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AI Mock Interview Chatbot Using Gen AI

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Abstract- Job interviews are a critical component of the hiring process, but several interviewees struggle to articulate their skills. In this paper, we propose developing a Generative AI-based mock interview chatbot that offers real-time, interactive, and adaptive interview practice. Unlike traditional mock interview methods that are costly and non-scalable, this chatbot leverages Gemini AI, React, and Next.js API to generate industry-domain interview questions programmatically and deliver instant feedback. The platform relies on Neon PostgreSQL for database and Clerk for role-based authorization to offer users an enriched experience. The chatbot dynamically adjusts question complexity levels to the user skill level (beginner, intermediate, expert) and offers technical, behavioral, and situational answer insights. By integrating AI-based feedback processes and performance metrics, the platform encourages user activity, self-esteem, and actual interview readiness. In comparison with other available techniques like pre-recorded video questionnaires and template-based chatbots, the proposed system offers end-to-end data-driven interactive mock interviewing. Deployed on Vercel for hassle-free scalability, this AI-based career solution aims to bridge skill gaps, improve candidate performance, and maximize job market fit.

Keywords- Generative AI, Mock Interview, AI Chatbot, Gemini AI, React, Next.js, Neon PostgreSQL, Job Preparation, Career Development.

I. INTRODUCTION

The AI Mock Interview Chatbot project aims to revolutionize the job preparation process by integrating Generative AI with an interactive and dynamic interview simulation platform. The project aims to address the issues that confront applicants, particularly those with interview anxiety, self-presentation, and technical preparedness. Traditional mock interviews, whether conducted face-to-face or through pre-recorded video platforms, are typically not interactive in real-time, tailored, and accessible. The platform tries to bridge this gap using conversational intelligence from AI to create a dynamic, interactive interview process. The chatbot, which is built on Gemini AI, React, and Next.js, is an artificial interviewer capable of creating industry-related, role-specific questions and immediate feedback on user responses. Unlike conventional mock interview sites, this site is dynamic in their skill level, giving a guided learning process to beginners, intermediate job applicants, and veteran professionals. Neon PostgreSQL ensures efficient data storage, and Clerk authentication ensures secure, role-based access for different users. The chatbot is compatible on cross-platform, available on web, Android, and iOS platforms. In addition to job readiness for the individual, AI Mock Interview Chatbot also enhances higher-order career development, skills acquisition,

and accessibility. The platform uses tailored AI feedback and analysis to provide communications strengths, technical skills, and areas for improvement. This enables candidates to gain comprehensive feedback that increases levels of confidence and performance in real interview situations. The system also promotes life-long learning to enable individuals to remain relevant in a dynamic job market. The chatbot is not only beneficial to individuals but also serves as a valuable tool for career counseling centers, colleges, and corporate training that allows institutions to enhance mock interview sessions without involving significant human intervention. Reducing costs and enhancing access, the platform ensures that students, working professionals, and job seekers with diverse backgrounds have an equal opportunity to enhance their interview skills.

Figure 1. ARCHITECTURE DIAGRAM

In doing this, the project revolutionizes the intersection of career readiness and AI by delivering scalable, intelligent, and intuitive mock interview products. With the synchronized incorporation of AI technology with career readiness instruction, the system gives the users the self-confidence to master the universe of recruitment, hence enabling the construction of a more qualified and hireable labor force, and also bridging the learning-work achievement divide.

II. LITERATURE SURVEY

Artificial Intelligence (AI) is playing an increasingly the incorporation of Artificial Intelligence (AI) in mock interview platforms has yielded remarkable innovation in individualized education, instant feedback, adaptive question generation, and data-driven career counseling. With the increasingly competitive job landscape, AI-powered interview preparation tools are gaining popularity because they are scalable, low-cost, and highly customizable for interview preparation. Recent studies explore several aspects of AI-facilitated mock interview systems, demonstrating strengths and weaknesses, as well as potential improvements.

