MockMate (Your Interview Buddy)

A PROJECT REPORT
for
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Session (2024-25)

Submitted by

Shivani Sahu (2300290140173)
Shristi Bhatt (2300290140178)
Vinayak Saxena (2300290140202)

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Under the Supervision of
Ms. Annu Yadav
Assistant Professor

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Uttar Pradesh-201206

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DECLARATION

We hereby declare that the work presented in this report entitled "MockMate (Your Interview Buddy)" was carried out by group. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. We have given due credit to the original authors/sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors/sources.

We affirm that no portion of my work is plagiarized, and the experiments and results reported in the report are not manipulated. In the even of complaint of plagiarism and the manipulation of the experiments and results, we shall be completely responsible and answerable.

Name:

Enrollment number:

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CERTIFICATE

Certified that **Shivani Sahu (2300290140173), Shristi Bhatt (2300290140178) and Vinayak Saxena (2300290140202)** have carried out the project work having "**MockMate (Your Interview Buddy)"** (**Project-KCA451**) for **Master of Computer Application** from Dr. A.P.J. Abdul Kalam Technical University (AKTU) (formerly UPTU), Lucknow under my supervision. The project report embodies original work, and studies are carried out by the student himself/herself and the contents of the project report do not form the basis for the award of any other degree to the candidate or to anybody else from this or any other University/Institution.

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Date:

Ms. Annu Yadav
Assistant Professor
Department of Computer Applications
KIET Group of Institutions, Ghaziabad

Dr. Akash Rajak
Dean
Department of Computer Applications
KIET Group of Institutions, Ghaziabad

MockMate (Your Interview Buddy)
ABSTRACT

The project titled ***MockMate*** is an AI-powered mock interview application designed to assist job seekers, students, and professionals in preparing for real-world interviews through simulated, interactive sessions. By integrating advanced technologies such as Next.js and React for the frontend, along with Tailwind CSS and ShadCN for responsive and modern UI design, the platform offers a smooth and engaging user experience. At its core, MockMate utilizes Gemini AI, a powerful language model, to dynamically generate interview questions tailored to the user's profile, including job role and experience level. The system also analyzes user responses using natural language processing (NLP) to deliver intelligent, personalized feedback that highlights strengths, areas for improvement, and suggestions for better communication. The application supports secure authentication through NextAuth, efficient data handling using Drizzle ORM, and scalable database management. Users can create accounts, participate in interviews, and review detailed feedback from previous sessions. The system is modularly designed to ensure maintainability and testability, with robust manual and automated testing implemented to guarantee functional reliability and performance. This project not only addresses the growing demand for personalized interview preparation but also demonstrates the potential of combining AI with modern web technologies to enhance learning and self-improvement. By simulating a realistic interview environment and providing instant feedback, MockMate empowers users to build confidence, refine their skills, and improve their chances of success in real interviews. The project serves as a practical example of how AI-driven solutions can transform traditional training methodologies and provide accessible, effective tools for career development in the digital age.

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Shivani Sahu

Shristi Bhatt

Vinayak Saxena

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CHAPTER-1

INTRODUCTION

1.1 BACKGROUND

One of the 21st century's most revolutionary technologies, artificial intelligence (AI) is changing industries and how people interact with machines. AI has made it possible for industries like healthcare, finance, education, and entertainment to achieve previously unheard-of levels of automation, personalisation, and problem-solving skills. Career development and interview preparation are two crucial areas where AI has enormous potential.

The pressure to do well in interviews has gone up drastically, and the job market has grown more competitive. A particular mix of technical expertise, people skills, and the capacity to project confidence in the face of scrutiny are needed for interviews. Many people experience obstacles like cost, location, or restricted access to experts, while some candidates might have access to resources like mentorship, professional coaching, and practice interviews. This discrepancy emphasises the necessity of creative solutions that democratise interview preparation and make it available to everyone.

Conventional interview preparation techniques frequently lack flexibility and personalisation. Attending workshops or practicing with peers, for instance, may offer broad advice, but they don't address each candidate's unique strengths and shortcomings. Similarly, the dynamic and unpredictable nature of real-world interview situations cannot be replicated by static resources like books or tutorials. This gap offers a chance to take advantage of AI-powered solutions that provide personalised, interactive, and lifelike experiences.

