WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

An AI-Powered Platform for Personalized Mock Interviews Using LLMs and Modern Full-Stack Web Technologies

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ABSTRACT

In today's competitive job market, effective interview preparation is a crucial factor influencing career success. However, traditional mock interviews are often constrained by factors such as limited availability of experienced interviewers, scheduling conflicts, and inconsistent feedback. This paper presents an AI-powered mock interview platform that leverages large language models (LLMs) integrated within a modern full-stack web environment to simulate realistic interview experiences. The system is designed to generate domain-specific questions dynamically for both technical and HR interview formats.

Keywords: Artificial Intelligence, Large Language Models, Mock Interview System, Real-Time Feedback, Full-Stack Web Technologies

1. INTRODUCTION

The journey from traditional, in-person interviews to today's technologically advanced assessment methods marks a significant transformation in job seeking and talent acquisition. Historically, interviews were often less structured, heavily reliant on personal connections, and primarily focused on face-to-face interactions to gauge a candidate's suitability. Preparation largely involved rehearsing answers to common questions and understanding basic etiquette. However, the advent of the digital age, accelerated by global events, has profoundly reshaped this landscape.

2.EXISTING SYSTEM

Current interview preparation methods primarily rely on conventional mock interviews conducted face-to-face with mentors, peers, or professionals. These sessions aim to improve communication skills, confidence, and body language through real-time human interaction. However, they are often constrained by limited availability of interviewers, inconsistent feedback quality, and scheduling difficulties.

1.Despite these advancements, the current systems face several challenges:

2.Lack of Personalization: Existing platforms often provide generalized questions that may not align with the user's specific role or career goals.

3.PROPOSED SYSTEM

The proposed Mock Interview Practice Platform is an AI-powered solution developed to enhance interview preparation through personalized simulations, real-time feedback, and user collaboration. It addresses the key limitations of traditional mock interviews, such as limited availability, lack of personalization, and inconsistent feedback. The platform operates through a web-based interface that allows users to practice interviews tailored to specific roles, industries, or skill levels.

Key features of the proposed system include:

1.Personalized Mock Interviews

Role- and skill-specific question sets are generated dynamically based on user preferences.

2. AI-Driven Performance Analysis

The system analyzes speech clarity, tone, and response quality to provide instant, objective feedback.

3. Practice Mode with Instant Feedback

AI bots simulate real interviewers, enabling self-paced practice sessions with immediate evaluation.

4.METHODOLOGY

The Mock Interview Practice Platform follows a modular architecture that integrates artificial intelligence with modern full-stack web technologies to deliver real-time, personalized interview simulations. The system does not rely on pre-existing datasets; instead, it dynamically generates questions and evaluates responses using a large language model (LLM) through the Gemini API. Each component of the system contributes to delivering an interactive, adaptive, and user-friendly experience.

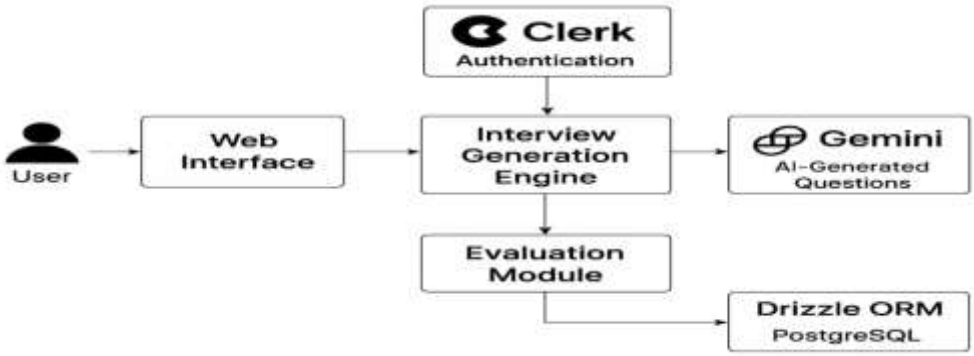
The development process is divided into the following modules:

Interview Question Generation :