Sophie Liu (2023) studied the application of GPT and Gemini API for real-time interview question generation and instant feedback analysis. The study emphasized how AI-based learning systems enhance user interaction and knowledge retention by dynamically adjusting the difficulty of the questions based on the candidate's experience level and past answers. The research found that AI-powered mock interviews significantly improved the level of confidence of users and preparation quality but also identified key challenges that ranged from high computation expense to low domain expertise in general AI models. The research implicated that tuning AI models specifically to domains and adding bespoke datasets can make questions and feedback by AI more context-relevant. Rahul Mehta (2023) explored scalable database structures for mock interview platforms, focusing on PostgreSQL with ORM tools like Drizzle ORM. His research demonstrated the effectiveness of data storage, retrieval, and interaction analytics in enhancing mock interview sessions through tracking candidate performance over time. The study focused on the importance of database handling for large, personalized AI-driven training, making it possible for recruiters and job seekers to review past interview performance, assess strengths and weaknesses, and personalize learning paths based on that. However, the study also pointed out that database efficiency is affected in the case of very large databases, which calls for advanced optimization techniques, indexing strategies, and caching to facilitate responsive and fluid user experiences. Security and access control are essential considerations in AI-powered mock interview platforms, since the systems could handle sensitive candidate information and candidate responses. Liam Wilson (2022) suggested role-based access control (RBAC) controls using Clerk API to enhance data security, authentication, and user-specific access control. His work explained

how multi-tiered authentication supports privacy through multiple levels of access for candidates, recruiters, and system administrators. However, the use of RBAC models requires a structured user role hierarchy, thus increasing deployment complexity and inhibiting system integration. Despite this, RBAC remains a critical element for ensuring the security and integrity of AI-powered interview platforms. The application of AI-powered analytics in career growth platforms was comprehensively studied by Maria Gonzalez (2021), who examined how skill-level-based mock interviews provide customized feedback and organized improvement plans. This research found that performance monitoring and analytics through AI help in the identification of knowledge deficits, effective communication skills, and analytical skills.

The research noted that AI-driven dashboards and analytics tools provide quantifiable insights into the strengths and weaknesses of a candidate, allowing users to refine their interview tactics in the long term. On the other hand, Gonzalez also commented on data privacy and the morality of gathering deep candidate performance metrics, recommending implementing open data policy and secure data encryption methods for safeguarding information about users. Though AI-based platforms are advancing in interactivity in real time, customary mock interview options remain limited on adaptability as well as tailoring. Jane Smith in 2019 investigated virtual mock interview websites employing pre-recorded video interview questions and text-based feedback systems. Her study reported that in as much as it was convenient, accessible, and self-instructed, such websites do not adapt to meet individual users' needs, delivering generic feedback with little real-time interaction. As compared to interactive AI chatbots, these models are not adjusting the difficulty levels of questions based on user performance and therefore are less effective for customized career preparation. Overall, these studies emphasize the revolutionary potential of Generative AI for interview preparation, and incidentally, point towards significant challenges like scalability, security, data management, and flexibility. With Gemini AI for live question generation, React and Next.js for live user interaction, Neon PostgreSQL for efficient data management, and Clerk authentication for secure access management, the AI mock interview chatbot designed intends to revolutionize traditional interview training.

The platform provides a seamless, intelligent, and interactive mock interview experience, thereby readying job seekers for real hiring processes. Additionally, the system's cross-platform nature on web, Android, and iOS broadens user access and reach, making AI-powered career development tools within reach of applicants from diverse industry and experience segments. Other than individual job preparedness, AI-powered mock interview technologies have many implications for guidance organizations, institutions of higher education, corporate training departments, and placement organizations. Guidance institutions and colleges can use AI-enabled mock interviews to increase the training curriculum, reduce the cost, and enhance the integrity of candidate testing. Automation of tailored mock interview sessions allows institutions to scale interview training programs efficiently without a requirement for separate human intervention while providing quality candidate assessment and feedback loops. Corporate training initiatives can integrate AI-based mock interview functionality into employee upskilling initiatives so that professionals stay relevant in evolving job markets. Similarly, career guidance agencies and universities can leverage these platforms to prepare students for industry-specific hiring processes, easing the transition from academia to professional life. With the addition of AI-driven feedback loops and occupation-focused training, the platform completes the loop between academic education and professional achievement. By incorporating adaptive learning models, AI-powered mock interview systems can tailor difficulty of questions, tone of communication, and feedback based on user responses, enhancing career readiness and making it more individualized. The capability to incorporate machine learning algorithms allows the system to track user performance over time, providing data-driven feedback that enables individuals to find strengths, rectify weaknesses, and optimize their job search

strategy. This level of keen measurement allows employers and recruiters to have a better sense of candidate ability, enabling hiring efficiencies and improved talent quality.

