IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 6, Issue 3, May 2026
Impact Factor: 8.2

AI Powered Mock Interview and Aptitude Test System

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Abstract: *In recent years, artificial intelligence has significantly transformed the education and recruitment sectors by introducing intelligent systems capable of automating complex processes. One of the major challenges faced by students and job seekers is preparing effectively for technical and HR interviews. Traditional preparation methods often lack personalized feedback, real-time evaluation, and practical interview simulation. To address these limitations, AI-powered interview preparation platforms have emerged as a powerful solution.*

The proposed system, SkillMate.ai, is an advanced AI-powered interview preparation platform designed to help engineering students and job seekers improve their interview performance through realistic mock interview experiences. The platform conducts domain-specific technical interviews, HR interviews, coding assessments, and aptitude tests using artificial intelligence.

The system leverages modern web technologies along with the Anthropic Claude AI API to generate interview questions, evaluate user responses, and provide detailed feedback including scores, improvement suggestions, and model answers. It also supports voice-based interaction using speech recognition and text-to-speech technologies, creating a highly interactive user experience..

Keywords: Artificial Intelligence (AI), Mock Interview System, AI Interviewer, HR Interview, React, MongoDB, Socket.IO, Anthropic Claude API

I. INTRODUCTION

Interview preparation has become an essential part of academic and professional development for students and job seekers. In today's highly competitive job market, candidates must possess not only strong technical knowledge but also confidence, communication skills, and problem-solving abilities.

Traditional interview preparation methods such as reading theoretical materials, practicing questions manually, or participating in occasional mock interviews often fail to provide consistent feedback and realistic interview environments.

The emergence of artificial intelligence has opened new possibilities for creating intelligent learning systems capable of simulating real-world interview scenarios. AI-powered systems can analyse responses, evaluate performance, and provide personalized feedback instantly.

II. PROBLEM STATEMENT

Many students face difficulty during interviews due to:

- Lack of practical interview exposure
- Limited access to expert guidance
- Absence of instant feedback
- Inadequate coding interview practice
- Poor communication confidence

Existing preparation platforms often provide static questions without personalized analysis.

DOI: 10.48175/IJARSCT-34976

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Therefore, there is a need for an intelligent interview preparation system capable of conducting realistic mock interviews, evaluating responses in real-time, and providing structured improvement suggestions.

OBJECTIVES

- To develop an AI-powered interview preparation platform
- To simulate realistic interview experiences
- To evaluate candidate responses using AI
- To provide instant performance feedback
- To support technical, HR, coding, and aptitude rounds
- To enable voice-based interaction
- To maintain session history for progress tracking
- To create a scalable and user-friendly system

SCOPE

- Technical interview preparation
- HR round simulation
- Coding challenge assessments
- Aptitude test generation
- AI-based answer evaluation
- Voice interaction support
- Dashboard analytics

III. LITERATURE SURVEY

Sr. No	Title	Author	Year	Methodology Used	Conclusion
1.	"AI-Based Personalized Learning Platforms for Smart Education"	R Sharma, P. Verma	2022	Uses machine learning algorithms and adaptive learning techniques to analyze student performance and recommend personalized study materials.	Improves student engagement and learning efficiency through customized educational experiences.
2.	"Online Assessment Systems with Automated Evaluation"	M. Gupta, S. Rao	2021	Implements web-based assessment modules with automatic scoring, result analysis, and performance tracking..	Reduces manual evaluation effort and provides quick and accurate assessment results.
3.	"Conversational AI Models for Intelligent Human Interaction"	A. Brown et al.	2023	Uses large language models and Natural Language Processing (NLP) for contextual understanding and response generation.	Enhances human-computer communication with realistic and interactive conversations.
4.	"AI-Powered Mock Interview Platforms for Candidate Preparation"	K. Patel, R. Singh	2024	Integrates AI-driven question generation, speech analysis, and automated response evaluation for interview simulations.	Provides realistic interview practice and personalized feedback for skill improvement.

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IV. METHODOLOGY

I. The SkillMate.ai system is developed using AI and web technologies to provide an intelligent interview preparation platform. The methodology includes the following steps:

1. Requirement Analysis – Identifying user needs such as mock interviews, coding tests, aptitude tests, and AI-based evaluation.
2. System Design – Designing modules including user management, interview simulation, AI evaluation, coding assessment, and feedback generation.
3. Data Collection – Gathering technical, HR, coding, and aptitude questions from various learning resources.
4. AI-Based Interview Generation – Using NLP and conversational AI to generate dynamic interview questions based on user performance.
5. Response Evaluation – Analyzing answers using AI techniques for communication skills, technical accuracy, and coding performance.
6. Performance Feedback – Generating scores, strengths, weaknesses, and improvement suggestions for users.
7. Testing and Deployment – Testing all modules and deploying the application as a web-based interview preparation system.

