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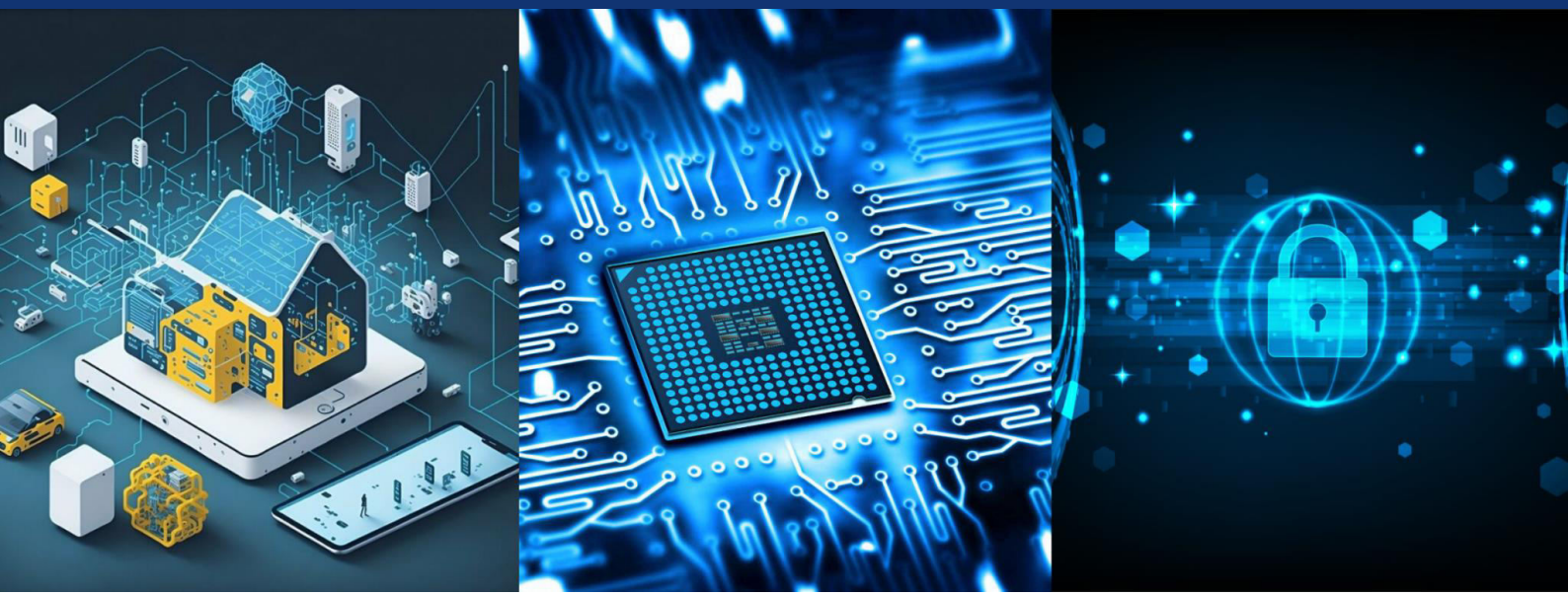