In short, the creation of AI-based interview practice platforms is revolutionizing the future of career development, career advancement, and hiring strategies. With the progress of AI technology, these platforms will become even more indispensable in helping candidates to navigate complex hiring processes, build self-confidence, and become more job market-prepared. Through continued innovation and advanced data analysis, AI-powered mock interview chatbots may be able to empower job applicants, facilitate more efficient automated recruitment, and assist in the development of a better-skilled and better-qualified global workforce. Moreover, as computer systems become more sophisticated and widespread, they can facilitate greater accessibility and inclusivity in career advancement so that individuals from all walks of life, including those with disabilities or limited languages, also have an equal opportunity to succeed in the job market. By integrating cutting-edge AI research, human-centered design, and career-oriented models of learning, AI-powered interview platforms can transform the recruitment process and make professional development and work readiness a reality for all.

III. PROPOSED METHODOLOGY

The system highlighted in this suggestion has an AI-powered mock interview chatbot with Generative AI (GenAI) and real-time adaptive learning to provide an interactive, intelligent, and personalized career preparedness experience. Unlike standard mock interviews from predetermined question banks or pre-recorded sessions, the system dynamically creates industry-specific questions, evaluates answers in real time, and provides customized feedback. The chatbot adapts to learning user skill levels, occupations, and industries and makes interview practice a data-driven and confidence-increasing process. The interface powered by React supports seamless, AI-driven interactions, mimicking real job interviews. Powered by Gemini AI as the engine, the chatbot learns from user feedback and performance to fine-tune its interrogation and feedback modules. Interview interaction, performance updates, and tracking are stored with Neon PostgreSQL for informative feedback regarding strengths and weaknesses. Clerk authentication ensures role-based and secure login, with each user type enjoying a customized experience such as students, professionals, recruiters, and career coaches. Along with basic mock interview simulations, the platform offers voice-to-text analysis and AI-driven sentiment analysis, giving tone, confidence, fluency, and clarity feedback. Scenario-based role-playing tests problem-solving and decision-making skills under pressure in real-time, getting users ready for technical and behavioral interview questions. Design-inclusive, the chatbot supports many languages so that non-native speakers can carry out interviews comfortably. Adaptive text size, voice instructions, and text-to-speech ensure disabled people's accessibility to it, giving quality interview practice to individuals of all classes of life. By combining GenAI with an intuitive interface, the system offers unprecedented education and professional skill improvement benefits. The system can be applied by universities, vocational schools, and company recruiting managers as a training system to allow prospects to enhance their capabilities using customized learning. Tracking of improvement and customized guidance on development to increase skill levels makes building skills continuous, improving job-readiness and employability.

This intelligent mock interview platform revolutionizes career readiness, bridging the gap between how it is learned in school and what is needed by employers. With bleeding-edge AI, natural language processing, and adaptive learning, it flips interview training on its head and makes it a scalable, data-driven, and enjoyable experience. By creating confidence, communication, and strategic thinking, the system allows users to succeed in the current competitive workforce while opening doors to the future of AI-fueled career readiness.

IV. TECHNOLOGIES USED

1. Gemini AI

Gemini AI is a powerful large language model (LLM) which is the AI chatbot's core intelligence. It supports dynamic real-time generation of interview questions in target industries, analysis of user responses, and personalized coaching for technical and behavioral competencies. The Gemini API acts as a connector between the application and the AI model that enables seamless integration of dynamic question creation and AI-coaching. Gemini AI's natural language processing (NLP) capabilities also enable meaningful interactions, providing users with contextually relevant and constructive feedback to improve their communication skills, problem-solving abilities, and confidence.

