AI Mock Interviewer

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***Abstract*— This project presents an AI-powered Mock Interviewer web application designed to simulate realistic interview experiences using Gemini AI. The platform dynamically generates personalized interview questions based on user-selected domains, such as software development, data science, or system design. Users interact with the AI interviewer in real time, either via text or voice, allowing them to practice and refine their interview skills in a low-pressure environment.**

Keywords—AI-powered, Gemini, interview, real time, personalized Interview.

I. INTRODUCTION

In today's highly competitive job market, strong interview performance is a critical factor in securing employment opportunities. However, many candidates struggle with interview anxiety, lack of preparation, or inadequate feedback, which can hinder their chances of success. Traditional mock interviews, while helpful, often require human interviewers, time coordination, and may not always provide consistent or unbiased evaluations. With recent advancements in artificial intelligence and natural language processing, there is a growing opportunity to transform the way candidates prepare for interviews through intelligent, automated solutions.

This paper introduces an AI-powered Mock Interviewer web application that leverages Gemini AI to replicate real-world interview scenarios. The platform generates domain-specific questions on-the-fly, evaluates user responses, and provides personalized feedback using advanced AI models. By simulating both technical and behavioral interviews, the application allows users to practice in a realistic, interactive, and low-stress environment—anytime and anywhere. It aims to bridge the gap between preparation and performance by offering continuous, AI-driven insights that help users improve their communication skills, domain knowledge, and overall interview readiness.

This research explores the system architecture, AI integration, feedback generation mechanism, and the effectiveness of AI-based interview training in improving candidate preparedness. The goal is to demonstrate how artificial intelligence can democratize interview practice, making it more accessible, scalable, and effective for learners and job seekers worldwide.

II. LITERATURE REVIEW

A. Approaches

This literature review explores the role of AI-driven mock interviews in enhancing interview preparation and performance. With the advancement of artificial intelligence (AI) technologies, the traditional practice of conducting mock interviews has undergone significant transformation. This review examines existing studies, frameworks, and applications of AI-driven mock interviews in various contexts, including job interviews, college admissions, and professional development. The findings suggest that AI-driven mock interviews offer several advantages, such as personalized feedback, scalability, and accessibility. However, challenges such as ethical considerations and technological limitations are also addressed. Overall, this review provides insights into the potential of AI-driven mock interviews to revolutionize interview training and improve interview outcomes.

B. Challenges

While AI-driven mock interviews offer promising benefits, they are not without challenges. One significant area of concern revolves around ensuring the responsible development and use of artificial intelligence (AI) technologies. Dignum (2020) highlights the importance of responsible AI practices, emphasizing the need to develop and use AI in an ethical and accountable manner. This includes considerations for fairness, transparency, and accountability in the design and deployment of AI-driven interview platforms. Moreover, as AI algorithms become increasingly sophisticated, issues

related to data protection and privacy emerge. Custers and van der Hof (2019) discuss the relevance of data protection principles in the context of artificial intelligence, emphasizing the importance of safeguarding individuals' privacy rights and ensuring data security in AI-driven systems. Additionally, ethical concerns surrounding AI-driven assessments need careful attention. Jobin, Ienca, and Vayena (2019) provide insights into the global landscape of AI ethics guidelines, highlighting the need for comprehensive ethical frameworks to guide the development and implementation of AI technologies. Ensuring that AI-driven mock interviews adhere to ethical standards is crucial for maintaining trust and credibility among users.

III. METHODOLOGY

A. Process :

1. Login on App: Users need to log in to the application to access interview features. Authentication ensures personalized interview experiences and data security.

2. Interview Start/Landing Page: After logging in, users are directed to the landing page. This page provides options to begin a mock interview or access past interviews.

3. Add Tech Stack & Show Interview Questions: Users select their preferred technology stack (e.g., Python, Java, AI). The system generates relevant interview questions based on the chosen stack. Record User Answer with AI Feedback.

4. Users given answers, which are recorded and analyzed by AI: AI evaluates responses based on factors like clarity, accuracy, and fluency.

5. Interview Feedback: The system generates feedback on the user's performance. Key insights include response quality, speaking rate, and grammatical accuracy.

6. Display Interview List on Dashboard: Users can access a list of past interviews from the dashboard. This feature allows candidates to track progress and review previous feedback. Pricing & Payment.

7. The application may offer premium features with a subscription model. Users can make payments to unlock additional interview simulations and AI-driven feedback.

B. Technolgies used :

1. Front-End Development: Frameworks like Next.js and React are employed to create interactive and responsive user interfaces, enhancing user experience.

2. Back-End Development: Tools such as Drizzle ORM neon Postgre Sql manage database interactions efficiently, ensuring seamless data handling.

3. AI Integration: Incorporating AI models like Gemini AI enables the generation of contextually relevant interview questions and real-time feedback based on user-selected technical stacks.

4. Authentication: Services like Clerk ensure secure user authentication, maintaining the integrity and privacy of user data.