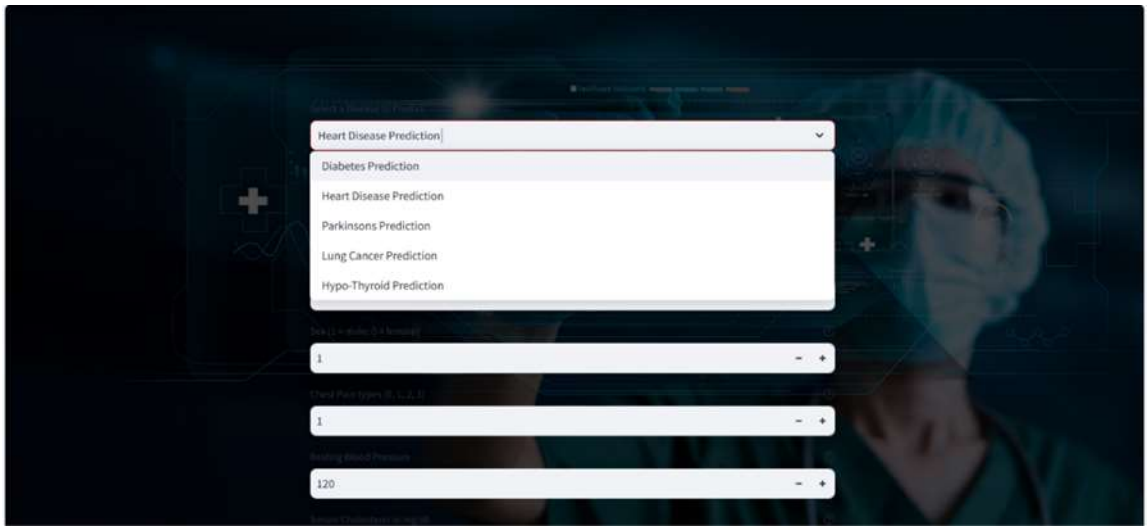
The system uses the Gemini API to generate domain-specific and role-based interview questions dynamically. Based on the user's selection of job role, industry, and difficulty level, the model returns relevant technical and HR questions to simulate a real interview environment.