V. MODELING & ANALYSIS

The SkillMate.ai system is modeled using a modular architecture that integrates AI-based interview simulation, response evaluation, coding assessment, and aptitude testing. The system consists of frontend, backend, database, and AI evaluation modules working together to provide an interactive interview preparation environment.

The analysis process involves:

- Collecting and processing user responses
- Generating domain-specific interview questions
- Evaluating answers using NLP and AI techniques
- Assessing coding solutions through automated test cases
- Analyzing aptitude test performance

The system measures user performance based on:

- Technical knowledge
- Communication skills
- Problem-solving ability
- Accuracy and response quality

Detailed feedback and performance analytics are generated to help users identify strengths and areas for improvement. The analysis confirms that the system provides efficient, automated, and realistic interview preparation support.

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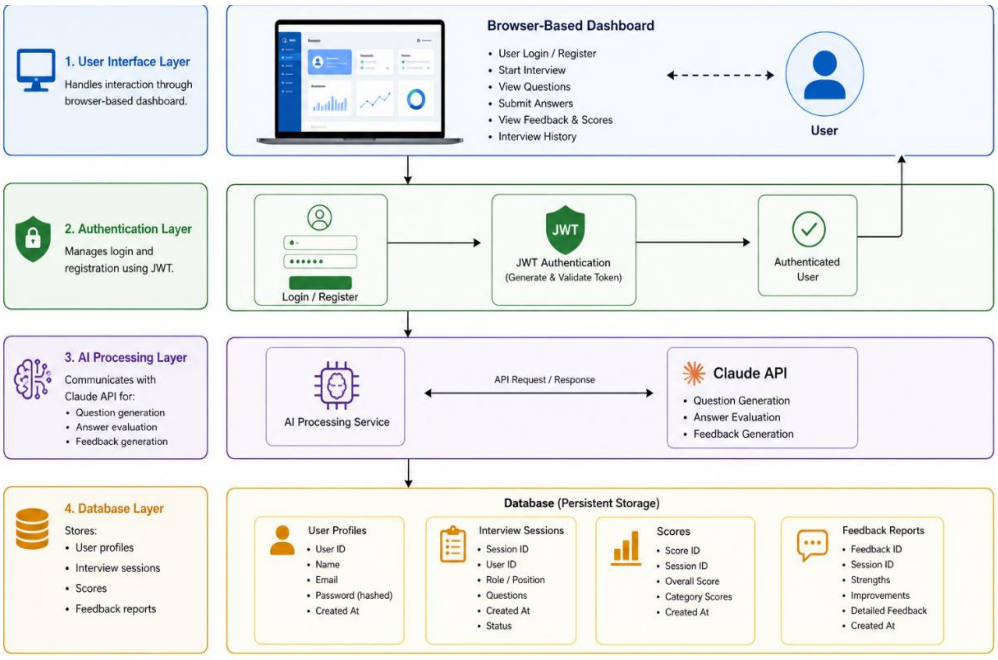

Figure 1. SYSTEM ARCHITECTURE

The SkillMate.ai system follows a layered architecture consisting of four main layers:

1. User Interface Layer

Provides a browser-based dashboard where users can register, attend interviews, submit answers, and view scores and feedback.

2. Authentication Layer

Handles secure user login and registration using JWT authentication for generating and validating user sessions.

3. AI Processing Layer

Integrates Conversational AI through Claude API for dynamic question generation, answer evaluation, and feedback generation.

4. Database Layer

Stores user profiles, interview sessions, scores, and feedback reports for future analysis and tracking.

The architecture ensures secure communication, real-time AI interaction, efficient data management, and scalable interview assessment functionality.