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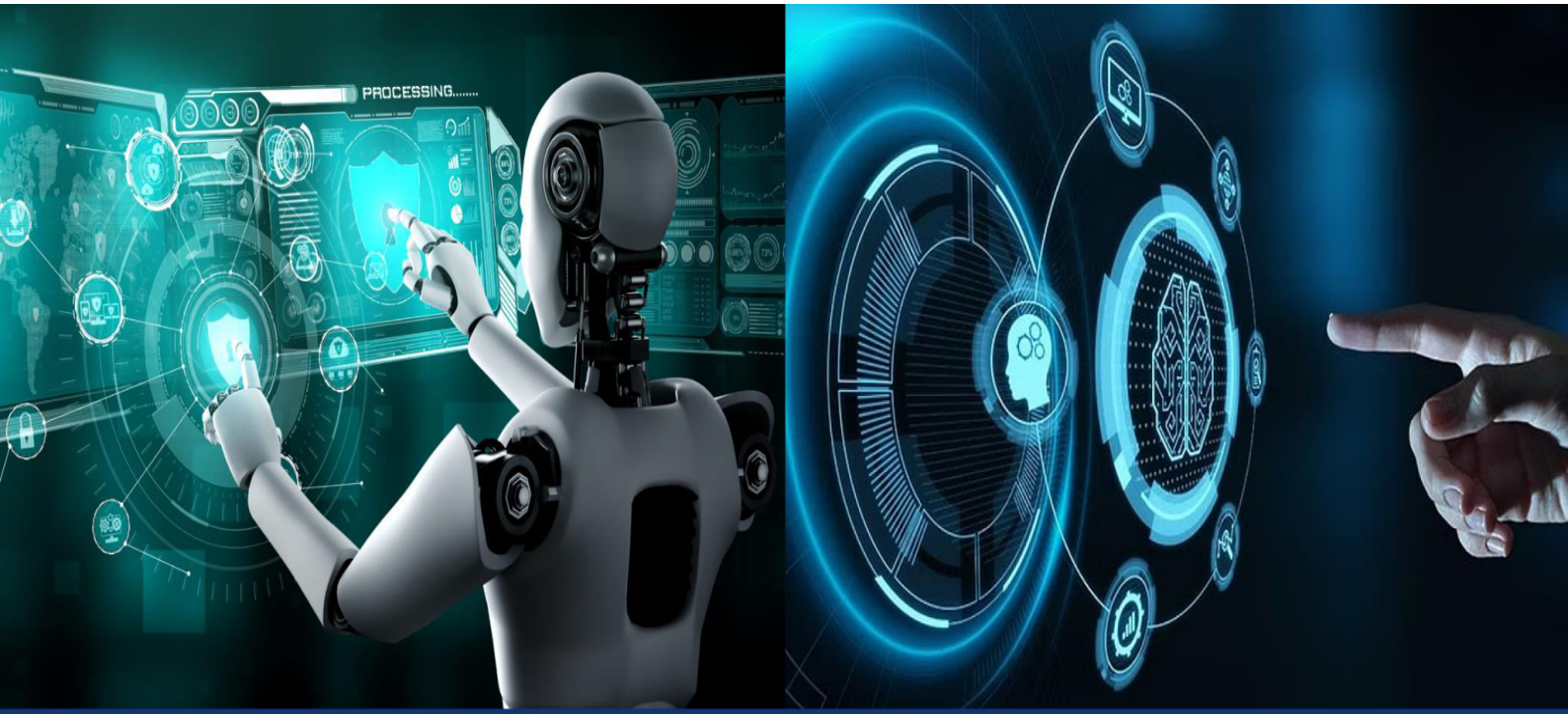

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International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE)

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AI-Powered Mock Interview Platform for Personalized Interview Preparation

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ABSTRACT: In today's competitive environment, it is essential for candidates to possess clear communication skills, technical expertise, and confidence during interviews to achieve success. Traditional interview training methods are often too broad, lack immediacy, and are not readily available. This paper suggests leveraging Artificial Intelligence to create a smart interview preparation tool, specifically an AI-Powered Mock Interview Assessment System. The proposed system tailors interview questions based on specific job roles, technology stacks, and levels of experience. It evaluates candidate responses using Google Gemini AI, providing detailed feedback, performance scores, strengths and weaknesses, and recommendations for improvement. The system is developed using React.js, Next.js, MongoDB, Clerk Authentication, and Gemini AI. The platform provides a user-friendly, efficient, and scalable solution that assists customers in improving their interview preparation and boosting candidate performance by offering continuous evaluation and feedback.

KEYWORDS: Artificial Intelligence, Mock Interview, Gemini AI, Interview Preparation, React.js, Next.js, Feedback System, Web Application

I. INTRODUCTION

The recruitment landscape is increasingly competitive, necessitating that candidates have not only technical expertise but also strong communication abilities. Many students and professionals face challenges in adequately preparing for interviews due to the limited availability of mentors, personalized interview advice, and practice opportunities. Recent advancements in Artificial Intelligence have enabled the creation of intelligent systems capable of simulating human-like interactions and evaluating user responses. AI-driven interview platforms provide candidates with a realistic interview environment, allowing for repeated practice and receiving impartial feedback. The AI-Powered Mock Interview Assessment System (AI-MIAS) addresses these challenges by offering a customized interview preparation solution. This system generates personalized interview questions, evaluates responses through AI, and provides a detailed performance analysis. It aims to bridge the skills gap between education and industry, enhancing candidates' confidence and success in interviews.

