result Dashboard, helping them prepare for real interviews.

2. Class Diagram

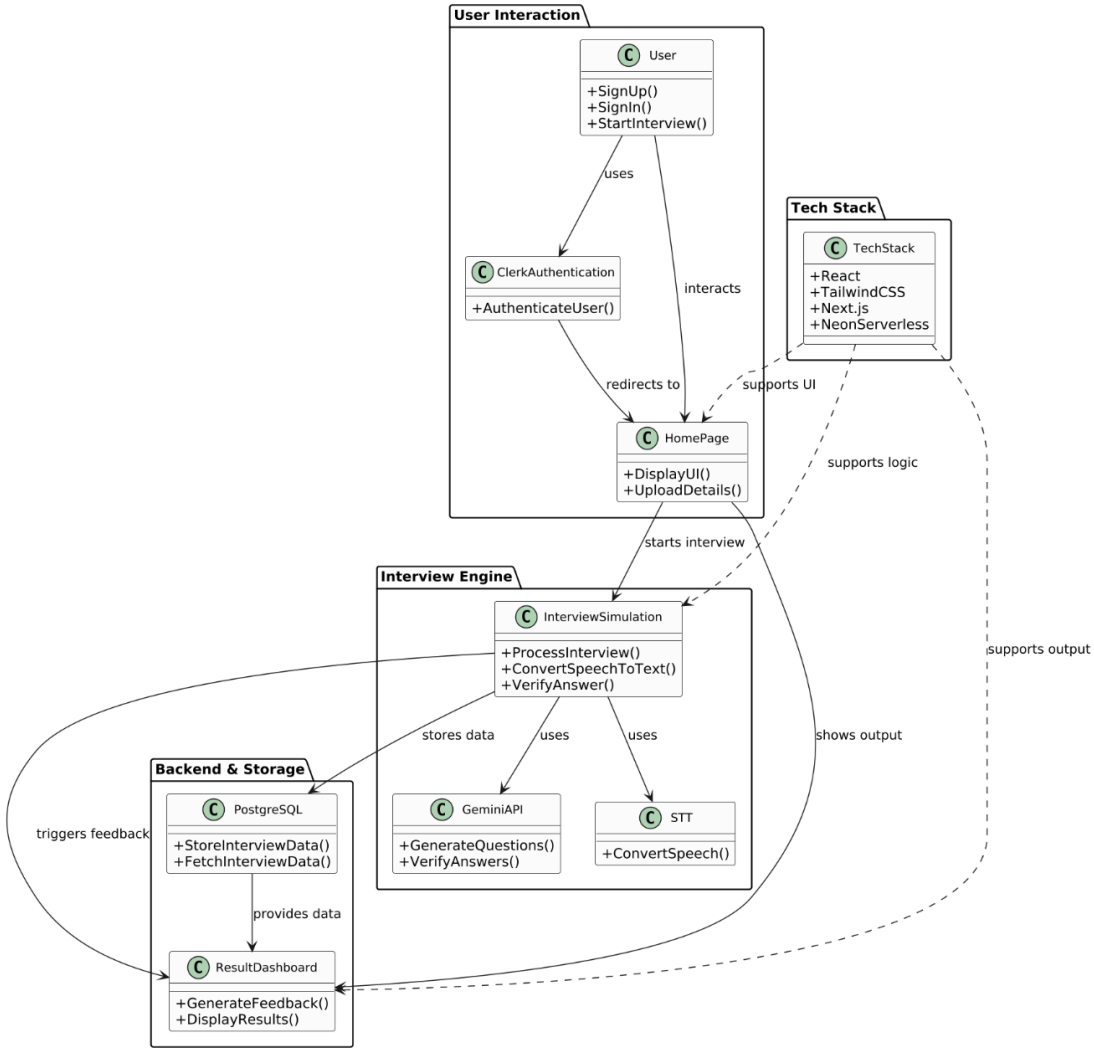


Fig 3.2 Class Diagram

This class diagram outlines an AI-driven interview platform with four main components: User Interaction, Interview Engine, Backend & Storage, and Tech Stack. Users can sign up, log in, and start interviews. Authentication is managed by ClerkAuthentication, and users are redirected to the HomePage to upload details and begin the process.

The InterviewSimulation class handles question generation via GeminiAPI, converts speech using STT, and verifies answers. Data is stored in PostgreSQL, while ResultDashboard displays feedback and results. The platform is built using React, TailwindCSS, Next.js, and NeonServerless, ensuring smooth integration across the UI, logic, and storage.

3. Sequence Diagrram

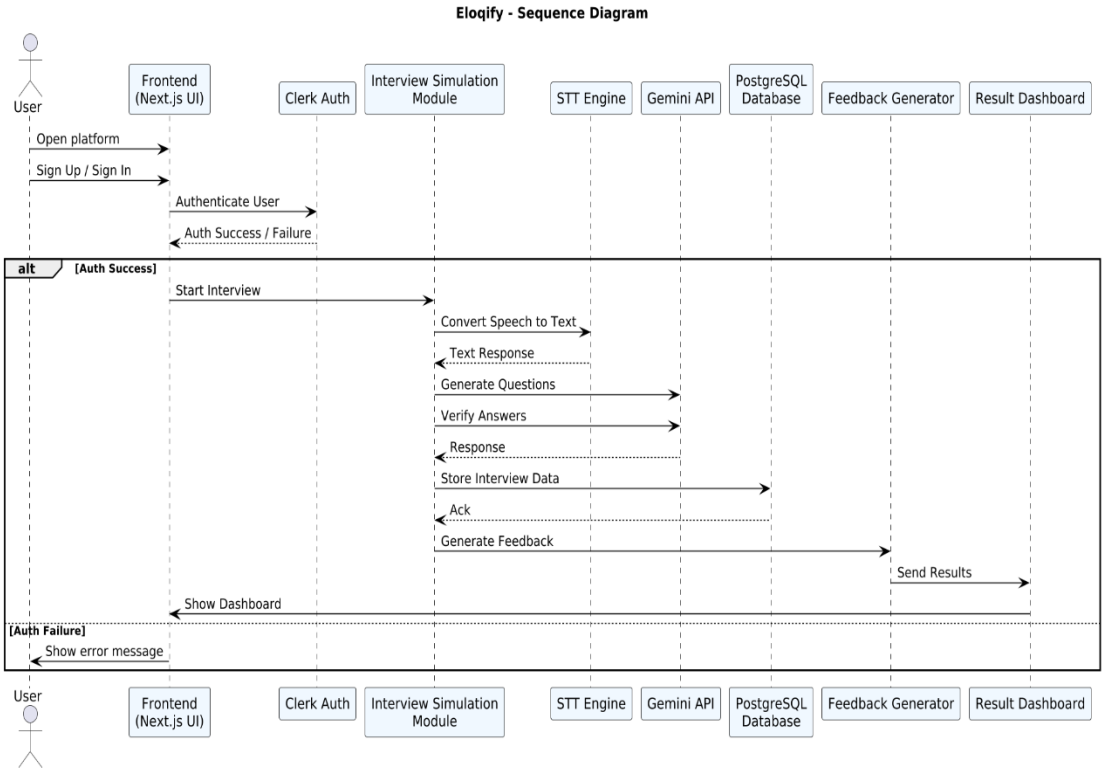


Fig 3.3 Sequence Diagram

This sequence diagram represents the flow of actions in the Eloqify interview platform, from user interaction to result display.

The process begins when a user opens the platform and signs up or logs in via the Frontend (Next.js UI). The Clerk Auth service authenticates the user. Based on the result, two outcomes are possible:

1. On authentication success, the user starts the interview. The Interview Simulation Module processes spoken input using the STT Engine to convert it to text. Then, the Gemini API generates relevant questions and verifies answers. All responses are stored in the PostgreSQL Database, and feedback is generated using the Feedback Generator, which sends final results to the Result Dashboard for display.

2.On authentication failure, an error message is shown to the user via the frontend.

4. Activity Diagram

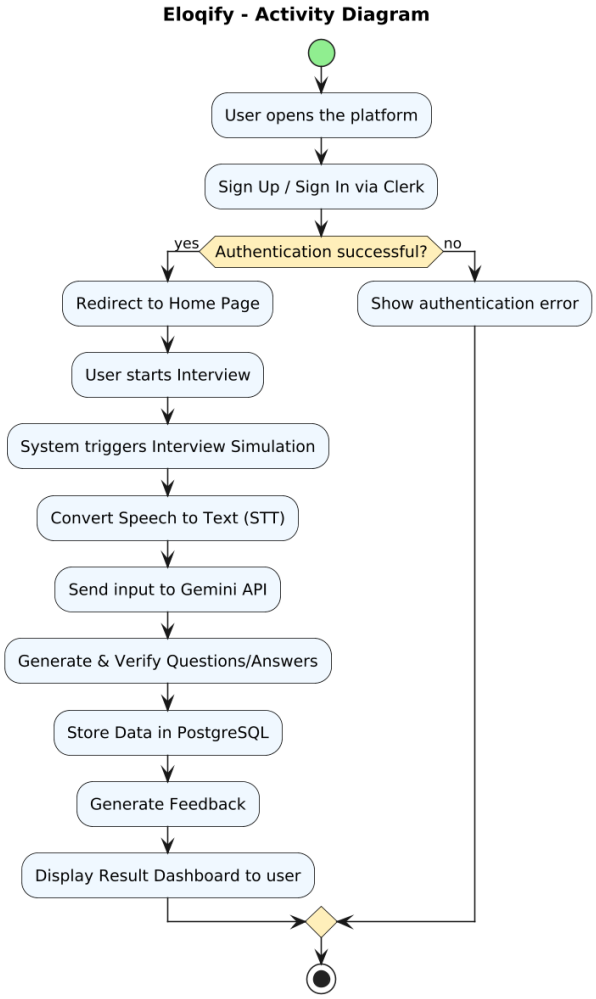


Fig 3.4 Activity Diagram

The activity diagram outlines the user journey in the Eloqify platform, starting with opening the platform and signing in via Clerk. If authentication is successful, the user is redirected to the home page and initiates the interview process. The system then triggers the interview simulation, converts the user's speech to text using STT, and sends the input to the Gemini API to generate and verify questions and answers. The data is stored in PostgreSQL, feedback is generated, and the final results are displayed on the Result Dashboard. If authentication fails, an error message is shown and the process ends.