IV. ARCHITECTURE AND IMPLEMENTATION

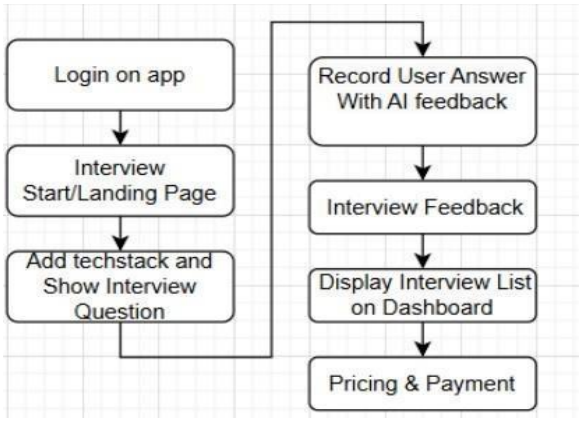
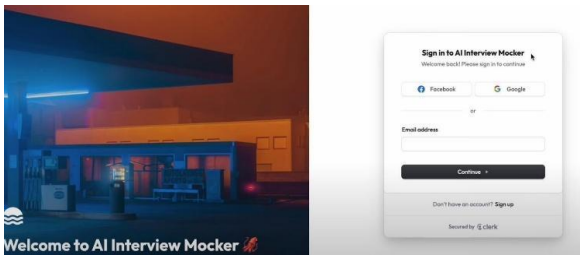


Figure 1



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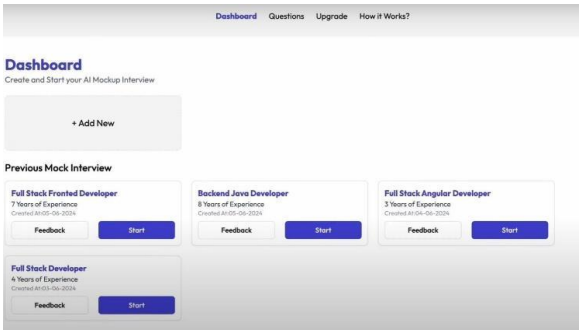

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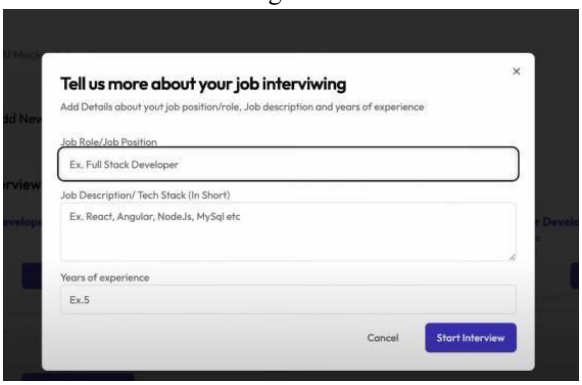

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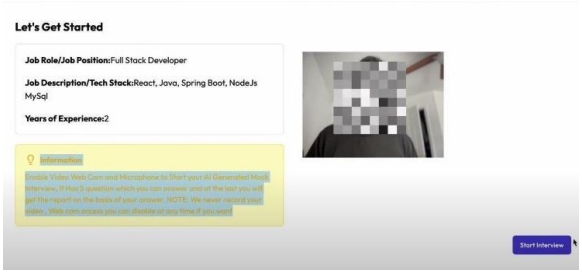

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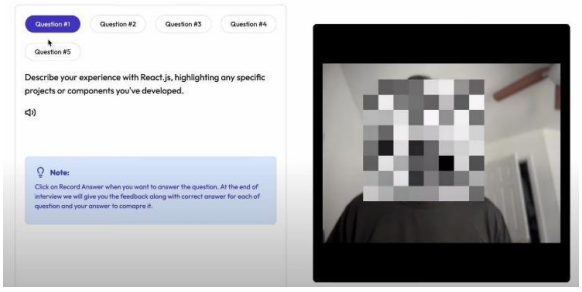

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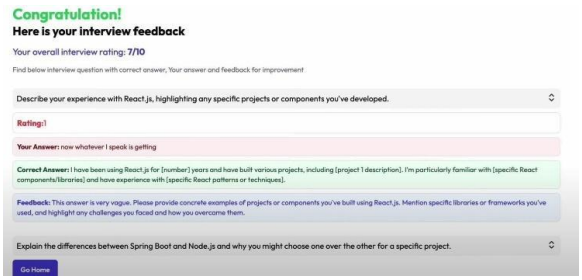

Figure 7

V CONCLUSION

AI-powered mock interview systems, especially those incorporating tech stack-based question generation and feedback mechanisms, offer personalized and effective preparation experiences. By simulating realistic interview scenarios and providing detailed feedback, these platforms equip candidates with the necessary skills to excel in actual interviews. However, the ethical implications of using AI during live interviews necessitate careful consideration to ensure fairness and authenticity in the hiring process.

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