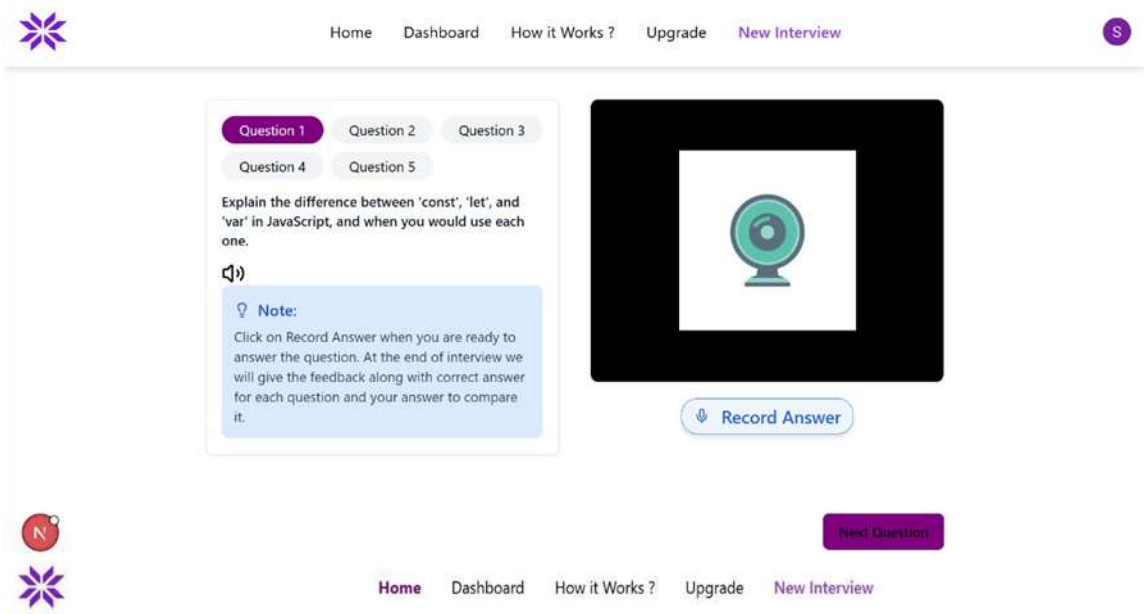
5.SYSTEM ARCHITECTURE

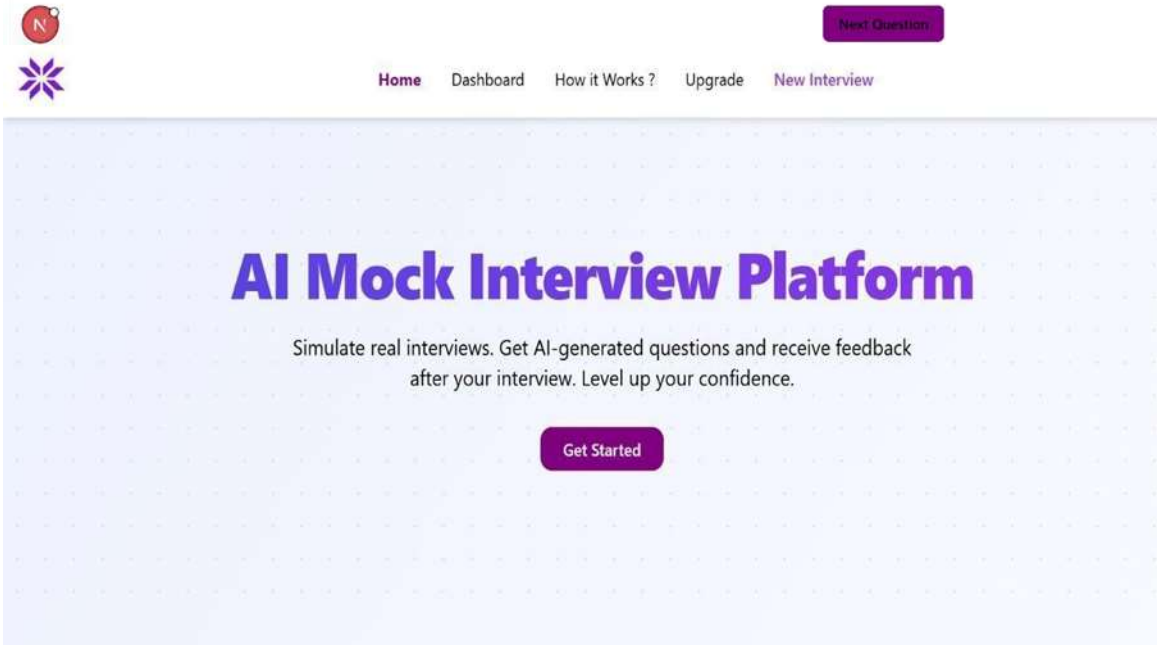
The system architecture of the Mock Interview Practice Platform is designed using a modular client-server model that ensures scalability, real-time interaction, and a seamless user experience. The architecture integrates AI capabilities through large language models (LLMs) along with modern web development frameworks and database management systems. The interaction begins with the User, who accesses the platform via a Web Interface developed using modern frontend technologies. The interface allows the user to register, log in, select a job role or domain, and start a mock interview session. All user actions are managed and routed through the Interview Generation Engine, which acts as the core controller of the system.