2. React

React is a widely used JavaScript library that powers the front-end user interface of the AI mock interview chatbot. Its component-based architecture ensures that the chatbot is highly responsive, scalable, and interactive. With React.js virtual DOM, interface updates are efficient and fast, providing immediate feedback and a smooth user experience. The chatbot interface is designed to mimic real job interviews, offering a chat-based environment in which users can practice using AI-driven conversations. React.js modularity enables voice-to-text processing, animated chat output, and interactive role-based scenarios to be added, enabling interview practice to be fun and realistic.

3. Next.JS

Next.js is a React-based web application framework for handling the backend logic, API routes, and server-side processing of the chatbot. Server-side rendering (SSR) and static site generation (SSG) are enabled by Next.js, enhancing performance, scalability, and page load speed. Next.js in the system proposed is used for processing user input, securely interacting with Gemini AI, and displaying real-time dynamically generated interview questions. With the help of Next.js, the chatbot offers fast response times, enhanced security, and seamless integration with cloud services, making the AI-powered mock interview experience highly responsive and reliable.

4. Neon Postgresql

Neon PostgreSQL is a cloud-native relational database employed as the primary data storage system for the AI mock interview chatbot. It holds user profiles, interview records, AI-generated responses, and performance analytics. Through a well-structured database design, Neon PostgreSQL enables efficient processing of data at high speeds such that interview progression can be tracked over multiple interviewing sessions. Since the system supports the storage and analysis of past interview responses, progressive learning via AI becomes real such that the chatbot's difficulty level as well as responses are determined on the user's previous work.

5. Clerk Authentication

Clerk Authentication is a user authentication and role-based access control (RBAC) system that ensures diverse users receive personalized experiences based on their roles. The bot is constructed to support multiple categories of users, including students, job applicants, corporate recruiters, and career advisors with differentiated levels of access rights. The authentication system further accommodates multi-factor authentication (MFA), password encryption, and OAuth integrations, making user information very secure and inaccessible to unauthorized parties. Utilizing role-based access, students and professionals can focus on developing the skills of interviewing, while the recruiters and career mentors can oversee and assess the candidates accordingly.

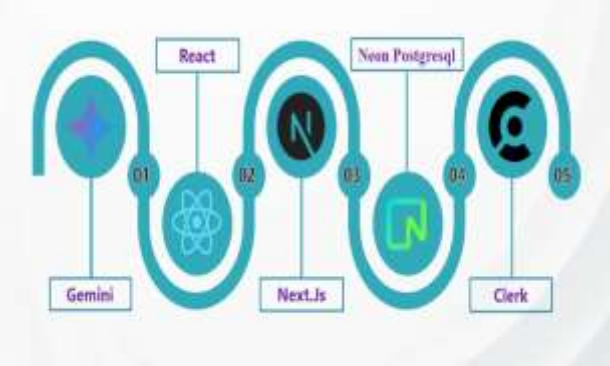

Figure 2. TECHNOLOGICAL ARCHITECTURE

Why Genai?

Generative AI (GenAI) enhances the interactivity and intelligence of mock interview platforms, creating a real-time, adaptive, and engaging interview experience. Unlike static question banks or pre-recorded video interviews, GenAI dynamically generates industry-specific questions, ensuring that each session is tailored to the user's skill level and job role. This gives a realistic and interactive interview experience that is closer to the real hiring practices. With GenAI-powered learning models, interviewees receive real-time, personalized feedback on their responses, boosting their technical capabilities, communication capabilities, and self-confidence. The intelligent AI-driven chatbot transforms traditional interview practice into an ultra-interactive and highly effective training platform, allowing for easier preparation of job interviews with precision and confidence.