Artificial intelligence (AI) and Natural Language Processing (NLP) have enabled the creation of virtual environments where candidates can rehearse interviews and get immediate feedback, simulating human-like interactions. Developers can create platforms that are not only intelligent but also engaging and easy to use by combining cutting-edge AI models with web development tools like Next.js and React. Additionally, database management systems like Drizzle ORM guarantee effective data handling, making features like analytics, progress tracking, and personalized insights possible.

The goal of this project is to use these technologies to develop an AI-powered mock interview app that revolutionizes interview preparation. The platform enables users to approach interviews with competence and confidence by offering performance metrics, personalized

feedback, and realistic simulations. This application aims to be a trustworthy partner on their path to success, whether they are recent graduates entering the workforce or seasoned professionals looking to change careers.

1.2 NEED AND SIGNIFICANCE

The primary purpose of this project is to provide a modern, AI- powered solution to the challenges of interviews preparation. At its core, the application aims to enhance user confidence, preparedness, and overall performance in real-world interview settings

Following are further needs and significance of the project

- **Lack of Personalized Feedback:** Many candidates prepare for interviews using generic advice or broad preparation methods that fail to address their individual weaknesses. For instance, someone may excel at technical knowledge but struggle with communication skills. A tailored approach is essential for identifying and improving such specific areas, which traditional methods often overlook.
- **Limited Practice Opportunities:** Realistic interview practice is challenging to access. Role-playing with friends or attending workshops might provide some experience, but they lack the depth and dynamic nature of actual interviews. Moreover, these opportunities often fail to replicate the unpredictability of real-world interview scenarios, leaving candidates underprepared.
- **Accessibility Barriers:** Professionals coaching or mentorship is expensive and concentrated in urban or academic hubs. Candidates living in remote areas or those from financially constrained backgrounds miss out on quality resources, creating a need for an accessible solution that bridges this gap.
- **Anxiety and Lack of Confidence:** Interview anxiety can lead to nervousness, poor responses, or an inability to showcase one's true capabilities. Exposure to realistic simulations in a controlled environment can reduce fear, build familiarity, and boost confidence.
- **Dynamic Job Market:** Industry expectations are constantly evolving, requiring candidates to adapt to new trends and technologies. The traditional static preparation methods often fail to keep pace, while AI- powered tools can dynamically adjust to changing requirements and roles.
- **Empowering Job Seekers:** The application serves as a valuable tool for users to strengthen their skills, prepare effectively, and present themselves confidently during interviews. By improving their readiness, it contributes directly to their career growth.
- **Realistic Scenarios:** Using AI to simulate role-specific and industry-relevant interviews ensures users face the types of questions and situations they are likely to encounter in actual interviews. The relevance makes the preparations process more focused and impactful.
- **Cost-Effective Solution:** By offering affordable access to cutting-edge technology, the platform eliminates the financial barrier that often limits candidates from accessing quality coaching. It provides professional-grade preparation tools at a fraction of the cost.
- **Data-driven Insights:** Feedback powered by AI analyzes user performance objectively, highlighting specific areas for improvement. This level of detail allows candidates to target weaknesses, practice deliberately, and achieve meaningful progress over time.

- **Boosting Employability:** By equipping users with enhanced skills and confidence, the platform prepares them to meet employer expectations, making them competitive in a crowded job market. Ultimately, it raises their chances of securing the roles they aspire to.

1.3 OBJECTIVE OF THE PROJECT

The project set out to achieve several ambitious yet attainable objectives, each of which plays a critical role in the success of the platform:

- **Develop an adaptive and intelligent simulator:** One of the primary objectives of this project is to create AI-driven platform that accurately simulates real-world interview scenarios. By utilizing Gemini AI, the system will generate interview questions tailored to different roles, industries, and experience levels. The AI will not only ask questions but also assess user responses in real-time, evaluating aspects like clarity, confidence, relevance, and technical accuracy. Unlike simulator will dynamically adjust its questioning based on the candidate's strengths and weaknesses, creating a highly personalized experience.
- **Provide data driven, Constructive Feedback:** Many Interviewees struggle to identify areas where they need improvement. This application aims to bridge that gap by offering actionable feedback, highlighting specific areas that need refinement-be it communication skills, technical skills, or behavioural responses. Gemini AI will analyse user performance based on predefined metrics, providing detailed insights through performance measure and progress reports. Candidates will receive practical suggestions, such as tips to enhance articulation, strategies to structure answers effectively, and recommendations for handling tough questions.
- **Integrate an intuitive and Responsive User Interface:** A seamless and engaging user experience is key to ensuring widespread adoption of the application, Using Nxt.js and React, the frontend of the application will be designed to be intuitive, responsive, and user-friendly. It will feature easy navigation, visually appealing layouts, and smooth transitions to ensure users can focus entirely on their interview practice. The interface will include interactive elements such as voice-based interview simulations, customizable interview settings, and integrated progress tracking to keep users engaged throughput their preparation journey.
- **Ensure Efficient Data Management with Secure Storage:** Effective data management is crucial for tracking user progress, generating performance analytics, and maintaining personalized recommendations. This project will implement Drizzle ORM to streamline interactions between the frontend and the database, ensuring efficient storage of user information, past interview records, and feedback, logs. Security measures such as encryption and access control will also be integrated to protect user privacy while offering a seamless experience.
- **Enhance Employability and Confidence among Job Seekers:** Ultimately, this project is designed to empower job seekers by improving their interview skills, reducing anxiety, and boosting confidence. Through repeated practice in a realistic and adaptive AI-driven environment, users will become better prepared for their actual

interviews. By simulating a variety of scenarios, industries and question types, the platform will help candidates refine their responses, enhance their professional presence, and significantly increase their chance of success in securing job opportunities.

1.4 PURPOSE

By providing job seekers with a realistic, customized, and interactive experience, the AI-powered mock interview app aims to transform interview preparation. Candidates find it challenging to effectively improve when using traditional methods because they frequently fall short in providing dynamic questioning, realistic simulations, and tailored feedback. With the use of AI technology, this project seeks to close this gap by giving users specialized training that improves their confidence, adaptability, and interviewing abilities.

The AI-powered mock interview app seeks to revolutionize interview preparation by offering job seekers a personalized, interactive, and realistic experience. Traditional methods often fail to provide dynamic questioning, realistic simulations, and customized feedback, making it difficult for candidates to improve effectively. By providing users with specialized training that enhances their confidence, adaptability, and interviewing skills, this project aims to bridge this gap using AI technology.

The platform also democratizes access to high-quality interview preparation, guaranteeing that users from various backgrounds can gain from it without having to pay exorbitant fees. In addition to being costly, professional coaching services are frequently unavailable in remote areas. This application uses AI to give candidates all over the world access to scalable, reasonably priced, and easily accessible solutions.

In addition to preparation, the application is a tool for career advancement that adjusts to contemporary hiring practices. Through data-driven feedback, performance analytics, and industry-specific interview simulations, users can learn a great deal about their strengths and weaknesses. They can monitor progress over time, hone their answers, and improve how they come across to potential employers.

The project's ultimate goal is to improve employability by giving users the knowledge and expertise they need to ace actual interviews. By combining AI-powered simulations with a user-friendly interface and tailored feedback, the platform makes interview preparation an enjoyable, successful, and efficient process that increases accessibility to career advancement for all.

1.5 COMPONENTS USED

Hardware Components:

- **Server Infrastructure:**
    - Reliable servers to host the application backend and AI models, ensuring smooth operations and high availability.
    - Cloud-based services (e.g., AWS, Microsoft Azure, or Google Cloud) for scalability and robust performance.

- **User Devices:**
    - Devices such as laptops, desktops, and smartphones, which users will utilize to access the platform. Compatibility across various operating systems (Windows, macOS, Android, iOS) is prioritized.
- **Networking Equipment:** Stable internet connections and routers to ensure seamless connectivity for users and servers.

Software Components:

- **Frontend Development:**
    - **Next.js:** A React framework that enhances performance through server-side rendering and static site generation
    - **React:** Builds dynamic and interactive user interface with reusable components
- **Backend Development:**
    - **Drizzle ORM:** Ensures efficient and type-safe interaction with database for storing user data, feedback logs, and progress metrics.
- **AI Integration:**
    - **Gemini AI:** The core engine for generating realistic interview scenarios, analysing user responses, and providing actionable feedback
- **Database:**
    - Robust databases such as PostgreSQL, MySQL, or MongoDB for secure storage and easy retrieval of data.
- **Performance Analytics:**
    - Tools like Chart.js or D3.js to create visualisation that track user progress over time.