5. Component Diagram

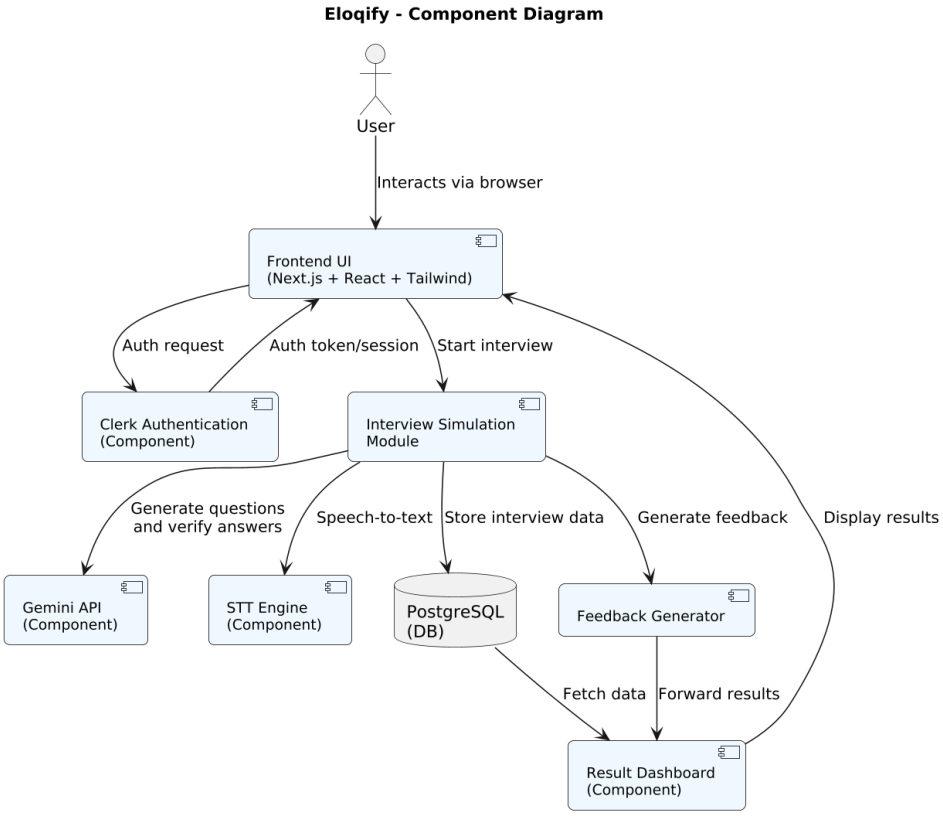


Fig 3.5 Component Diagram

The component diagram of Eloqify illustrates the structure and interaction between various components in the system. The user interacts through the browser with the Frontend UI built using Next.js, React, and Tailwind. The frontend communicates with the Clerk Authentication component for login and receives an auth token/session. Once authenticated, the user can start the interview, triggering the Interview Simulation Module. This module interacts with the STT Engine to convert speech to text and uses the Gemini API to generate questions and verify answers. The PostgreSQL database stores all interview data, which is later used by the Feedback Generator to produce feedback. The feedback and results are fetched and displayed through the Result Dashboard component.

6. Deployment Diagram

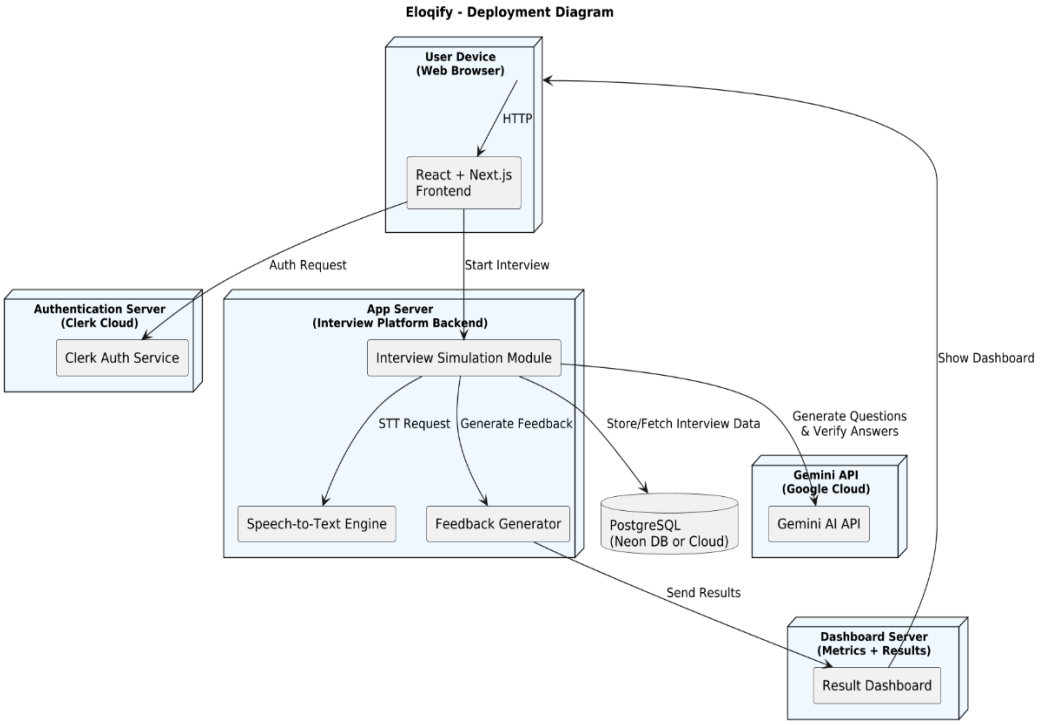


Fig 3.6 Deployment Diagram

The UML diagrams collectively provide a comprehensive view of the Eloqify system's design and functionality. The use case diagram outlines the key interactions between users and the system, while the class diagram defines the data structure and relationships. The sequence and activity diagrams detail the flow of operations and logic behind user actions. Component and deployment diagrams illustrate the system's architecture and how it is physically hosted. Together, these diagrams offer a clear blueprint for development, implementation, and scalability of the application.

The methodology followed in this project adopts a structured, modular approach beginning with requirement analysis and system design, followed by iterative development. UML diagrams guided the architectural and behavioral understanding of the system. The frontend and backend were developed concurrently using suitable frameworks, and real-time interaction was ensured through well-defined interfaces. Each module was tested in isolation before integration. This systematic methodology laid a solid foundation for the implementation phase, ensuring a clear transition from design to working software.

CHAPTER 4

IMPLEMENTATION

IMPLEMENTATION

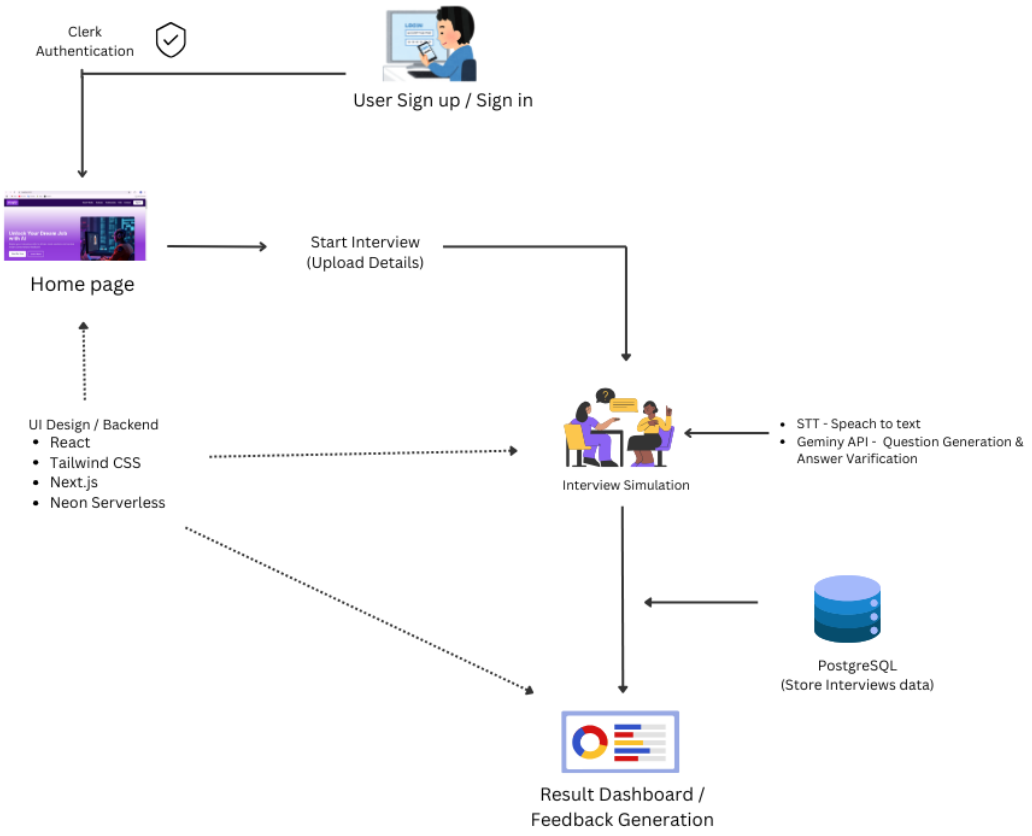


Fig 4.1 Eloqify System Architecture

4.1 Secure User Authentication with Clerk

Eloqify prioritizes user security and a frictionless login experience by integrating Clerk for authentication and identity management. This modern authentication system supports multiple login methods, including email/password, OTP-based login, and popular social login options, ensuring flexibility for users. Clerk also enforces multi-factor authentication (MFA) and real-time session handling, safeguarding user data and preventing unauthorized access. With built-in encryption and secure session storage, users can be confident that their personal information is well-protected. This seamless sign-up and sign-in flow not only improves trust but also encourages user retention through convenience and security.