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VI. RESULTS

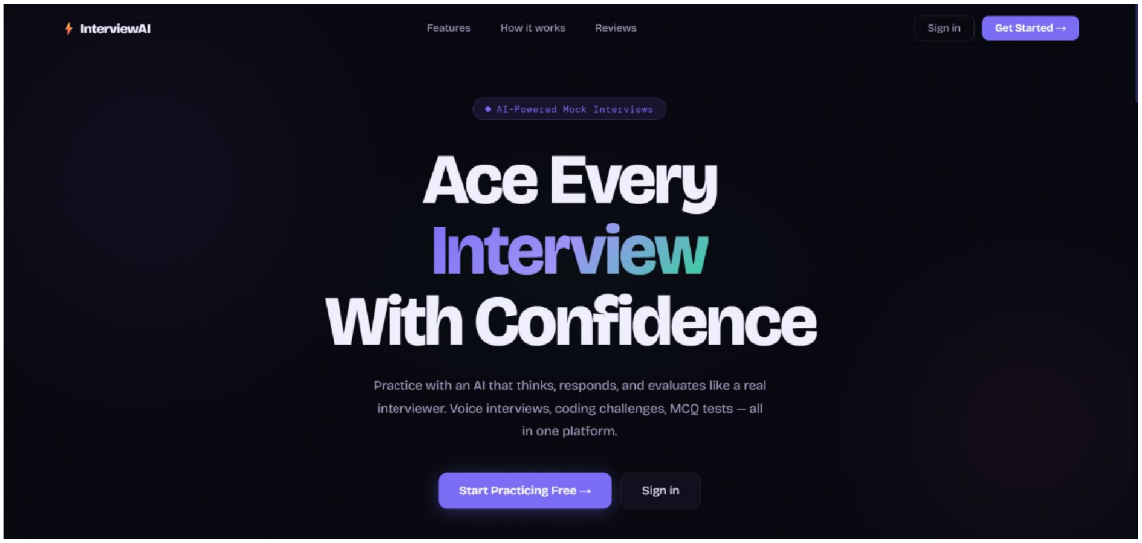

Fig: Website Page

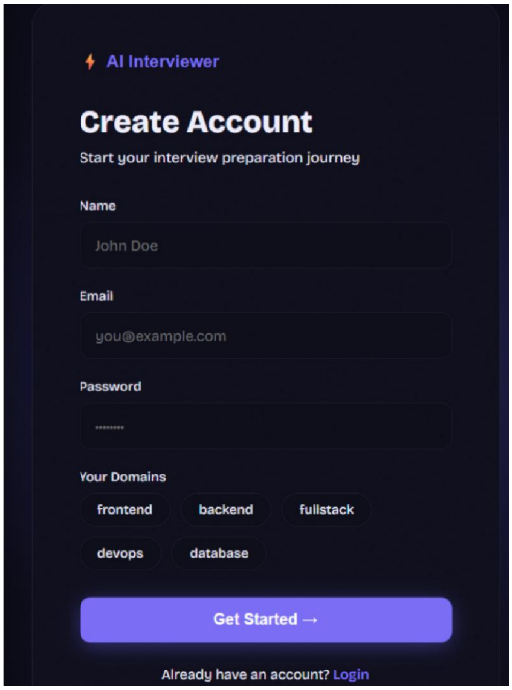

Fig: Create a Account

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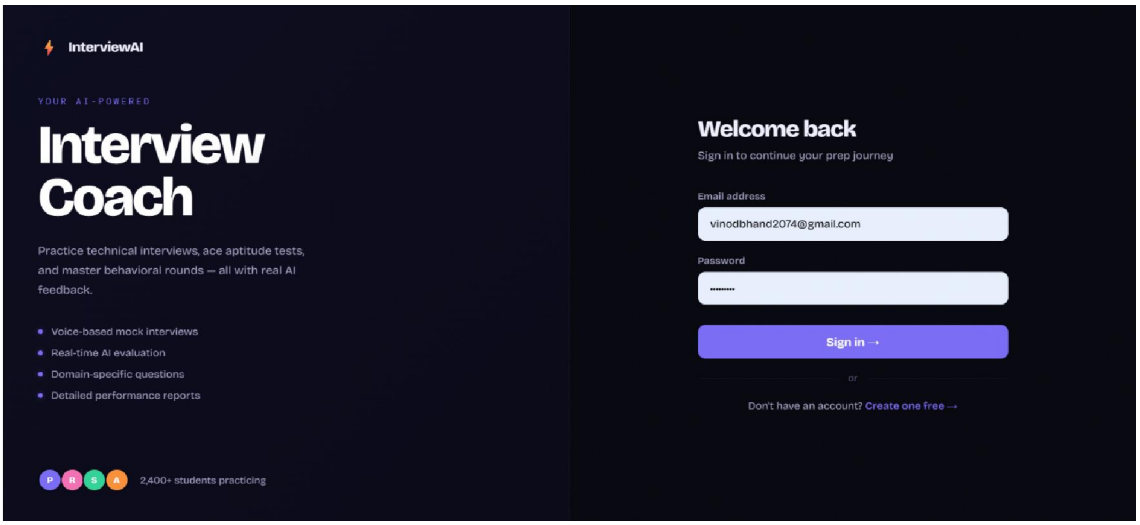