CHAPTER-2

SURVEY OF TECHNOLOGIES

2.1 PROBLEM STATEMENT

The AI-powered mock interview application is designed to address the following challenges faced by job seekers:

- **Limited Access to Realistic interview Practice:**
  Many job seekers lack access to realistic interview simulations that mimic real world scenarios. Traditional methods such as role-playing with friends or attending workshops often fail to replicate the unpredictability and dynamics of actual interviews. This leaves candidates underprepared and less confident during real interviews.
- **Absence of personalized Feedback:**
  Generic advice offered by traditional preparation methods does not cater to individual strengths and weaknesses. Candidates often struggle to identify specific areas that need improvement, such as communication skills, technical knowledge, or behavioural responses. Without targeted feedback, their progress remains stagnant.
- **Barriers to Accessibility:**
  Professional coaching services and preparation resources are often concentrated in urban areas and come with significant costs. Candidates from remote regions or those with limited financial means are unable to access quality training, creating an unequal opportunity for success.
- **Anxiety and Performance pressure:**
  Interviews are inherently stressful, and many candidates fail to perform well due to anxiety or lack of familiarity with the process. The absence of controlled and repeatable practice environments exacerbated their fear and negatively impacts their confidence.
- **Dynamic Nature of modern Interviews:**
  The evolving job market demands adaptability in interview preparation. Industry specific roles, changing employer expectations, and advancements in technology require candidates to constantly refine their skills. Traditional preparation tools often fail to keep pace with these rapid changes.

By addressing these problems, AI-powered mock interview application aims to create an accessible, realistic, and personalized solution that empowers users to succeed in interviews and advance their careers.

2.2 LITERATURE REVIEW

Table 2.1 Research Papers

AUTHOR	YEAR	TITLE	CONCLUSION
Sakshi R Jain, Prof. Feon Jason	2023	Personal Desktop Voice Assistant	In this paper, the benefits and shortcomings of Personal desktop assistant are discussed.
Yuqi Huang	2023	Research on the development of voice assistants in the era of AI.	This paper discusses the booming and broad development status of artificial intelligence voice assistant and how the use of voice assistant differ country to country.
Rodrigo Pereira, Claudino Lima, Et el.	2023	Virtual Assistants in industry 4.0	This paper explores the use of Vas in the industry 4.0 discussing the technical assistance design principle and identifying the characteristics of VA.
Yanchu Guan, Dong Wang, Et el.	2023	Intelligent Virtual Assistant with LLM process automation.	This paper proposes a novel LLM based Virtual assistant that can automatically perform multi-step operations within mobile app based on high level requests.

AUTHOR	YEAR	TITLE	CONCLUSION
Sitti Rachmawati Yahya, S. N. H. Sheikh Abdullah, K. Omar	2023	Design and Implementation of a VoIP PBX Integrated Vietnamese Virtual Assistant: A Case Study	Focused on integrating virtual assistants with VoIP systems, showcasing adaptability and customization for localized use cases.
Deepika Ghai	2021	Enhancing User Experience with Virtual Assistants: A Review	Analyzes techniques to improve user experience, focusing on accessibility and ease of interaction with virtual assistants.
Rajat Kumar	2020	Text Extraction and Document Image Segmentation Using Matched Wavelets and MRF Model	Explores methods to extract and process text from images, relevant to NLP tasks in virtual assistants for structured data extraction.
Shoba Natesh	2022	Restoration of Deteriorated Text Sections in Ancient Document Images Using a Tri-Level Semi-Adaptive Thresholding Technique	Demonstrates methods for processing noisy or degraded inputs, applicable for improving speech recognition accuracy in virtual assistants.

AUTHOR	YEAR	TITLE	CONCLUSION
Syed Nawaz Pasha, D. Ramesh, D.Kodhandaraman, M.D. Salauddin	2019	Research to Enhance the Old Manuscripts Resolution Using Deep Learning Mechanism	Examines the application of deep learning for data restoration, which can inspire future enhancements in NLP and TTS for virtual assistants.
Disha Bhatt	2017	Use of Adaptive Methods to Improve Degraded Document Images	Proposes adaptive approaches for enhancing data quality, useful in noise reduction for speech recognition systems in virtual assistants.
Priyanka Udaya Bhanu	2016	Segmentation of Text from Badly Degraded Document Image	Highlights techniques for parsing and segmenting text from degraded sources, relevant for NLP modules in E.C.H.O.
Anoop Joshi	2007	Enhancement of Old Manuscript Images	Discusses image enhancement techniques to improve clarity, indirectly relevant for handling noisy data in virtual assistants.