II. PROBLEM STATEMENT

Many candidates face difficulties in interview preparation due to the absence of tailored mock interviews and expert evaluations. Traditional training methods often rely on question banks and self-assessment, which fail to accurately identify areas of weakness. Additionally, professional coaching programs may be out of reach financially or geographically for some users. Therefore, there is a need for a smart, cost-effective, and scalable simulation system that can replicate actual interview scenarios, assess candidates' performance, and provide improvement recommendations.

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III. OBJECTIVES

The main objective of the proposed system is:

- To create an AI based mock interview application.
- To create user-specific interview questions from user preferences.
- Automated evaluation of candidate responses with the help of Artificial Intelligence.
- To give specific performance feedback and ratings.
- To increase communication skills and confidence in interviews.
- To keep the historical performance record for tracking progress.

IV. LITERATURE REVIEW

In the past few years, Artificial Intelligence has been applied to educational assessments, recruitment process automation, and personalized learning systems. Some research has explored the use of NLP and Machine Learning for automating candidate evaluations. Although virtual interview systems exist, they often have pre-set questions and limited evaluation capabilities. The latest advancements in Large Language Models have significantly improved the ability to generate contextually appropriate questions and provide meaningful feedback. Google Gemini AI marks a major advancement in conversational intelligence, enabling dynamic question creation and response analysis. Despite these advancements, many systems still lack personalization, performance tracking, and comprehensive assessment features. The proposed system integrates all these elements into a unified interview preparation platform.

V. PROPOSED SYSTEM

The proposed AI-Powered Mock Interview Assessment System consists of multiple integrated modules that work together to simulate interview experiences and evaluate candidate performance.
The system includes:
• User Authentication Module
• Interview Configuration Module
• AI Question Generation Module
• Response Collection Module
• AI Evaluation Module
• Feedback and Recommendation Module
• Performance Tracking Dashboard
Users can configure interviews based on selected domains, job roles, experience levels, and technology stacks. The AI generates customized interview questions and evaluates user responses to provide detailed performance reports.

VI. SYSTEM ARCHITECTURE

The system employs a client-server architecture consisting of three primary layers. Presentation Layer: The user interface is developed using React.js and Next.js. Application Layer: This layer is responsible for creating interviews, processing responses, evaluating them, and generating feedback. Google Gemini AI is utilized for efficient question creation and analysis. Data Layer: MongoDB serves as the database, storing all data such as user profiles, interviews, responses, and performance reports. Clerk Authentication is used for user authentication. Typically, the system's operation begins with user authentication, followed by setting up an interview, generating questions, submitting responses, evaluating them, providing feedback, and analyzing the outcomes.

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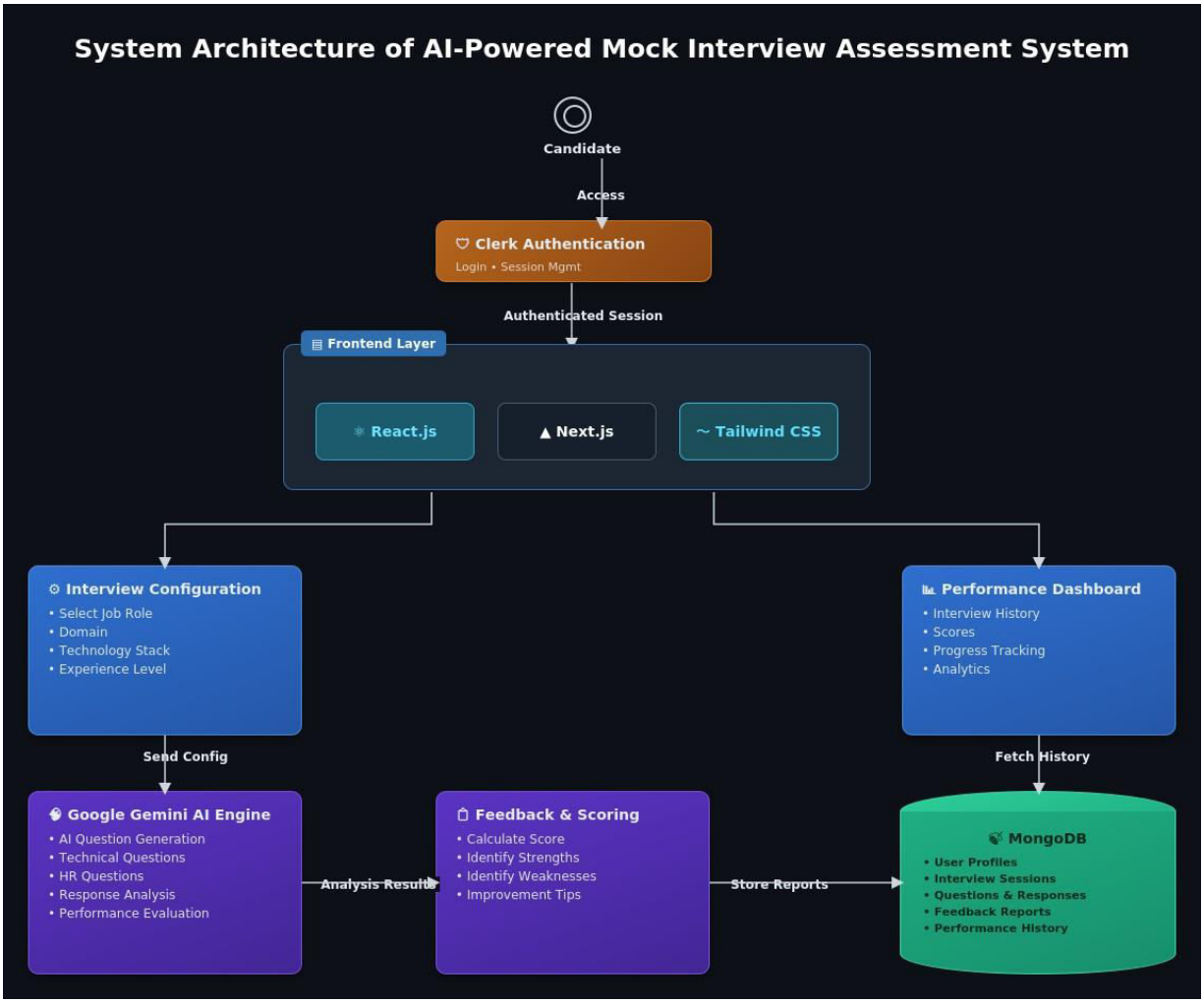