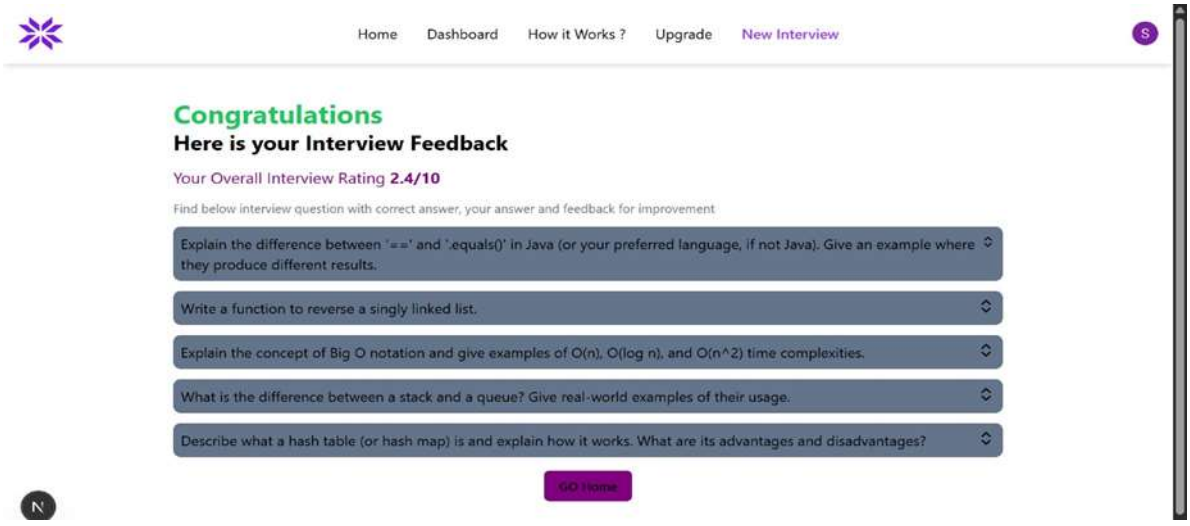


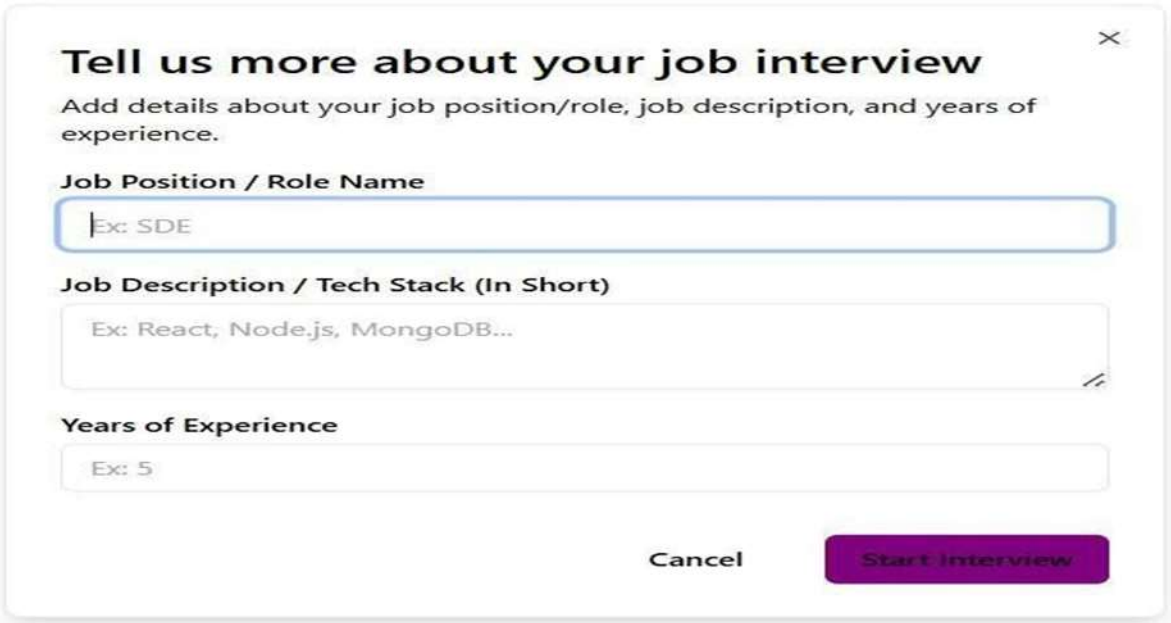
6. RESULTS AND OUTPUT

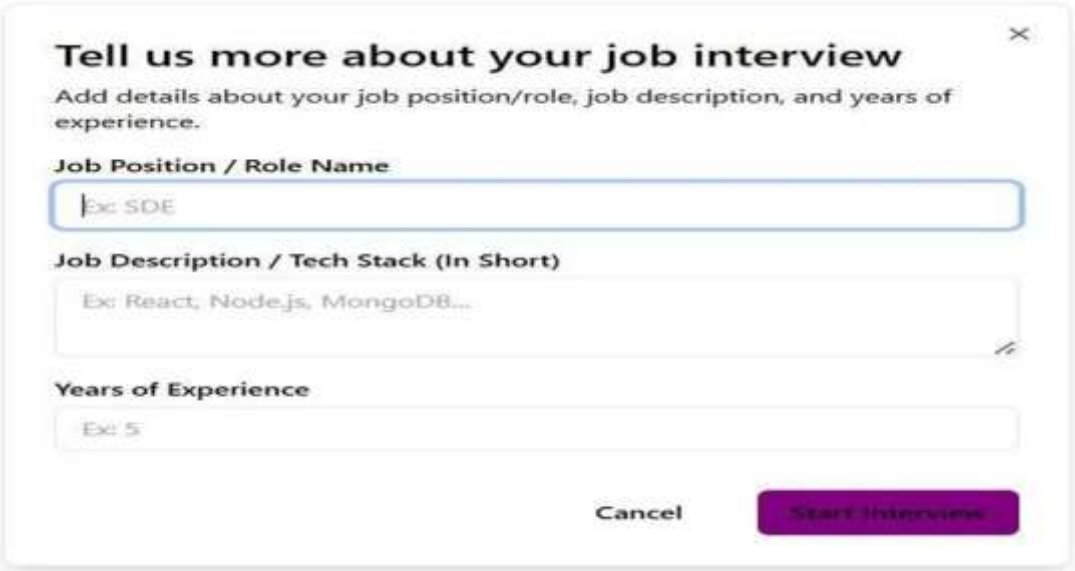


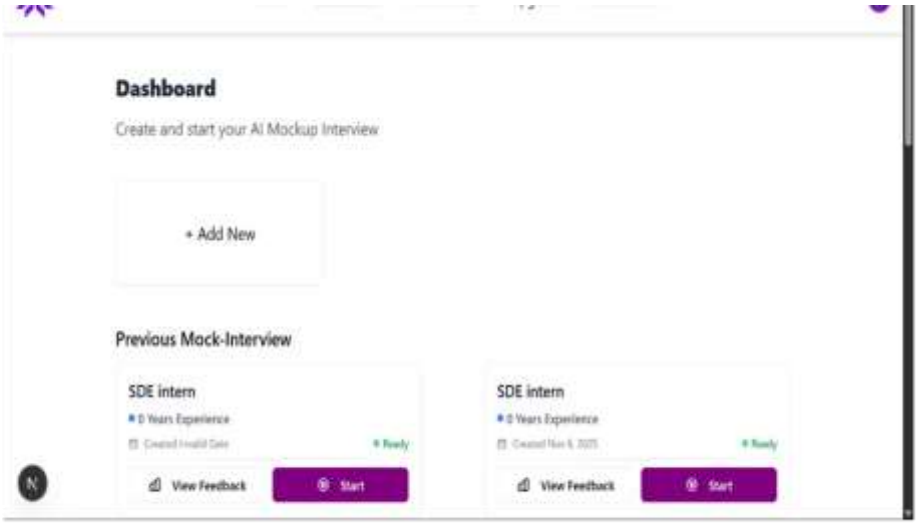

Home
Dashboard
How it Works ?
Upgrade
New Interview
Question 1
Question 2
Question 3
Question 4
Question 5
Explain the difference between 'const', 'let', and 'var' in JavaScript, and when you would use each one.
Note:
Click on Record Answer when you are ready to answer the question. At the end of interview we will give the feedback along with correct answer for each question and your answer to compare it.
Record Answer
Next Question