CHAPTER-3

REQUIREMENT AND ANALYSIS

3.1 PLANNING AND SCHEDULNG

The Development of the MockMate AI-powered Mock interview application was planned across 11 weeks, dividing the work into manageable tasks and milestones.

WEEK-1

- Define goals, features, and MVP scope.
- Decide tech stack versions.
- Create GitHub repo and setup CI/CD if needed
- Initialize project with creating create-next-app
- Install essential dependencies:
    - Drizzle-ORM, React, Tailwind CSS
    - Gemini API SDK or setting up Custom fetch
- Set up Drizzle ORM and database schema
- Configure .env for database and Gemini API.

WEEK-2

- Set up basic schema:
    - Users
    - Sessions
    - Interviews
    - Questions
    - Responses
- Set up Drizzle migration workflow
- Add authentication using Clerk
- Create protected routes and user session context

WEEK-3

- Build main layout
- Create mockups or wireframes

- Pages and components
    - Home
    - Dashboard
    - Interview setup
    - Interview Session
    - Session History
- Setup Tailwind for styling the system

WEEK-4

- Create interview Setup Flow
- Create a form:
    - Choose Role
    - Enter Job Description
- Store this setup in data in the Database
- Trigger Gemini AI prompt to generate questions based on choices
- Show loading state/error handling

WEEK-5

- Build Live Chat interface
    - User gives answer in audio which is converted into text
    - Gemini acts as an Interviewer
- Create Backend API route that:
    - Sends user answer and context to Gemini
    - Gets responses like next question or comments
- Store each Q&A in database for ex., questions and responses

WEEK-6

- After interview session ends:
    - Send all responses to Gemini with a feedback prompt
    - Receive feedback per answer and overall tips
- Store and display feedback
    - Textual and numeric scoring for enhancing confidence, clarity and relevance.

WEEK-7

- List pas Interviews on Dashboard
- View Session details:
    - Questions asked
    - User's Answers
    - Gemini feedback
- Add Charts/stats for better understanding

WEEK-8

- Integrate speech-to-text
- Let user answers questions using the mic
- Show live transcription
- Process answers just like text input

WEEK-9

- Add loading skeletons, toast notifications
- Improve mobile responsiveness
- Add dark mode/theme toggling
- Improve prompt engineering for Gemini
    - Customize tone, personality of interviewer
    - Use structured prompts for consistent results.