4.2 Home Page & Platform Stack

Upon successful login, users are redirected to the Home Page, which serves as the control center for all actions. This page is built using modern web technologies including React.js for a dynamic front-end interface, Tailwind CSS for responsive and visually appealing design, Next.js for efficient server-side rendering and routing, and Neon Serverless for scalable, backend database connections. The home page provides an intuitive interface where users can start the interview process, track their previous attempts, or explore other features. The focus is on maintaining a minimalist yet functional design that ensures clarity and smooth navigation.

4.3 Initiating the Interview Process

From the home page, users begin their interview preparation journey by clicking on the "Start Interview" button. This triggers the upload of relevant details, such as their resume, selected job role (e.g., frontend developer, data analyst), and preferred experience level (beginner to advanced). These inputs are used to personalize the upcoming simulation. By tailoring the interview content to each user's background and goals, Eloqify ensures a more relevant and impactful learning experience. This phase serves as the bridge between user input and dynamic content generation, ensuring that each mock interview is customized and realistic.

4.4 AI-Powered Interview Simulation

Eloqify brings interview practice to life through an immersive AI-driven simulation environment. At the core of this feature is Google's Gemini API, which intelligently generates technical interview questions based on the user's uploaded resume and role preference. This eliminates the need for static question banks by delivering unique, scenario-based questions each time. As users respond verbally, their answers are transcribed using Speech-to-Text (STT) technology. These transcripts are then passed through AI algorithms for evaluation. The simulation mimics a real-world interview setting, helping users improve verbal articulation, manage time pressure, and gain confidence in presenting their ideas clearly.

4.5 Structured Data Storage with PostgreSQL

All interaction data generated during the simulation—including questions, spoken responses (transcribed), timestamps, and performance scores—is systematically stored in a PostgreSQL database. This enables efficient and reliable access to past interview

data for both the user and the feedback engine. The structured database allows for secure and scalable data management, which is crucial for maintaining the history of user interactions. It forms the backbone for generating analytics and powering the result dashboard, ensuring that each user's journey is consistently tracked and accessible for future review.

4.6 Result Dashboard and Feedback Engine

Once the interview simulation is complete, users are directed to the Result Dashboard, where they receive detailed, actionable feedback. This feedback is automatically generated by Eloqify's AI engine, which analyzes the user's responses on multiple parameters such as technical accuracy, logical coherence, clarity, and communication style. The dashboard presents this feedback through interactive visual elements like graphs, timelines, and performance cards. Users can monitor their progress across multiple attempts, identify areas of improvement, and compare their performance over time. This transforms Eloqify into not just a practice tool, but a full-fledged performance tracker that helps users become industry-read

CHAPTER 5

RESULT AND DISCUSSION

RESULT AND DISCUSSION

The AI-powered mock interview platform—Eloqify—brings a focused and practical approach to technical interview preparation. Designed to simulate real-world interview experiences, the platform offers an interactive environment where users can practice domain-relevant questions and improve their communication and problem-solving skills through guided mock sessions.

The system utilizes Google's Gemini OpenAPI to dynamically generate technical questions based on selected job roles or categories. These questions reflect the kind of challenges candidates might face in real interviews, making the practice highly relevant. In addition to question delivery, Eloqify offers real-time feedback on coding clarity, communication fluency, and logical thinking, enabling users to iteratively enhance their performance.

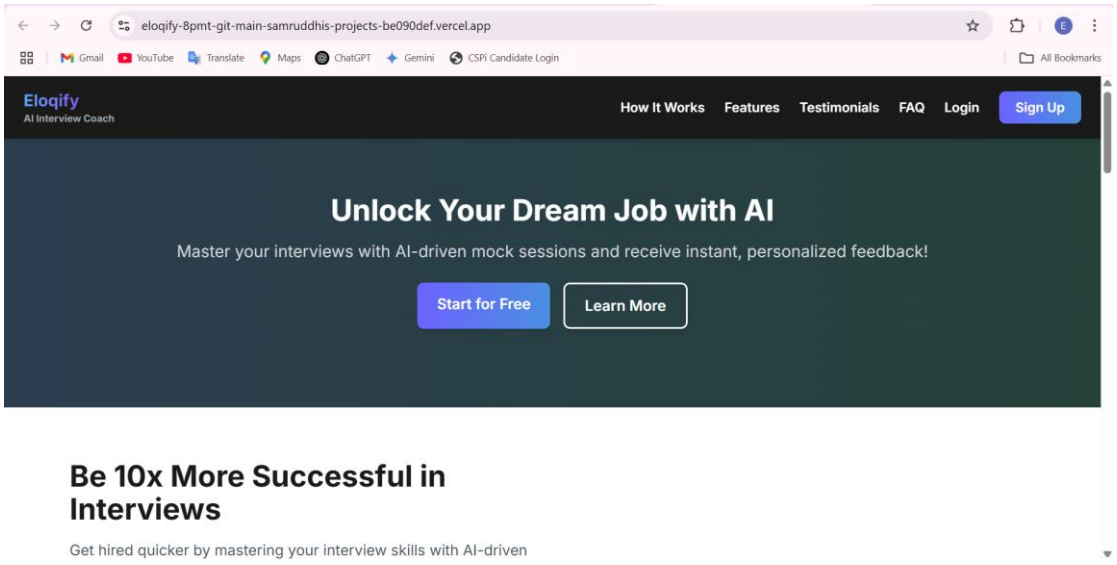
With a frontend built using Next.js and React.js, and user authentication managed through Clerk, the platform ensures a secure and seamless user experience. The interface is designed for smooth navigation, allowing users to easily access interviews, review their performance, and track their progress over time. Integration of Neon serverless PostgreSQL ensures efficient and scalable data handling for storing feedback and user interaction history.

In essence, Eloqify solves the problem of fragmented interview preparation by combining everything in one platform—question practice, mock simulation, feedback, and performance tracking. It equips candidates with confidence and readiness to face technical interviews, bridging the gap between preparation and performance.

The deployed version of the Eloqify mock interview platform is accessible online, allowing users to interact with the system, generate personalized interview questions, and receive feedback in real time.

Users can explore the interface and features via the following deployment link: https://eloqify-8pmt-git-main-samruddhis-projects-be090def.vercel.app/

