Mini Project Title: AI-Generated Mock Interview Platform

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1. Project Scope

The **AI-Generated Mock Interview Platform** is designed to simulate real-life interview experiences for users through AI-generated questions, real-time audio and video recording, automated evaluation, and instant feedback. The platform aims to help job seekers and students improve their interview skills by offering tailored mock interviews based on selected job domains. It supports interactions with AI interviewers, real-time speech-to-text conversion, answer analysis, and feedback based on both audio and video aspects of the interview.

Key Deliverables:

• **User Interface (UI):** Clean and intuitive interface for users to select interview topics, start sessions, and view feedback.
• **Interview Simulation Module:** AI-generated questions tailored to the chosen role/level; simulates a real-time interview.
• **Audio/Video Capture:** Records responses using the device's mic and camera.
• **Speech-to-Text & Analysis:** Converts audio to text and evaluates it using NLP-based AI models.
• **Feedback & Rating System:** Provides performance feedback, improvement tips, and overall scores.
• **User Dashboard:** Allows users to view past interviews, performance trends, and access resources.
• **Authentication:** Secure login system for users and administrators.
• **Admin Panel:** Manage questions, user data, feedback settings, and analytics.

Functions:

• **Candidates:** Select topics/roles, attempt mock interviews, receive personalized feedback.
• **AI Engine:** Generate relevant questions, capture and analyze responses, and rate answers.
• **Admin:** Manage interview templates, monitor platform usage, and resolve user disputes.

2. Problem Statement

Vision:

The AI Mock Interview Platform aims to offer a realistic and intelligent mock interview experience to candidates, empowering them to enhance communication, technical, and behavioral interview skills through AI-based simulation and feedback.

Issue Statement:

• Limited access to quality, affordable mock interviews.
• Inconsistent feedback from human interviewers.
• Lack of personalized improvement insights.
• Difficulty in tracking interview progress and readiness.
• No structured system for end-to-end interview practice including audio/video analysis.

Method:

The platform will be developed as a **web-based application** using the **Agile Software Development Methodology**, enabling continuous iteration, testing, and improvement based on real-world user feedback and evolving career trends.

3. Selection of Relevant Process Model

Chosen Model: Agile Process Model

The Agile model is best suited for the AI Mock Interview Platform due to its ability to handle iterative development and integrate constant user feedback. It ensures flexibility in improving features such as AI question generation, answer analysis, and feedback mechanisms.

Justification for Agile Model:

• **Dynamic Requirements:** Different users and job roles require varying interview scenarios, which Agile supports effectively.
• **Phased Development:** Core modules like question generation, speech analysis, and feedback can be developed incrementally.
• **Quick Feedback Loop:** Sprint-based development helps in identifying and resolving issues quickly.
• **Flexibility:** Easily integrates new AI features like facial expression analysis or soft skill scoring in future iterations.
• **Reduced Risk & Cost:** Core functionalities can be built and tested early, minimizing rework.
• **Cross-functional Collaboration:** Promotes frequent communication between developers, educators, and users.

4. Core Technologies Used

- **Frontend:** React.js, Tailwind CSS

- **Backend:** Node.js, Drizzle ORM, PostgreSQL

- **Authentication:** Clerk

- **AI :** OpenAI APIs for question generation & feedback

- **Media Handling:** Web APIs for video/audio recording

- **Deployment:** Vercel / Railway

5. Conclusion

The Agile Model is the most appropriate methodology for developing the AI Mock Interview Platform, ensuring adaptability, fast delivery, and enhanced user experience. The platform can evolve alongside market needs and user expectations while maintaining high standards in interview preparation. Through Agile, the project will be delivered efficiently, with ongoing improvements to support students and job seekers in achieving their career goals.