Fig: Sign In Page

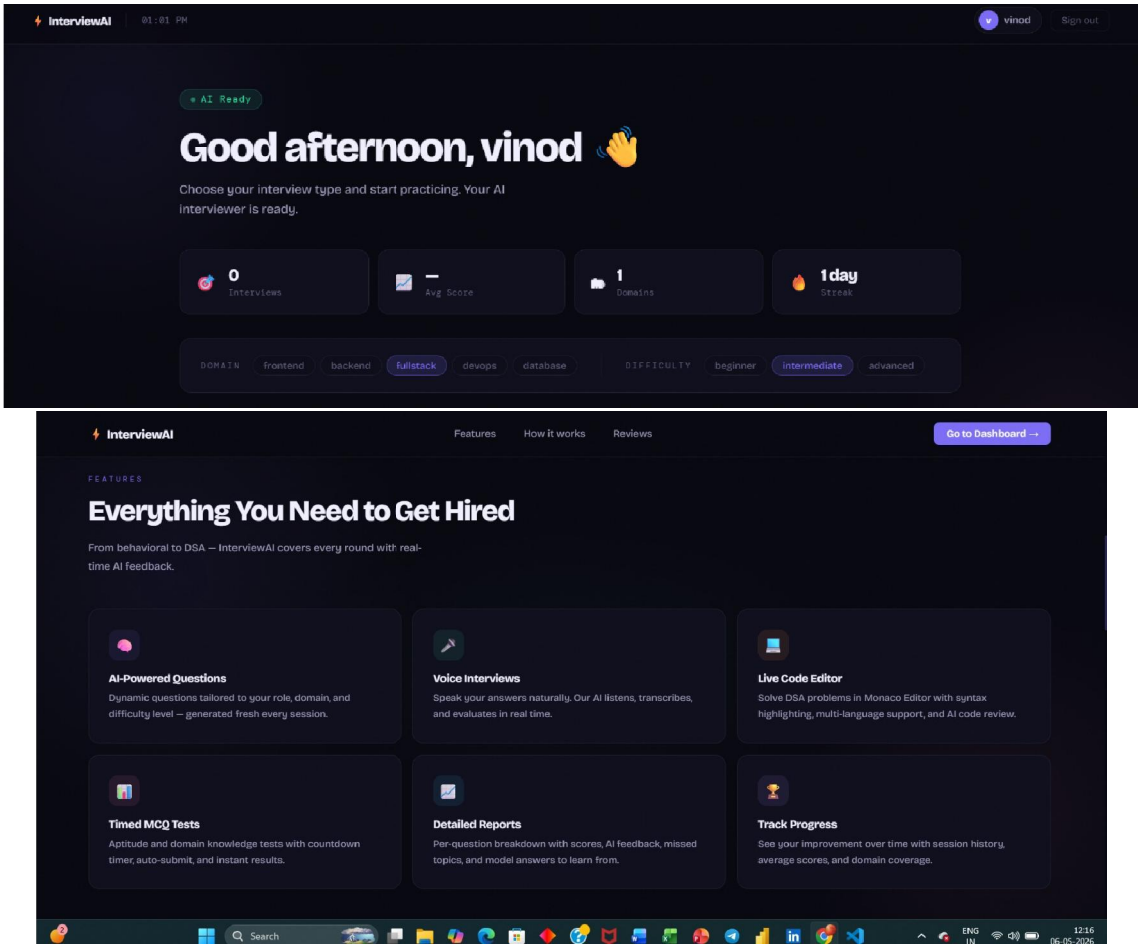

Fig: Dashboard

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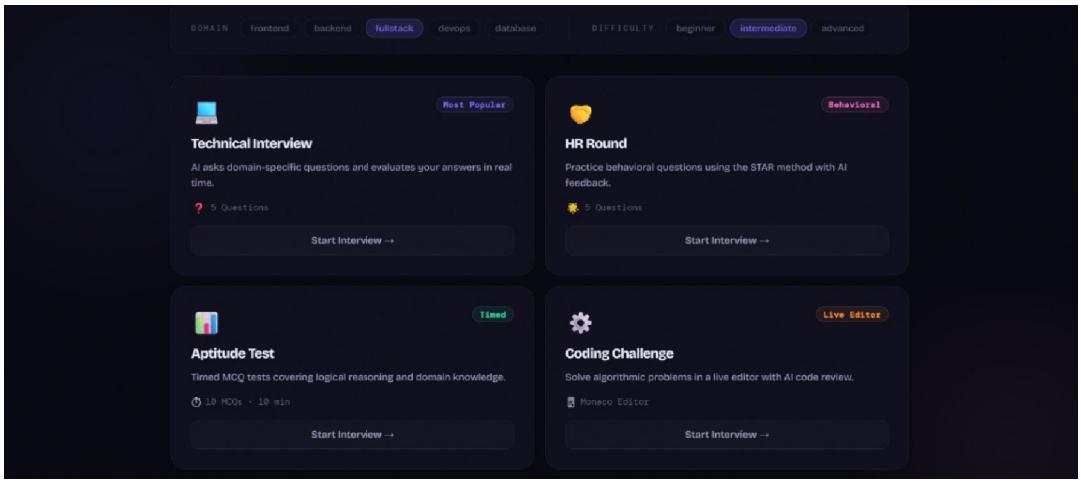