This live deployment showcases the platform's usability, responsiveness, and real-time evaluation capabilities, enabling direct engagement and demonstrating its readiness for real-world applications.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Unlock Your Dream Job with AI
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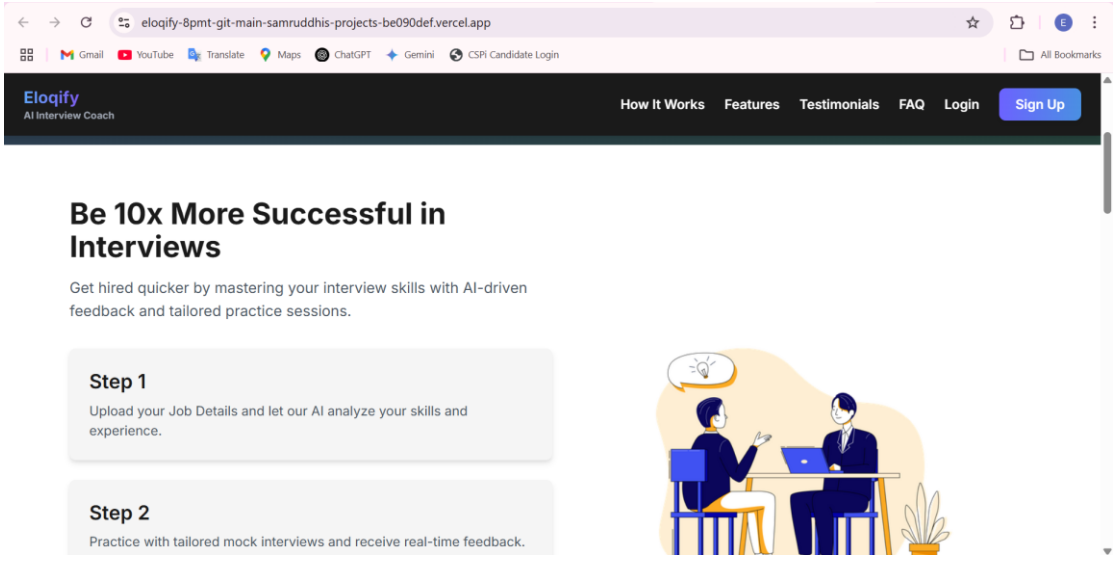
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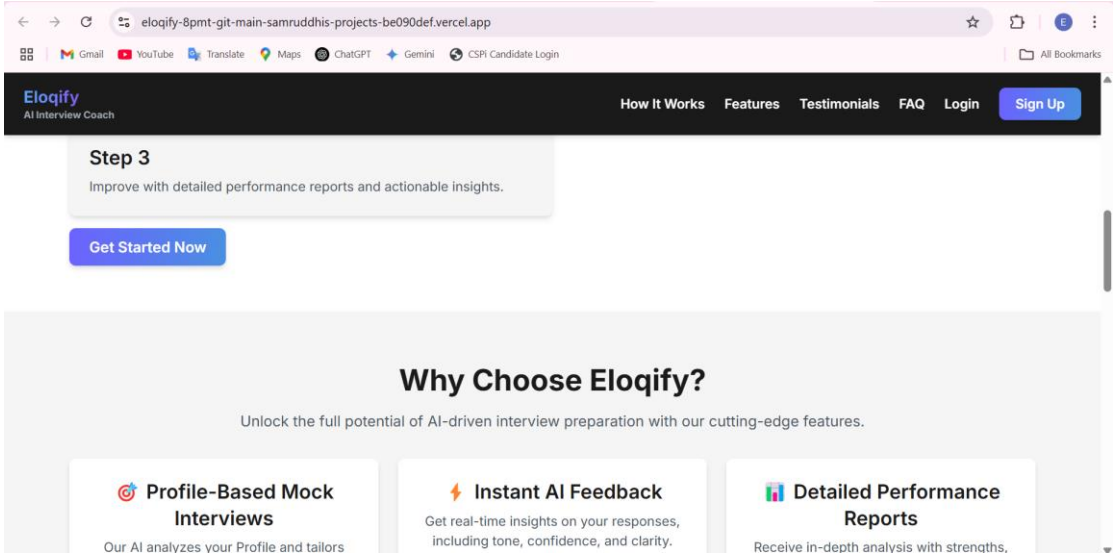
Be 10x More Successful in Interviews
Get hired quicker by mastering your interview skills with AI-driven feedback and tailored practice sessions.
Step 1
Upload your Job Details and let our AI analyze your skills and experience.
Step 2
Practice with tailored mock interviews and receive real-time feedback.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AI Interview Coach
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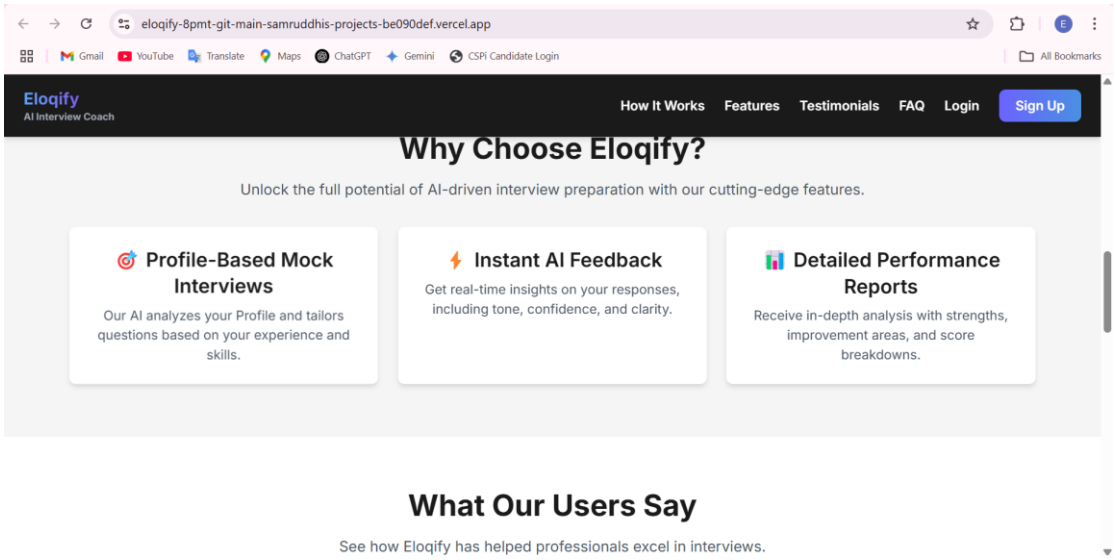
Step 3
Improve with detailed performance reports and actionable insights.
Get Started Now
Why Choose Eloqify?
Unlock the full potential of AI-driven interview preparation with our cutting-edge features.
Profile-Based Mock Interviews
Our AI analyzes your Profile and tailors
Instant AI Feedback
Get real-time insights on your responses, including tone, confidence, and clarity.
Detailed Performance Reports
Receive in-depth analysis with strengths,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AI Interview Coach
How It Works
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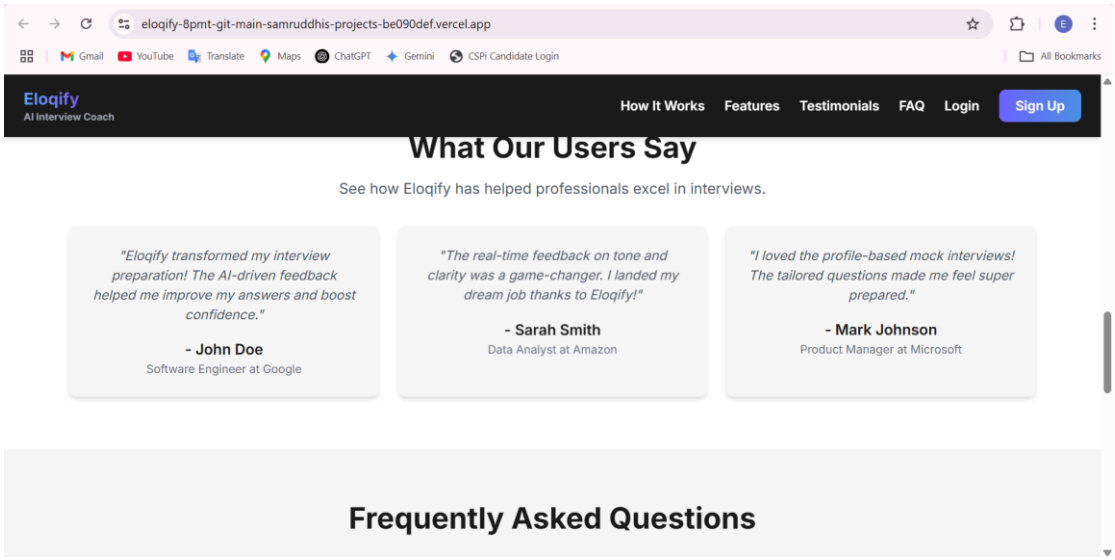
Why Choose Eloqify?
Unlock the full potential of AI-driven interview preparation with our cutting-edge features.
Profile-Based Mock Interviews
Our AI analyzes your Profile and tailors questions based on your experience and skills.
Instant AI Feedback
Get real-time insights on your responses, including tone, confidence, and clarity.
Detailed Performance Reports
Receive in-depth analysis with strengths, improvement areas, and score breakdowns.


What Our Users Say
See how Eloqify has helped professionals excel in interviews.

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Gmail
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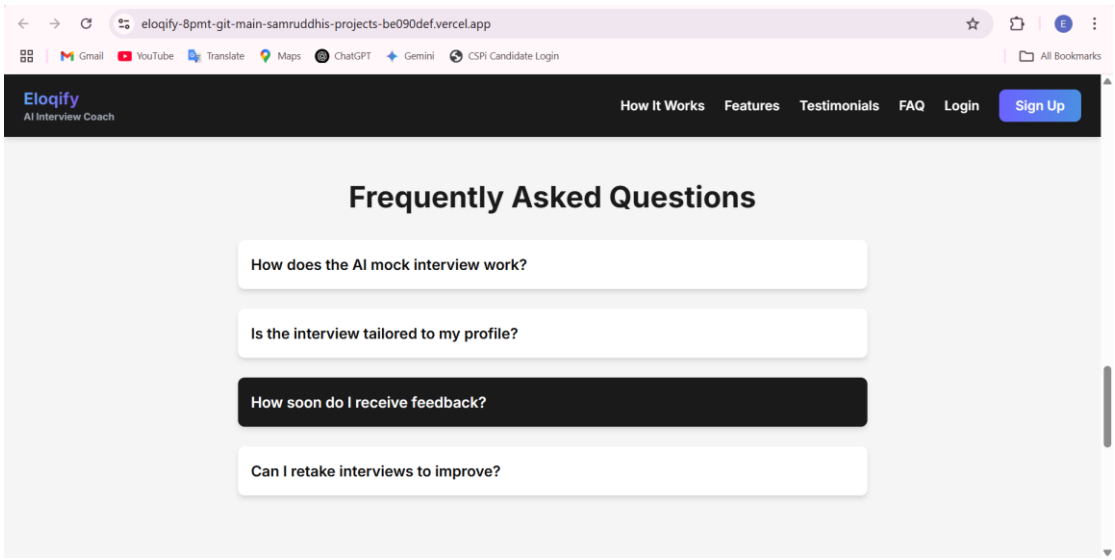
Translate
Maps
ChatGPT
Gemini
CSPI Candidate Login
All Bookmarks
Eloqify
AI Interview Coach
How It Works
Features
Testimonials
FAQ
Login
Sign Up
What Our Users Say
See how Eloqify has helped professionals excel in interviews.
"Eloqify transformed my interview preparation! The AI-driven feedback helped me improve my answers and boost confidence."
- John Doe
Software Engineer at Google
"The real-time feedback on tone and clarity was a game-changer. I landed my dream job thanks to Eloqify!"
- Sarah Smith
Data Analyst at Amazon
"I loved the profile-based mock interviews! The tailored questions made me feel super prepared."
- Mark Johnson
Product Manager at Microsoft
Frequently Asked Questions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AI Interview Coach
How It Works
Features
Testimonials
FAQ
Login
Sign Up
Frequently Asked Questions
How does the AI mock interview work?
Is the interview tailored to my profile?
How soon do I receive feedback?
Can I retake interviews to improve?