AI Mock Interview Chatbot:

- The GenAI-driven model builds a smart, conversational chatbot interface with React and Next.js. It leverages Gemini AI for question generation, response evaluation, and real-time feedback.
- Users engage with the chatbot via a dynamic, interview-type chat session, in which questions shift depending on their previous responses, skill level, and industry field.
- The system tracks conversation history and user performance through Neon PostgreSQL to ensure structured data storage and retrieval. Each session is monitored and analyzed to provide personalized feedback and improvement suggestions.

V. RESULT AND DISCUSSION

Generative AI (GenAI) with a mock interview AI chatbot revolutionized interview practice to offer an intelligent, dynamic, and interactive experience. Compared to traditional mock interviews based on pre-recorded video responses or static question databases, the envisioned system provides dynamically generated questions, real-time evaluation of the user's response, and skills-based feedback according to industry standards. This real-time adaptability allows the candidates to continually improve their technical, behavioral, and communication skills, hence being more ready for a job interview in reality. The chatbot's React-based chat interface allows seamless and interactive practice of interview questions through a conversational AI model simulating interactions in real time with recruiters or hiring managers. Gemini AI question-generation engine interacts dynamically with users' responses, adjusting question difficulty level and feedback display based on user performance and needs within respective fields. Users are given step-by-step feedback on strengths and weaknesses, as well as areas of improvement, allowing them to enhance response capabilities over multiple sessions. Among the system's key benefits is its strong analytics and monitoring capabilities enabled by Neon PostgreSQL. It is an encrypted, scalable database that stores user interactions, interview histories, and performance data that can build rich information on user development over time. With role-based authentication by Clerk, the system builds tailored user experiences for students, job applicants, corporate recruiters, and career mentors that are secure and organized access to interview material. The highest advantage of the AI-based chatbot is its ability to simulate multiple interview patterns, including technical problem-solving, behavioral competency tests, and scenario-based role-playing in real-life situations. The candidates undergo industry-specific questions, thus allowing them to develop pressure-handling problem-solving and decision-making abilities. Voice-to-text processing and sentiment analysis modules add a level of testing by determining tone, confidence, fluency, and coherence, allowing users to enhance verbal and non-verbal communication skills. In addition to that, the chatbot is inclusive and accessible. The platform is also friendly to most languages, supporting non-English speakers to be able to take interviews using their home language, thus boosting global career readiness. Conversion to text to speech, variable text size, and voice commands make the platform accessible to disabled persons, giving all an equal opportunity for searching employment. The scalability and flexibility of the system allow it to be used in business schools,

training centers, and corporate recruitment programs. The organization can use this chatbot to schedule mock interviews automatically, reduce the dependence on human mentors, and make interview training cost-effective and efficient. The system improves progressively through tracking the performance of the users across different sessions, based on individual learning needs, ensuring progressive improvement and long-term career growth. The project's Minimum Viable Product (MVP) was designed to highlight real-time interaction, personalized feedback, role-based authentication, and AI-driven performance analysis. Further development will include more NLP breakthroughs, more industry-specific training models, and more sentiment and behavior analysis capabilities, further making the system more intuitive and responsive to user needs. This mock interview chatbot powered by artificial intelligence has the potential to transform career development with its intelligent, accessible, and scalable interview preparation training platform. By combining powerful AI with a rich learning experience, the platform ensures that job candidates are not just prepared but fully equipped with the confidence, skills, and industry insights to succeed in their career. The long-term impact of such a sensible system will be higher employability, better-prepared applicants, and better-organized job interview preparation, and so it is an essential tool for today's workforce.