Fig: Interview Preparation module

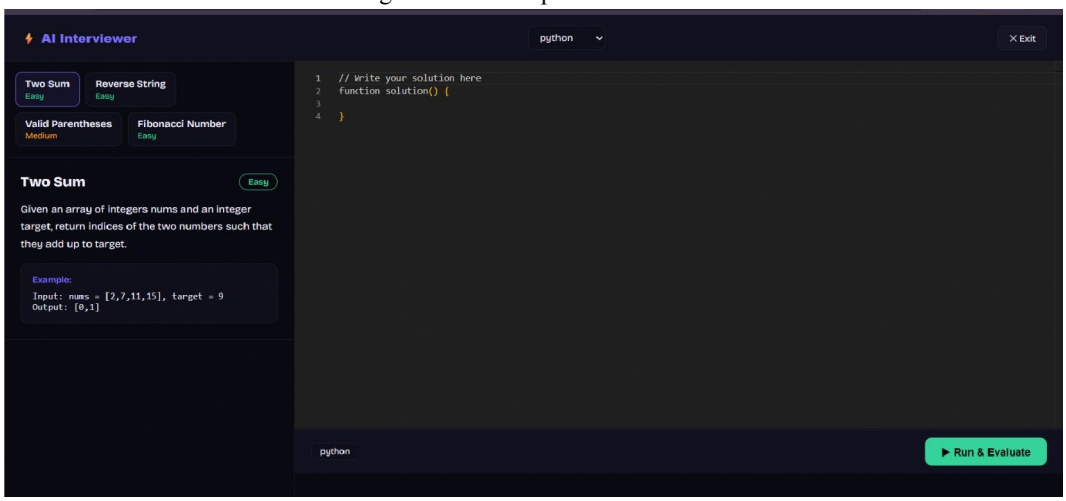

Fig: Coding Practice

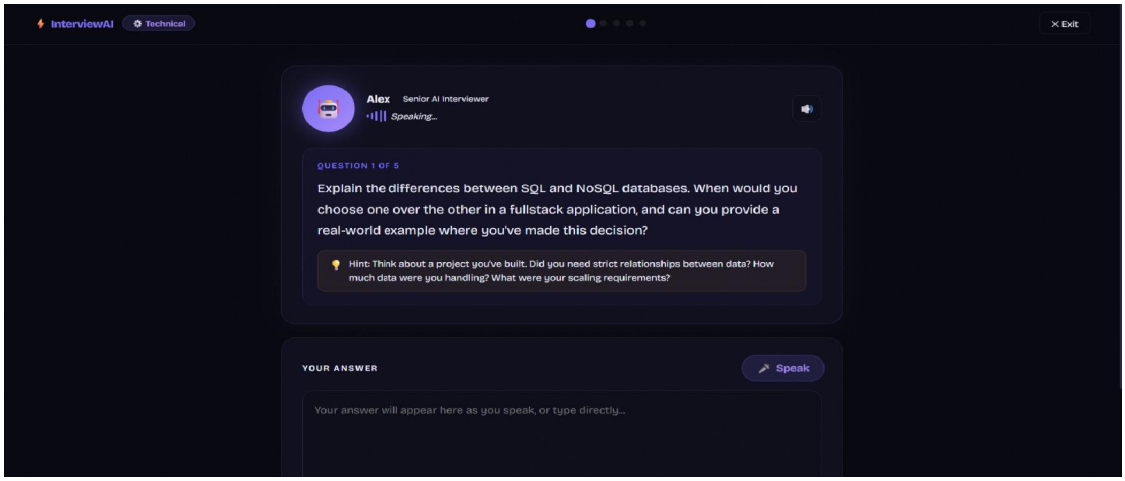

Fig: Technical Interview

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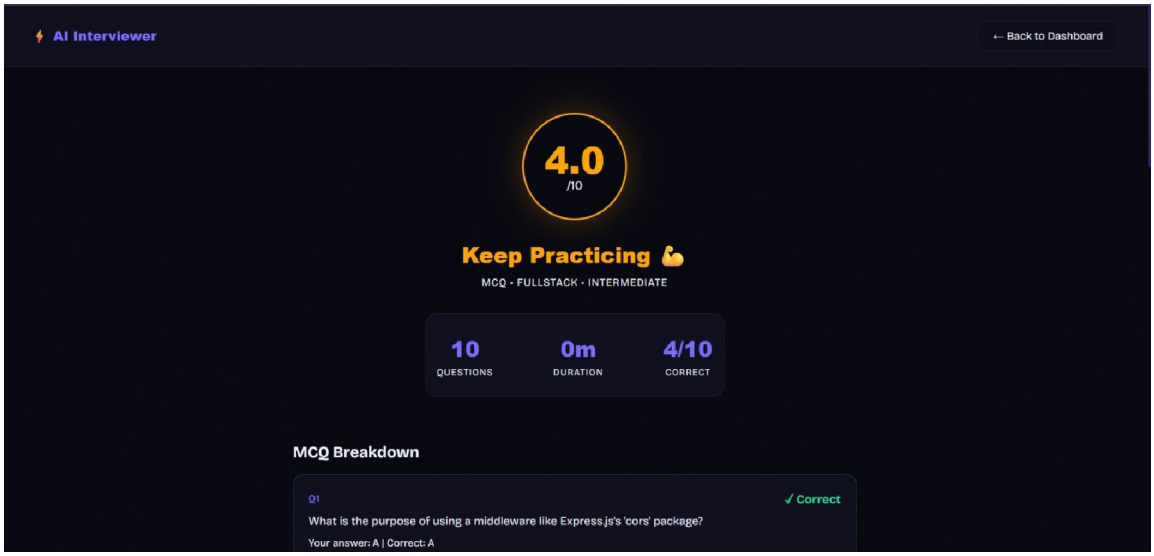

Fig: Result

VII. CONCLUSION

SkillMate.ai is a fully functional AI-powered interview preparation platform designed to provide students and job seekers with realistic mock interview experiences.

The platform successfully combines artificial intelligence, voice technology, coding evaluation, and session tracking into a single integrated system.

It bridges the gap between theoretical preparation and practical interview performance, making it a valuable contribution to modern AI-powered educational technology.

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to all those who contributed to the successful completion of this report, which marks the second stage of our final year project titled "AI Powered Mock Interview & Aptitude Test System". First and foremost, we extend our heartfelt thanks to our project