Home
Dashboard
How it Works ?
Upgrade
New Interview
AI Mock Interview Platform
Simulate real interviews. Get AI-generated questions and receive feedback after your interview. Level up your confidence.
Get Started


Home
Dashboard
How it Works ?
Upgrade
New Interview
Congratulations
Here is your Interview Feedback
Your Overall Interview Rating 2.4/10
Find below interview question with correct answer, your answer and feedback for improvement
Explain the difference between '==' and '.equals()' in Java (or your preferred language, if not Java). Give an example where they produce different results.
Write a function to reverse a singly linked list.
Explain the concept of Big O notation and give examples of O(n), O(log n), and O(n^2) time complexities.
What is the difference between a stack and a queue? Give real-world examples of their usage.
Describe what a hash table (or hash map) is and explain how it works. What are its advantages and disadvantages?
GO Home


Tell us more about your job interview
Add details about your job position/role, job description, and years of experience.
Job Position / Role Name
Ex: SDE
Job Description / Tech Stack (In Short)
Ex: React, Node.js, MongoDB...
Years of Experience
Ex: 5
Cancel
Start Interview


Tell us more about your job interview
Add details about your job position/role, job description, and years of experience.
Job Position / Role Name
Ex: SDE
Job Description / Tech Stack (In Short)
Ex: React, Node.js, MongoDB...
Years of Experience
Ex: 5
Cancel
Start Interview


Dashboard
Create and start your AI Mockup Interview
+ Add New
Previous Mock-Interview
SDE intern
0 Years Experience
View Feedback
Start
SDE intern
0 Years Experience
View Feedback
Start

7. CONCLUSION

In today's competitive job market, interview preparation plays a critical role in career success. Many candidates, especially students and fresh graduates, struggle to gain the confidence and skills needed to perform well in interviews. The Mock Interview Practice Platform aims to solve this problem by providing a structured, intelligent, and accessible environment for users. Currently, interview preparation is mostly done through traditional and semi-digital methods. Face-to-face mock interviews with mentors or peers help build basic communication skills and confidence, but they are limited by availability and lack personalization. AI-based tools like VMock and HireVue offer speech and behavioral analysis, yet they often come at a cost or lack full accessibility. Online platforms such as Zoom or Google Meet enable remote interviews, but they require manual setup and offer limited feedback. Mobile apps and peer- practice tools like Pramp and Interviewing.io improve convenience but are often focused only on technical.

8.FUTURE SCOPE

AI-Driven Personalized Feedback:

Future versions of the platform can implement advanced AI techniques to offer personalized feedback based on individual communication styles, learning pace, and target job profiles. By analyzing patterns across multiple sessions, the system can adapt its coaching to better suit each user's needs.

Integration of Multi-Modal Data:

Incorporating multi-modal data sources such as audio tone, facial expressions, eye movement, posture, and speech speed will allow the platform to deliver a more comprehensive performance analysis. Combining these data streams can enhance feedback accuracy and better simulate real- world interview conditions. Ensemble Learning Approaches:

Advanced Natural Language Processing (NLP):

Future enhancements could include the use of transformer-based NLP models (e.g., BERT, GPT) to better understand user responses, assess answer quality, and even suggest contextually relevant improvements. This would improve the platform's ability to handle open-ended and complex interview questions.

9. REFERENCES

[1] HireVue, "HireVue – AI Video Interviewing Platform," [Online]. Available: https://www.hirevue.com, 2023.

[2] VMock, "VMock Smart Career Platform," [Online]. Available: https://www.vmock.com, 2023.

[3] Pramp, "Pramp – Practice Coding Interviews with Peers," [Online]. Available: https://www.pramp.com, 2023.

[4] Interviewing.io, "Interviewing.io – Anonymous Technical Interview Practice," [Online]. Available: https://interviewing.io, 2023.

[5] Google Meet, "Google Meet – Video Conferencing," [Online]. Available: https://meet.google.com, 2023.