Fig 5.1 Eloqify HomePage

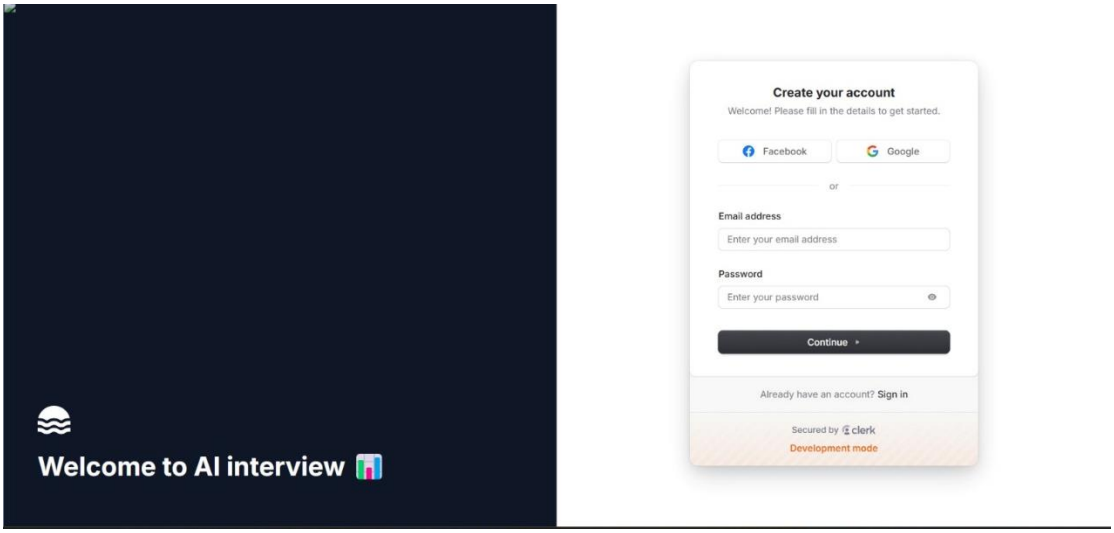

Fig 5.2 User Login and Authentication

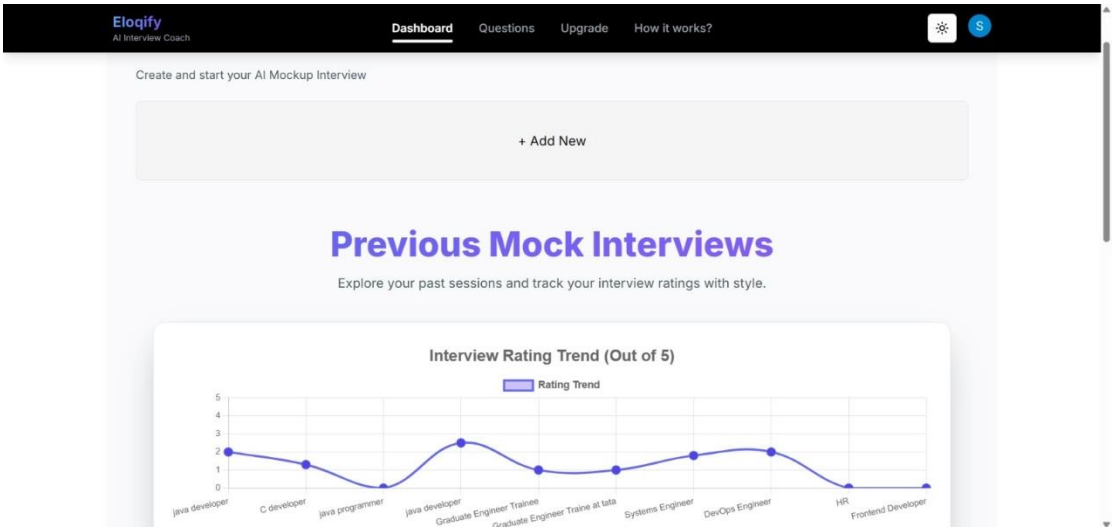

Fig 5.3 User Dashboard

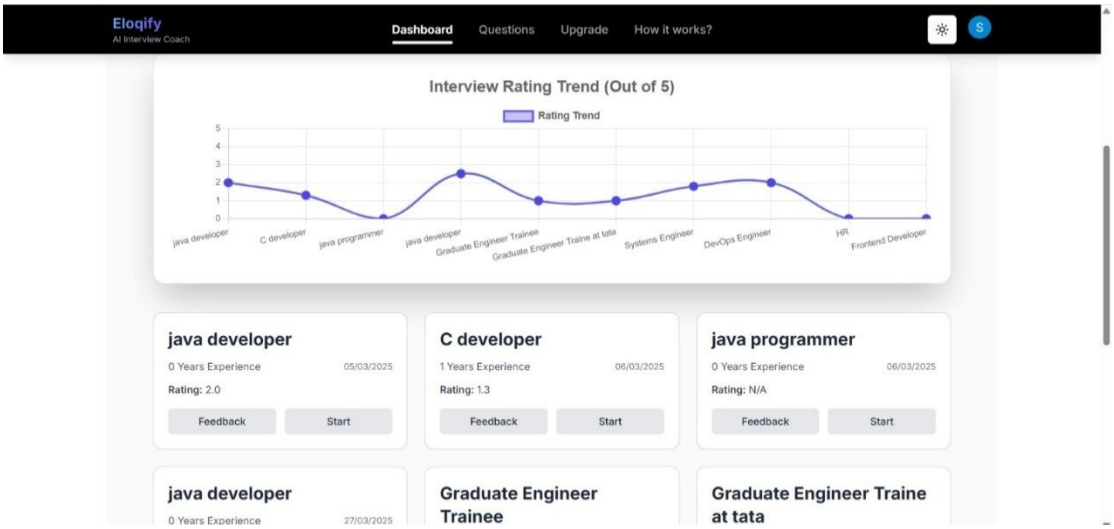

Fig 5.4 Previous Interviews given by user

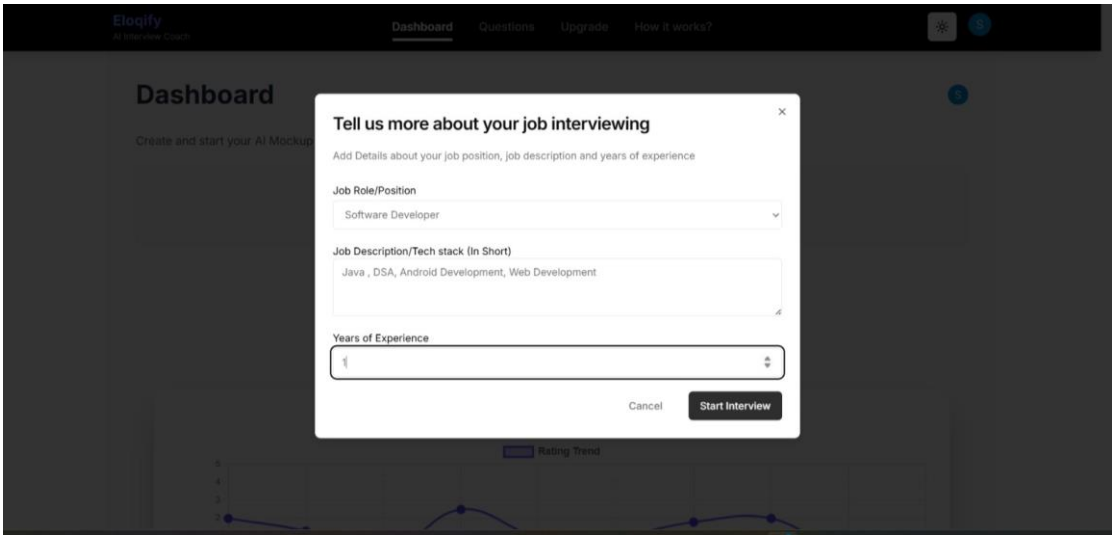

Fig 5.5 User Input Form for Customizing Mock Interviews Based on Job Role, Description, and Experience Level