coordinator, Prof. Tejaswi Hude, and our project co-guide and the Head of Department, Prof. Vikas Gaikwad, for their invaluable guidance, time, and continuous support throughout the development of this project. Their expert advice and encouragement were instrumental in shaping the direction and quality of our work. We also wish to acknowledge the valuable support of our faculty members and mentors, whose insights and feedback helped us navigate challenges and refine our approach.

REFERENCES

[1] Shashikant V. Golande, Prathamesh Dandage, Anil Jadhav, Pratik Mohite, and Aditya Shahane," MOCK INTERVIEW EVALUATOR POWERED BY AI", 2025; Volume -12, Issue-2_Page_80-87

[2] Mr. Shivam Mangesh Patil, Mr. Kapil Vikas Shinde, Mr. Bhavesh Ganesh Vakare, Mr. Sandesh Sanjay Dunbale "AI Powered Mock Interview Platform", Volume 13 Issue 1 @ January - February 2025 IJIRMPS | ISSN: 23497300

[3] G. Ramachandra Rao, Bijjamula Chakradhar Reddy, Anne Srinivas Kalyan, Goli Keerthi Priya, Kanakamedala Rajesh.," AI-Powered Mock Interview Preparation", Volume 11, Issue 04, ISSN: 2455-37, Mar 2025