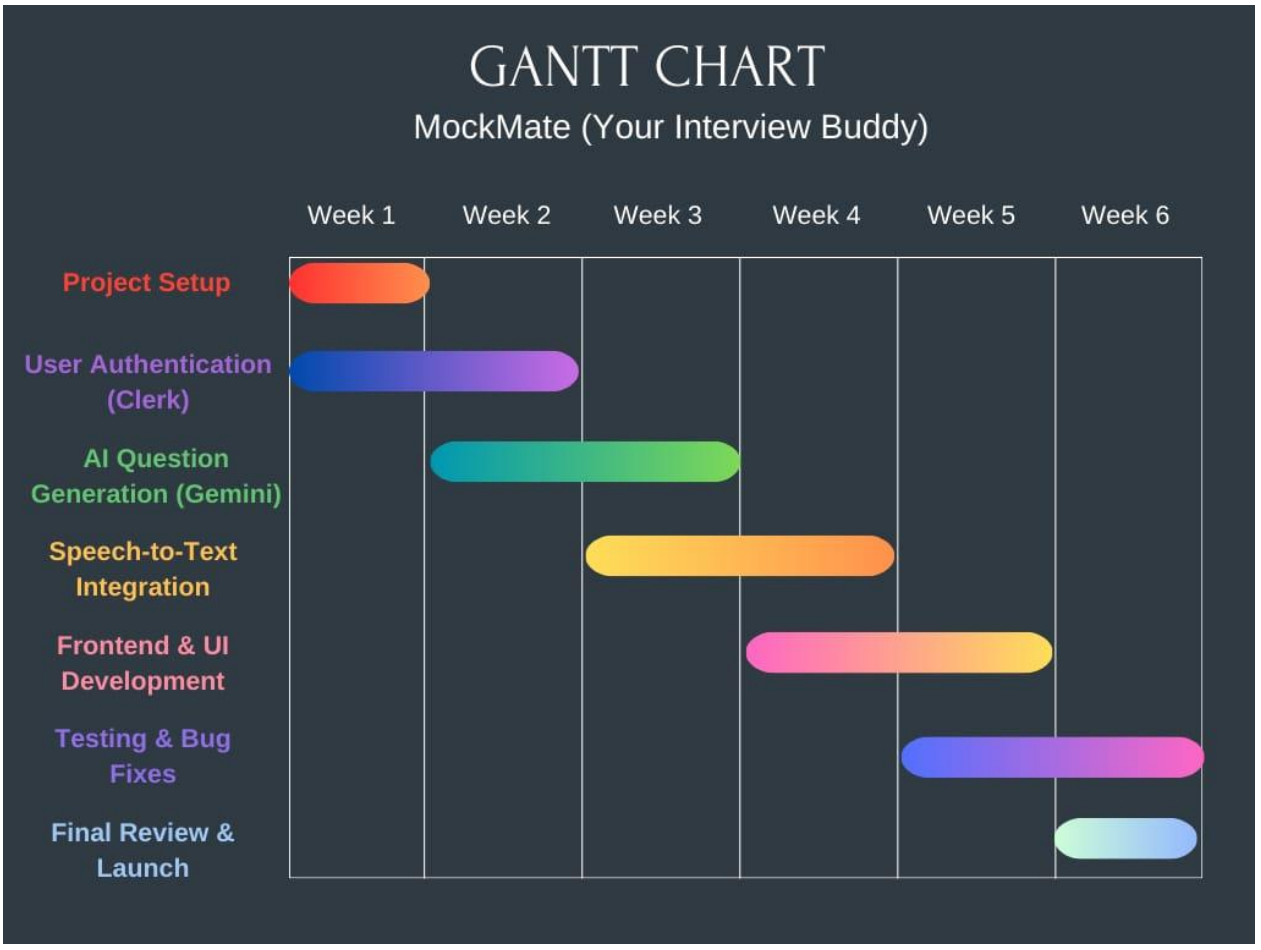
WEEK-10

- Write Unit and integration test cases
- Load test Gemini API usage limits
- Optimize DB queries, API routes
- Error handling and edge cases
- Set up logging and monitoring