VII. WORKING METHODOLOGY

Step 1: User Account Creation and Authentication
Users sign up for an account and authenticate via Clerk Authentication.
Step 2: Setup of Interviews
Users configure their interview settings such as job role, field/domain, tech stack, and experience level.
Step 3: Question Creation via AI
Questions for the interviews are generated by Google Gemini based on the configurations made by users.
Step 4: Submission of Responses
Users submit their responses to the questions asked.
Step 5: Assessment by AI
Responses are evaluated based on various criteria like accuracy, relevancy, communication skills, etc.
Step 6: Generation of Feedback
Feedback is generated which includes the results of performance and suggestions for improvements.
Step 7: Monitoring Performance
The interviews and feedback are recorded for further analysis and improvement in the coming interviews.

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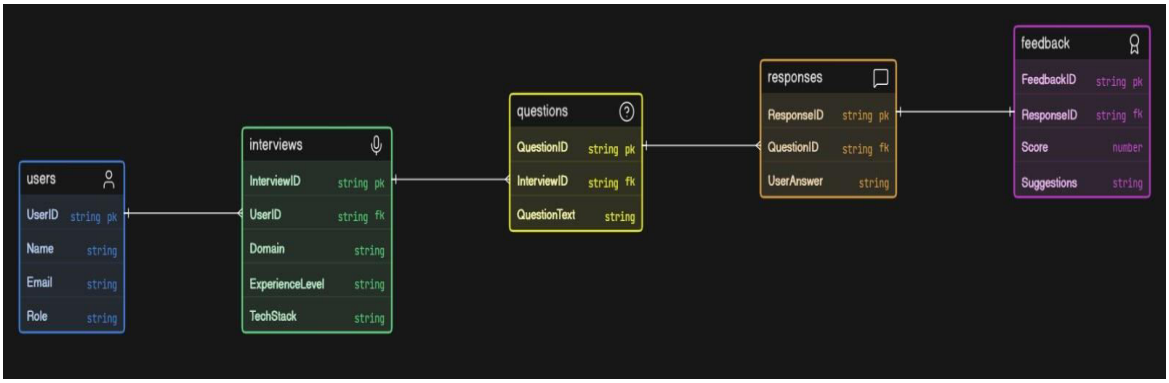