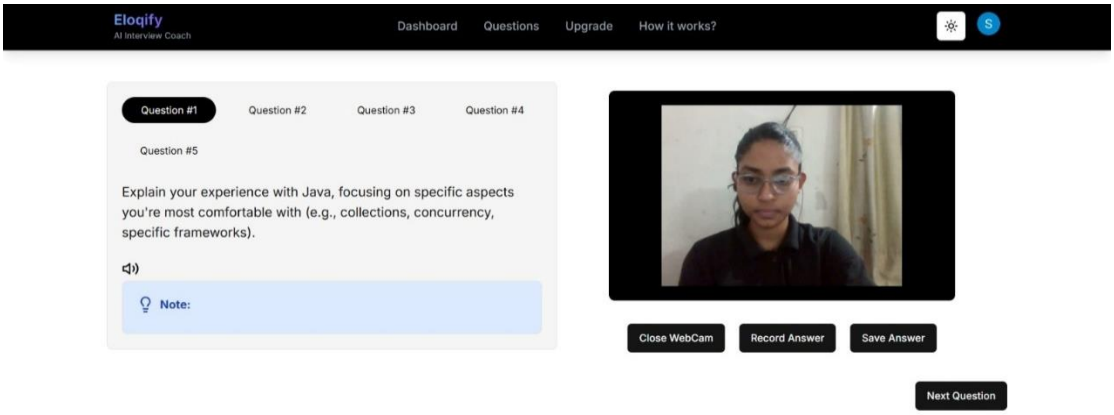

Fig 5.6 Interview Simulation

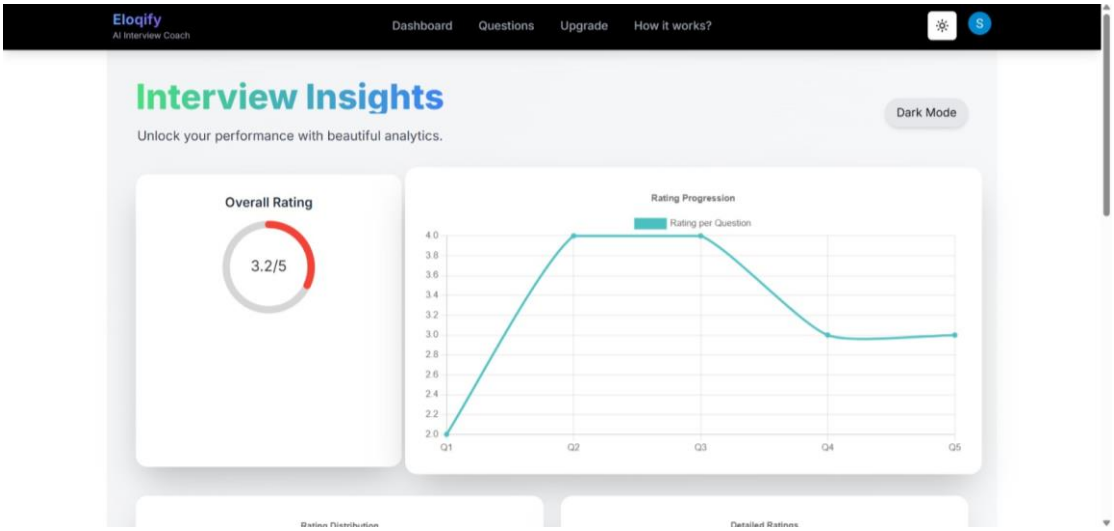

Fig 5.7: Interviewer Rating Interface Displaying Individual Feedback Scores

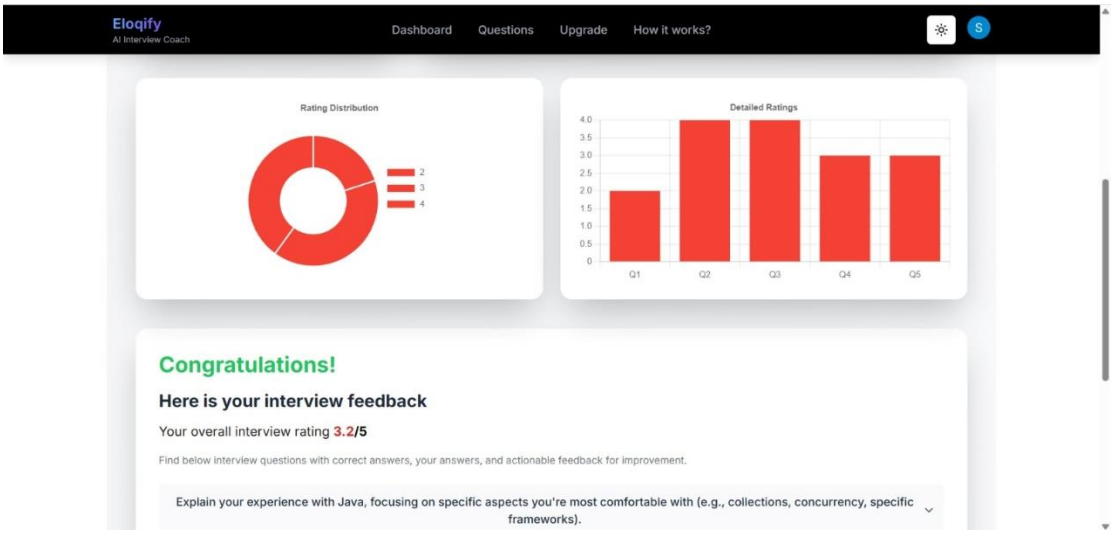

Fig 5.8: Distribution of Ratings for Each Interview Question Based on Candidate Performance

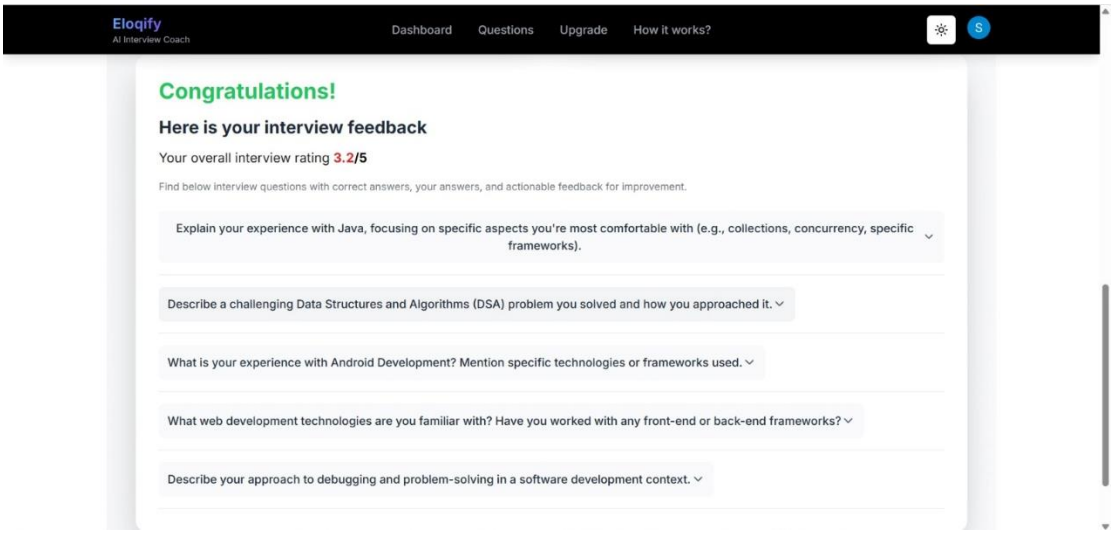

Fig 5.9: Consolidated Feedback Section Highlighting Performance Insights and Improvement Areas

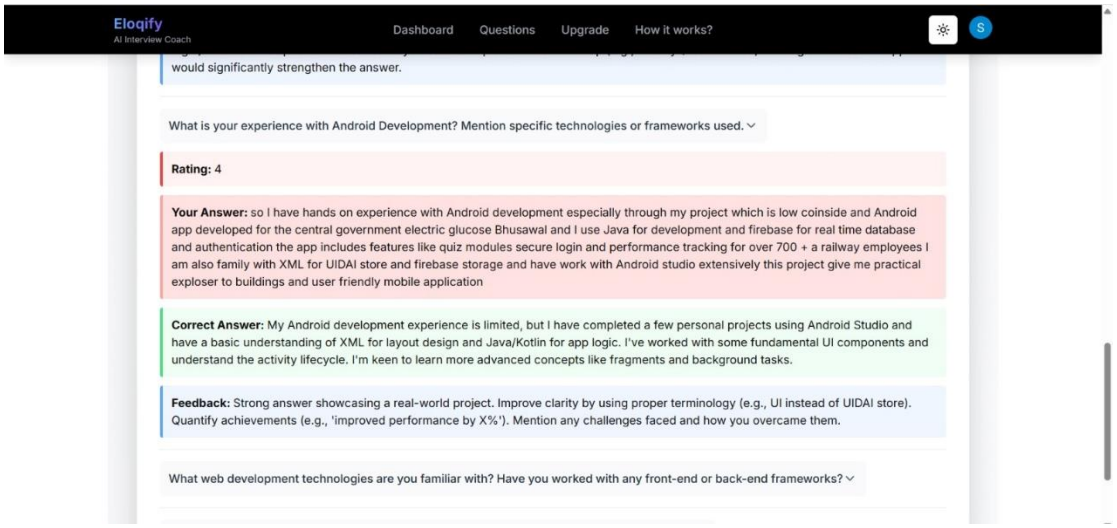

Fig 5.10: Detailed Feedback Panel Displaying User Responses, Correct Answers, and Question-wise Evaluation

CHAPTER 6

CONCLUSION

CONCLUSION

6.1 SUMMARY OF FINDINGS

The proposed AI-driven mock interview platform effectively addresses the critical need for technical interview preparation in today's competitive job market. By integrating personalized question generation using Google's Gemini OpenAPI and AI-powered feedback analysis, the platform empowers candidates with a structured and immersive preparation experience. The use of Next.js, React.js, and Clerk authentication ensures an easy-to-use and intuitive interface, while AI-driven insights provide actionable feedback for improvement in problem-solving skills, clarity of communication, and technical proficiency.

Future developments might include further technical assessments using more refined AI algorithms, answer analysis from users to provide more tailored feedback, and an interactive coding evaluation system to further strengthen candidates' practical skills. These advancements will continue to redefine interview preparation methodologies, equipping candidates with the tools they need to succeed in real-world technical interviews and advance their careers.

6.2 CONTRIBUTIONS

The Eloqify platform makes significant contributions to the field of AI-driven interview preparation by delivering a comprehensive and intelligent solution for technical skill assessment. One of the key contributions is the integration of Google’s Gemini API to generate personalized technical interview questions based on user-provided input, offering candidates a realistic and targeted mock interview experience. The platform also introduces a secure and seamless login experience through Clerk authentication, ensuring data privacy and user trust. Furthermore, the inclusion of speech-to-text technology allows real-time analysis of verbal responses, which are then evaluated using AI models to generate structured feedback. This feedback not only highlights areas of improvement but also guides users in enhancing their problem-solving approach and communication skills. The addition of a personalized dashboard enables users to monitor their performance, track growth, and gain insights over time, making the platform a well-rounded tool for continuous interview readiness.

6.3 SCOPE FOR FUTURE WORK

The scope of this project spans the complete development lifecycle of an AI-powered mock interview platform—from planning and architecture design to frontend and backend implementation, integration of third-party services, and deployment. The system is built using modern web technologies, including React.js for the frontend and Next.js for the backend, providing a responsive and scalable user interface. Secure authentication and user management are handled through Clerk, ensuring a protected and frictionless onboarding experience. The platform utilizes Gemini API to dynamically generate interview questions tailored to the candidate's input, while speech processing technologies enable audio-based response evaluation. All interview data, performance metrics, and feedback are securely stored using PostgreSQL, with deployment managed via Vercel. Future enhancements lie within the scope as well, such as incorporating an interactive coding environment, expanding the AI's analytical capabilities, and integrating domain-specific question banks to further personalize the interview experience.

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DISSEMINATION OF WORK

Eloqify: Intelligent Interview Companion

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Abstract

In today's highly competitive job market, securing a technical role requires rigorous preparation and real-time feedback. Eloqify is an AI-driven mock interview platform exclusively designed for technical interviews, helping candidates refine their core skills through interactive and unbiased assessments. Our platform leverages Google Gemini AI to dynamically generate technical interview questions based on resume parsing, ensuring that candidates practice with job-specific, industry-relevant questions. The resume parsing, powered by Python-based processing, extracts key skills and experiences, allowing Eloqify to simulate real-world technical interviews tailored to each candidate's expertise.