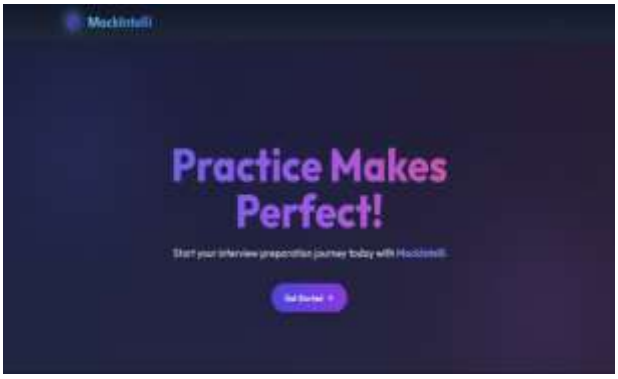

Figure 3. Output of Home Page

Figure 4. Output of Dashboard

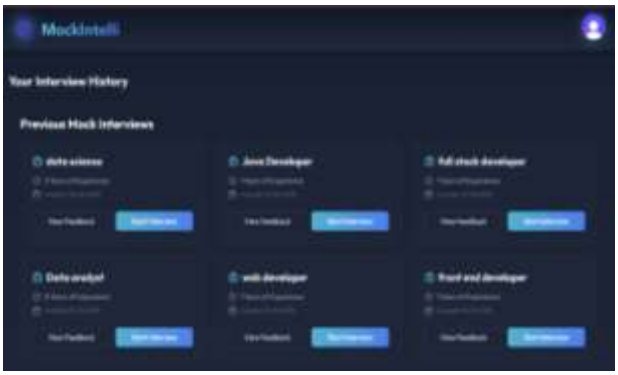

Figure 5. Output of Dashboard

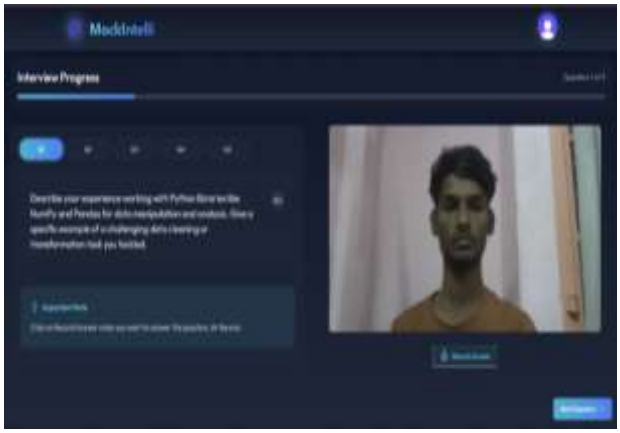

Figure 6. Output of Interview Page

VI. CONCLUSION

The convergence of GenAI technology and AI-powered mock interview platforms represents a paradigm shift in career readiness, transforming job candidate preparation, improvement, and confidence building for real interviews. By integrating AI-driven chatbot conversation with real-time adaptive learning, this initiative fills knowledge gaps, personalizes learning experiences,

and provides extremely interactive, formatted, and thoughtful interview practice. The AI chatbot is able to present context-based interactions, developing professionally applicable, dynamically shifting questions while analyzing user input to supply instantaneous feedback about technical, behavioral, and communications skills. The AI-powered mock interview system is a smart career navigator, leading users through a sequence of learning processes and delivering instantaneous, formal feedback to enhance interviewing capabilities. The React-based front-end ensures seamless user interaction, while Gemini AI's advanced natural language processing (NLP) capabilities enable intuitive, adaptive, and role-specific question generation. Voice-to-text analysis, sentiment detection, and real-time scenario-based simulations add depth to interview preparation, allowing users to enhance both verbal and non-verbal communication skills. Meanwhile, Neon PostgreSQL ensures scalable data storage, enabling users to track their performance history and progress. The inclusion of role-based authentication (Clerk) offers extra data privacy and security, enabling different users—students, professionals, recruiters, and career mentors—to be given tailored access. The flexibility and scalability of this AI platform make it the ideal solution for universities, training schools, and corporate recruitment programs, as it allows them to automate and standardize their mock interview processes effectively. The impact of this AI-based interview system goes beyond individual career preparation. User interaction insights and feedback analysis can be used to refine AI models continuously so that the chatbot is more effective, industry-specific, and contextually aware. This gives a feedback loop that maximizes the accuracy and relevance of the system, resulting in better preparation outcomes for subsequent users. The value of this project is to fill the gap between book knowledge and what is needed by employers, and to equip job candidates with a smarter, scalable, and more tailored strategy for career development. This AI-powered interview coaching system not only enhances the candidate experience but also transforms the landscape of hiring and recruitment, ensuring that individuals are not only prepared for interviews but actually ready to nail them.

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