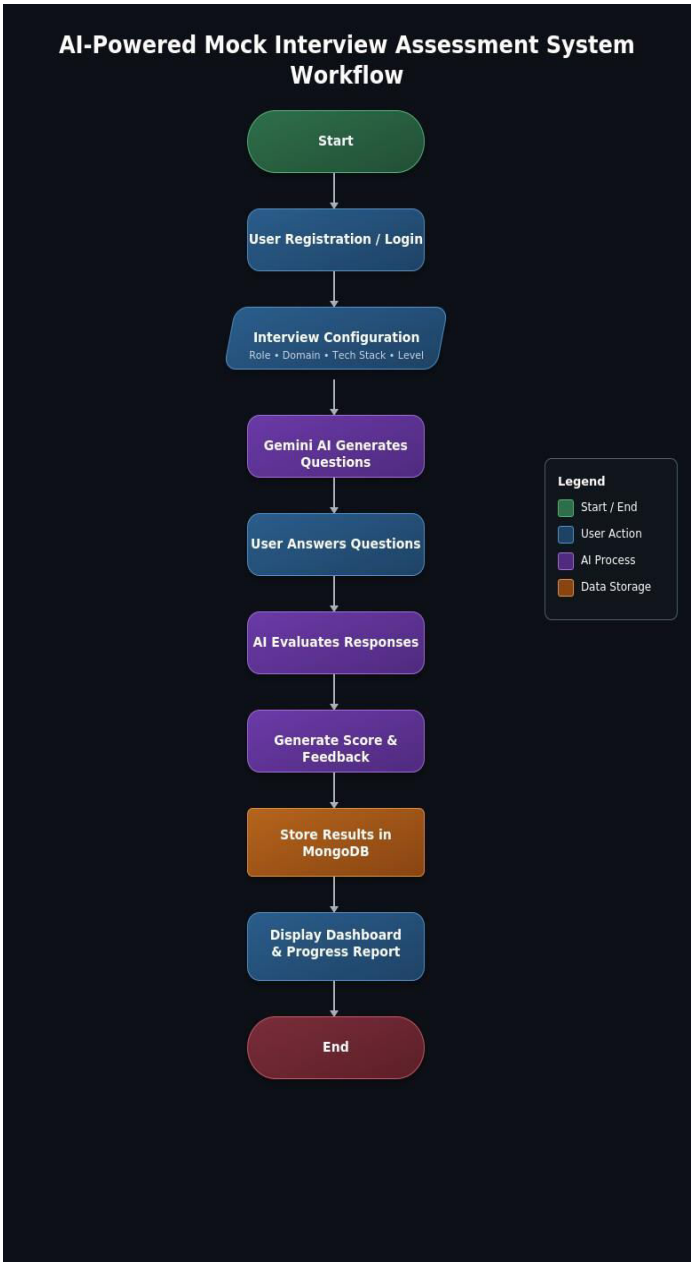

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VIII. ALGORITHM

The Input:
User Profile, Domain, Experience Level, Technology Stack
Process:

- Collect interview preferences from the user.
- Generate interview questions using Gemini AI.
- Display generated questions.
- Accept user responses.
- Analyze responses using AI evaluation mechanisms.
- Calculate performance scores.
- Generate feedback and recommendations.
- Store results in MongoDB database.
  Output: Detailed Performance Report and Personalized Improvement Suggestions.

IX. RESULTS AND DISCUSSION

The developed platform managed to generate custom interviews in various fields and varying levels of experience. The AI assessment component efficiently evaluated user answers and delivered relevant feedback reports.
The platform had the following strengths:
• Boosted interview confidence.
• Increased technical preparedness.
• Customized learning experience.
• Immediate feedback production.
• Clearer insight into strengths and weaknesses.
It was confirmed from user testing that candidates considered the tool valuable in helping to identify weaknesses and prepare for the interviews.

X. ADVANTAGES

• Individualized interview training.
• Instantaneous assessment via AI.
• Performance evaluation automation.
• User-friendly and responsive design.
• Accessible on any browser.
• An affordable solution to coaching.
• Flexible architecture.

XI. FUTURE ENHANCEMENTS

Possible features in future editions of this tool could be:
• Voice-based interview conversations.
• Interview video analysis.
• Sentiment recognition.
• Multilingual support.
• Integration with resume analysis.
• Assessment of coding interview.
• Communication skills assessment.

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XII. CONCLUSION

The AI-Powered Mock Interview Assessment System is an innovative resource for interview preparation in today's world. By combining Artificial Intelligence with advanced Internet technologies, this program can simulate actual interviews and assess a person's performance. It enables users to improve their technical abilities and communication skills, providing feedback on their performance throughout the process.

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