Eloqify is built with Next.js for the backend, React.js for the frontend, and Clerk authentication, ensuring a seamless and secure user experience. The platform features an interactive user dashboard that provides real-time performance insights, including feedback on clarity, problem-solving approach, and technical depth. These insights help candidates identify strengths and areas for improvement, making their preparation structured and goal-oriented. By focusing exclusively on technical assessments, Eloqify ensures that candidates engage in precise, skill-driven mock interviews, bridging the gap between preparation and success. With AI-powered, resume-based question generation and actionable feedback, our platform transforms technical interview readiness—making it efficient, structured, and highly personalized.

Keywords: Mock Interview Platform; Resume Parsing Tool; Self Evaluating Platform; Technical interview Simulation Platform

1. INTRODUCTION

Mock interviews have become more than a mere practice exercise to a key step toward gaining technical skills and enhancing confidence for the modern-day job seeker in the competitive job market. The discrepancy between academic studies and industry practices usually leaves the candidates ill-prepared for tough technical interviews, where the requirements are problem-solving techniques and practical application of knowledge. Eloqify seeks to fill the gap by providing a complete AI-driven mock interview platform offering guided, customized, and data-driven interview preparation specifically designed for technical tests.

One of the biggest problems that interview preparation poses to candidates is fragmentation of resources—the need to go from one platform to another to practice coding, interview simulation, and analysis of feedback. Eloqify addresses this issue by bringing all these tools together into one interactive

platform, with minimal efforts required for seamless and effective preparation. The platform incorporates resume-based question generation through AI so that candidates can prepare by practicing job-relevant technical questions. Along with this, there is an intelligent user dashboard for real-time performance analysis so that candidates get actionable feedback to improve their clarity, coding style, and depth of problem-solving.

The idea behind Eloqify is to equip candidates with a smart, self-assessing system that learns from their strengths and weaknesses. With Google Gemini AI serving up relevant questions, Python-based resume parsing to extract skills, and a systematized interview simulation platform, Eloqify provides each candidate with a custom and industry-relevant mock interview experience.

Our objectives of research involve creating a robust resume parsing framework to create accurate technical questions, using machine learning algorithms to solve problem-solving patterns, and facilitating a smooth user experience through the integration of Next.js and React.js. With a sole aim of technical interview evaluations, Eloqify is revolutionizing AI-powered interview prep, making prospects more confident, well-prepared, and able to perform optimally in the highly competitive world of technology.

2. LITERATURE REVIEW

Communication For the sake of our AI-based mock interview platform development, we read some research papers that provide basic insights into our work.

In one of them [1], an Interviewee Performance Analyzer based on facial emotion recognition and speech fluency analysis was suggested. The system utilizes HaarCascade, Gabor filters, and Convolutional Neural Networks (CNN) for facial expression recognition and MFCCs and logistic regression for speech fluency analysis. But the system fails to provide a judgment on other essential aspects in an interview, including posture, gestures, and eye contact. It makes it even more essential to demand an even better and more holistic approach to evaluation. Our video and audio analysis is AI-based.

Another pertinent work [2] proposes a self-management interview system for youth employment in Korea. The system uses multi-block deep learning to identify emotions from face expressions in simulated interviews, utilizing a DCNN that primarily targets significant facial regions. The approach can enhance the accuracy of emotion detection; however, it does not prioritize the tone analysis or its applicability to various contexts of interviews that our platform enhances.

In [3], scientists created a computational model that investigates human behavior during job interviews by processing 138 MIT interview videos. With Support Vector Regression (SVR) and Lasso models, the model predicts personality attributes like excitement and friendliness from facial expressions, speech, and prosodic features. While the model is good in terms of the precision of its predictions, there is no mention of including additional evaluation criteria from the interview process. Our website, however, takes this concept further with machine learning algorithms that will ascertain communication skills.

Another paper [4] presents a computational model for calculating a candidate's probability of being hired based on the non-verbal behavior he displays during job interviews. This study is rooted in the examination of actual interview data sets for verbal and non-verbal cues. It comes to the conclusion that a non-verbal signal will generally perform better when it comes to assessing hirability than the psychometric questionnaires. But an absence of focus on the part of research on verbal content along with resume-based tailored questions becomes a critical omission that our platform fulfills through its AI-based system, self-assessment process.

The [5] talked about an Asynchronous Video Interview with Artificial Intelligence, which is referred to as the AVI-AI system. The system makes use of the CNN of TensorFlow in order to assess communication skills and personality characteristics. The system performs effectively in all dimensions of predicting interpersonal traits except for

conscientiousness and extraversion. Additionally, study-found the sample size to be small and system biases, and thus, there exists a strong demand for scalability and uncontrolled bias—a feature which our platform can provide through effective AI-based assessments.

This analysis of the studies indicates the importance of a comprehensive interview preparation platform that addresses all the current gaps in technology, delivering real-time, multi-dimensional feedback through sophisticated AI approaches.

3. PROPOSED SYSTEM

Eloqify is a mock interview platform powered by AI that is meant to help prepare for technical interviews through the use of innovative artificial intelligence (AI) methodologies. Built using Next.js on the backend, React.js on the frontend, and Clerk for authentication, Eloqify offers a smooth, secure, and user-friendly experience.

One of the most notable features of Eloqify is its integration of Google Gemini AI, through which it creates dynamic personalized technical interview questions based on resume parsing. Its Python-driven resume parsing engine digs out the relevant skills and experience from uploaded resumes so that the questions generated are job-relevant and industry-friendly. This makes the preparation of candidates effective by letting them rehearse the relevant technical questions.

3.1 Resume Parsing and Personalized Question Generation

A core feature of the platform is that it has its own Python-driven resume parsing tool that extracts the skills, experience, and technical proficiencies of a candidate from their resume. This is processed by the Gemini OpenAPI to provide personalized, job-specific technical interview questions so that this mock interview closely reflects what happens in a real-world industry interview.

Workflow:

- Candidates upload their resumes to the platform.
- The resume parser, built using Python, extracts relevant technical skills and experience.
- The extracted information is sent to Gemini OpenAPI, which dynamically formulates interview questions based on job-specific competencies.
- Candidates receive a customized set of technical questions tailored according to their expertise and career aspirations.

3.2 Gemini API

Eloqify makes use of Google's Gemini API to improve the process of resume parsing and interview preparation. Upon extracting text from a candidate's resume, the system uses the Gemini API to produce customized interview questions based on the candidate's skill set, experience, and the requirements of the job. The method allows precise screening while giving personalized sets of questions, preparing candidates with ease while facilitating recruiters to optimize the hiring process. By integrating the Gemini API, Eloqify provides a smarter and more conversational user experience for candidates and recruiters alike.

3.3 System Architecture

Proposed, Eloqify is a very advanced API-based and all-in-one interview preparation tool that offers individualized skill improvement along with career development tools to candidates. The purpose of the proposed system is to automate the interview process through audio input analysis and resume data to produce personalized interview questions. Using Google's Gemini API, Eloqify mines important information from resumes and creates customized questions based on a candidate's qualifications, experience, and company-specific needs. The system also uses speech-to-text processing for answer analysis and an interactive feedback system to ensure a smooth and hassle-free interview preparation process.

FIGURE 1. illustrates the system architecture, outlining the entire process from user registration to final feedback generation. The process is as follows:

1) User Registration & Authentication:

Applicants register or login through Clerk authentication, providing a safe and hassle-free experience. Upon registration, they build a user profile, which will hold their interview history, progress, and performance metrics.

2) **Resume Upload & Parsing:** Candidates submit their resume, which is subsequently treated with Tesseract OCR (Python) to extract text .The extracted content is processed through Google's Gemini API, which creates customized interview questions in line with the candidate's experience, skill set, and job requirements. This guarantees that the questions are appropriate for the candidate's history, ensuring the interview process is extremely relevant.
3) **Interview Simulation:** Candidates undergo a realistic, AI-driven interview simulation to get ready for actual job interviews. WebRTC enables a video mock interview experience, which is a mock interview environment. The system relies on Speech-to-Text (STT) technology to turn spoken answers into text form for analysis. Gemini API creates interview questions dynamically and further assists in verifying and analyzing the response against predetermined assessment criteria. This stage assists the candidates in enhancing their technical, analytical, and communication skills through actual-time interaction with the system.
4) **Data Storage & Processing:** The interview answers, scores, and feedback are safely kept in PostgreSQL so users can look back at their performance. This makes it possible for candidates to see their improvement over time and adjust their strategy based on previous interviews.
5) **Result Dashboard & Feedback Generation:** After the interview is done, a detailed performance report is created and posted on the candidate's dashboard. The feedback consists of technical competence, communication clarity, problem-solving style, and overall response organization. Applicants get useful feedback, pointing out areas of strength and weakness, assisting them in improving their skills prior to an actual interview. The dynamic dashboard enables users to see previous performance, contrast outcomes, and monitor their improvements with time. The system consistently provides tips to improve learning and interview preparation, keeping candidates in a constant state of improvement.

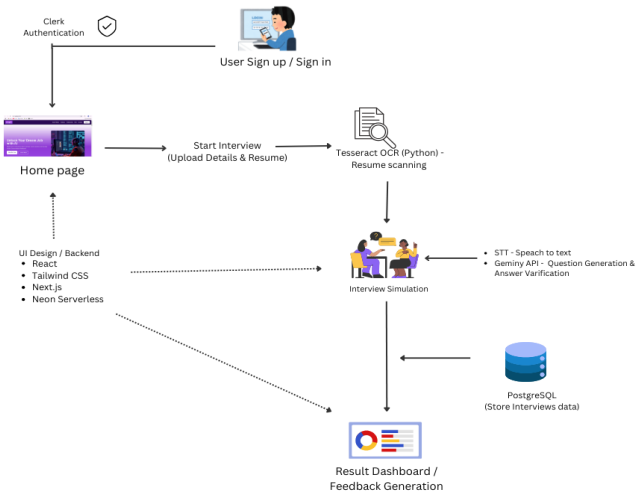

FIGURE 1. Eloqify System Architecture

4. IMPLEMENTATIONS

The mock interview platform driven by AI is highly designed to make technical skill building and career preparation more structured and intelligent. This system ensures an all-round assessment of candidates using Python-based resume parsing and Google's Gemini OpenAPI by creating customized technical interview questions for every candidate according to their skills and experience. The platform provides mock interview simulations where candidates respond to AI-generated questions, with the system analyzing clarity, problem-solving ability, and technical depth. Advanced machine learning algorithms process these responses to generate real-time feedback, offering actionable insights for continuous improvement. Built with Next.js and React.js, the platform delivers a seamless and interactive user experience, allowing candidates to engage effortlessly with the system. Clerk

authentication provides a secure entry mechanism, keeping the onboarding process smooth. Resume-based question generation, AI-driven feedback, and an intuitive user interface enable candidates to receive tailored learning paths and improve their technical skills, leading to excellence in real-world technical interviews. The interview preparation process is therefore streamlined, more efficient, targeted, and impactful for aspiring professionals.

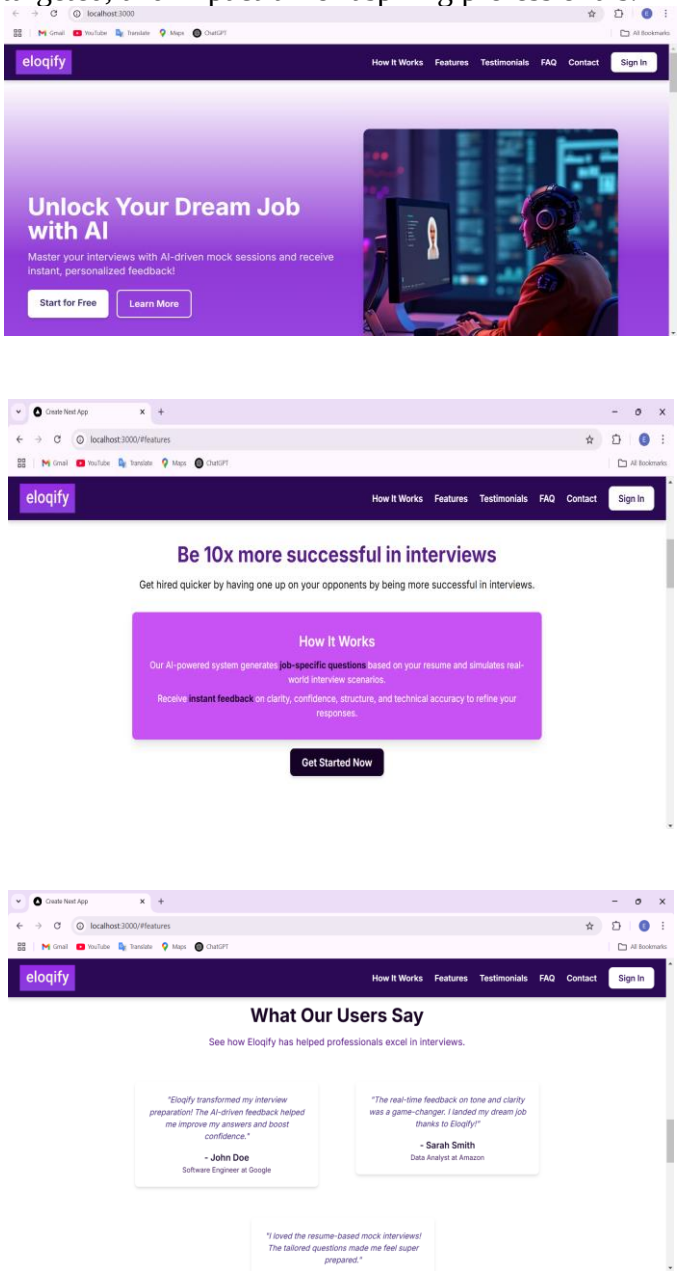

FIGURE 2. Eloqify Homepage

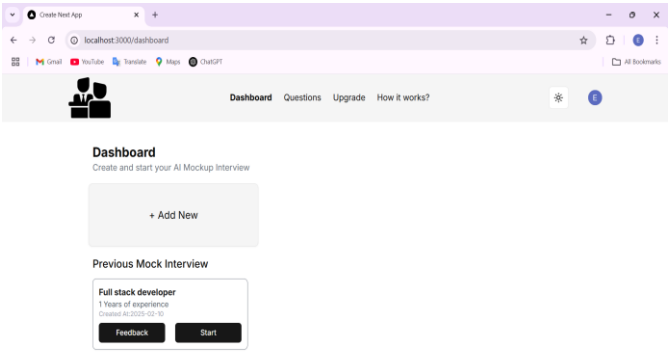

FIGURE 3. User Dashboard

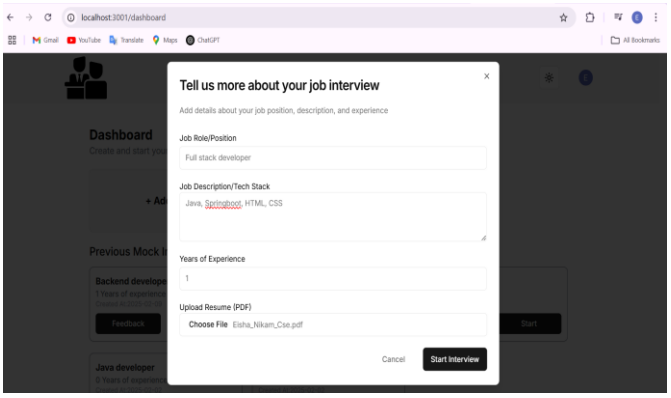

FIGURE 4. Custom Interview Information Entered by User

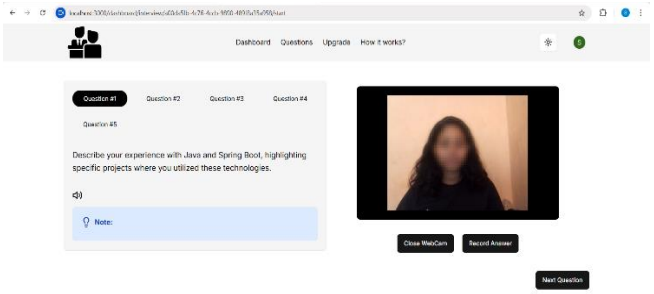

FIGURE 5. User Interview Simulation

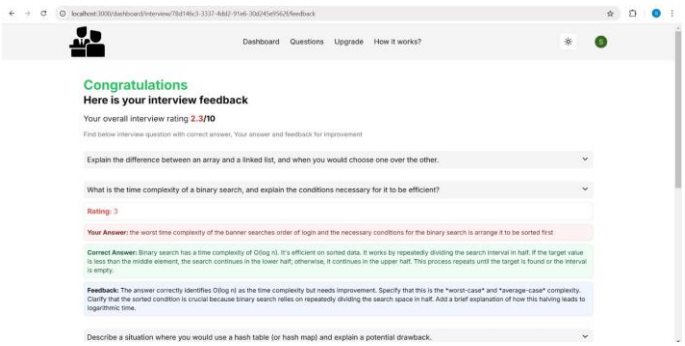

FIGURE 6. Result Dashboard and Feedback Generation

5. RESULTS AND DISCUSSIONS

The mock interview platform driven by AI marks a major leap in technical interview preparation using machine learning algorithms and APIs powered by AI to simulate candidate evaluation and skill development. It integrates Python-based resume parsing along with Google's Gemini OpenAPI to generate customized technical interview questions based on a candidate's skills, experience, and requirements for the job. Thus, it is a targeted and effective simulation of an interview, aiming at the expectations from the industry.

The system's AI-driven analysis provides candidates with real-time feedback on key aspects such as clarity, technical problem-solving, and communication effectiveness, enabling them to refine their responses and improve their interview readiness. While maintaining a strong technical focus, the platform also assesses verbal fluency and structured thinking, helping candidates convey their expertise with precision.

Moreover, the user interface is based on Next.js and React.js, ensuring a smooth and engaging experience for candidates while navigating mock interviews. Clerk authentication ensures secure access and smooth onboarding, thus creating a user-friendly environment. AI-powered feedback mechanisms further enhance candidate performance by providing actionable insights for continuous improvement.

Therefore, by optimizing resume-based question generation, offering AI-driven feedback, and streamlining the interview preparation process, it empowers candidates to improve their technical skills, thereby further boosting their confidence and enhancing their real interview success rate. This novel approach to interview preparation makes the platform a power tool for aspiring professionals who will certainly be prepared for the challenges of present and future competitive job markets.

6. CONCLUSION

In conclusion, the proposed AI-driven mock interview platform effectively addresses the critical need for technical interview preparation in today's competitive job market. By integrating AI-powered resume parsing, personalized question generation using Google's Gemini OpenAPI, and machine learning-driven feedback analysis, the platform empowers candidates with a structured and immersive preparation experience. The use of Next.js, React.js, and Clerk authentication ensures an easy-to-use and intuitive interface, and AI-driven insights provide actionable feedback for improvement in problem-solving skills, clarity of communication, and technical proficiency.

Future developments might include further technical assessments using more refined AI algorithms, answer analysis from users to provide more tailored feedback, and an interactive coding evaluation system to further strengthen candidates' practical skills. These would continue to redefine interview preparation methodologies, equipping candidates with the tools they need to succeed in real-world technical interviews and further their careers.

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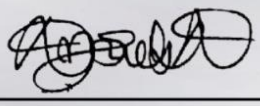

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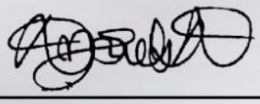

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