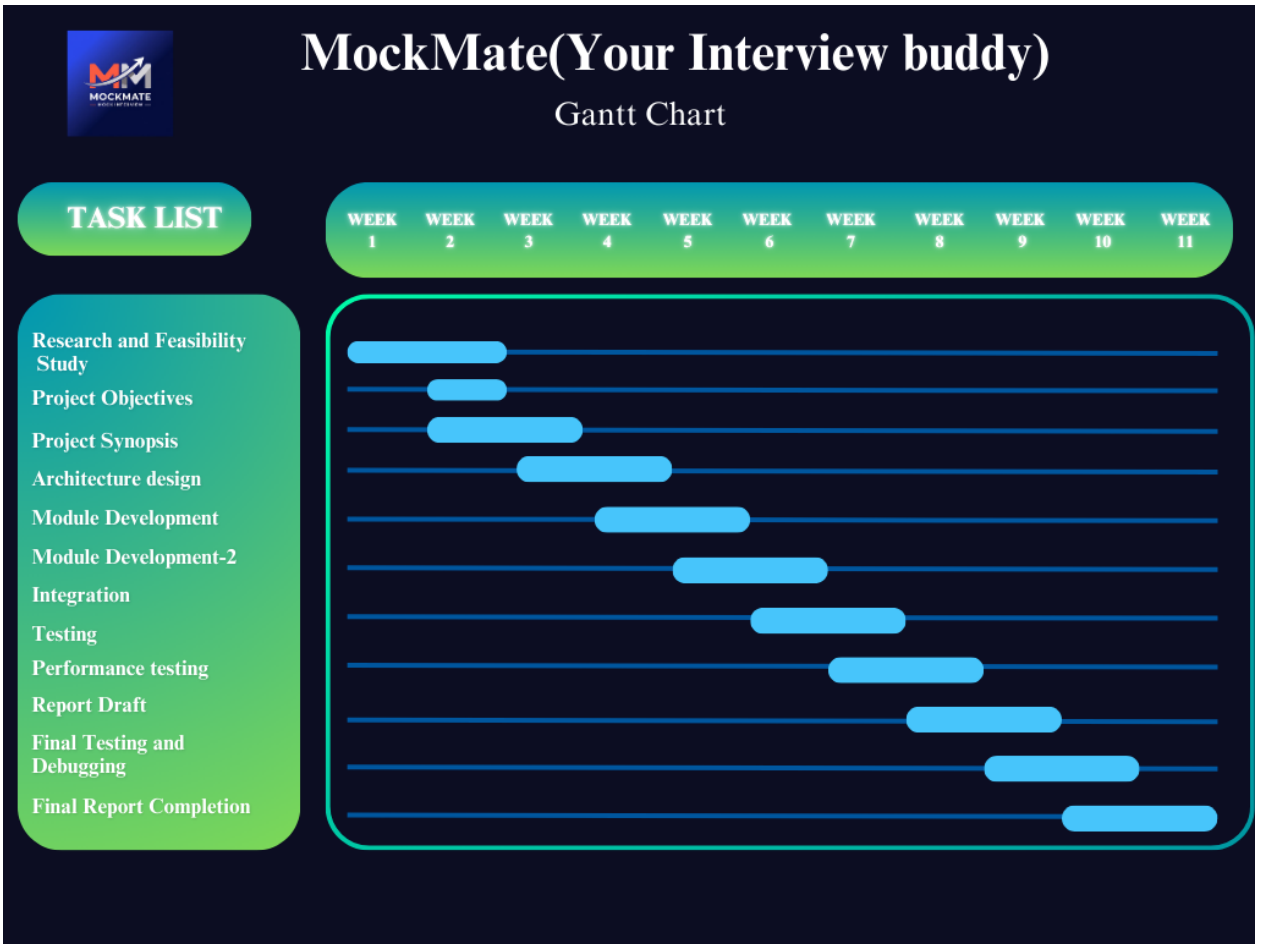
WEEK-11

- Deploy on Vercel
- Use PlanetScale for hosted PostgreSQL
- Do Final Testing and Debugging
- Create documentation and onboarding guide
- Soft launch with beta users and friends
- Collect feedback

3.1.1 Gantt Charts



(Figure 3.1 Gantt Chart)



(Figure 3.2: Gantt Chart)

3.2SOFTWARE AND HARDWARE REQUIREMENTS

3.2.1 SOFTWARE TECHNOLOGIES

- **Core Technologies**

Tool/Tech	Purpose	Explanation
Next.js	Frontend Framework	A react-based framework that supports server-side rendering, API rotes, file-based routing. Ideal for SEO and fast performance
React	UI Library	Used to build interactive user interfaces, with reusable components and hook-based state management.
Drizzle-ORM	Database ORM	A type-safe, SQL-friendly ORM that simplifies working with relational databased in modern JavaScript/Typescript apps
Gemini AI	AI Backend	Powers the AI interview system, Gemini API handles natural language understanding and question generation.

(Table 3.1: Core Technologies)

- **Frontend Stack**

Tool/Tech	Purpose	Explanation
Tailwind CSS	Styling	A utility-first CSS framework to style UI quickly and responsively without writing Custom CSS
UI	Component Library	{re-built accessible components styled with tailwind. Helps speed up development with polished UI elements
Context API	State management	Tools to manage global state like user data, interview progress
NextAuth.js	Authentication	Simplifies login/signup with OAuth, email, or credentials. Supports JWT and Session-based auth.
React Hook	Form handling	Helps build performant forms with validation, useful in registration, mock interviews and feedback forms.

(Table 3.2: Frontend Technologies)

- **Backend & API**

Tool/Tech	Purpose	Explanation
Node.js	Runtime Environment	Required to run next.js and backend APIs, Handle async operations, DB queries and routing
API routes	Server-side functions	Used for custom endpoints, without needing a separate backend server.
Drizzle ORM	ORM for database	Converts typescripts models into SQL queries, helps query and migrate your MySQL database easily.
MySQL	Database	Stores user Profiles, interview sessions, questions, and feedback. It is ideal for productions.

(Table 3.3: Backend & API)

- **AI Integration**

Tool/Tech	Purpose	Explanation
Gemini pro	AI model	Gemini processes user responses, generates questions, and gives feedback in real time.
Prompt engineering	Custom input/output	Custom prompts define how Gemini behaves

(Table 3.4: AI Integration)

- **Dev Tools & Workflow**

Tool/Tech	Purpose	Explanation
Visual Studio	Code Editor	Lightweight and widely used IDE with TypeScript. React, and Tailwind
Git + GitHub	Version Control	Track changes enables collaboration. And allows CI/CD via GitHub Actions
ESLint + Prettier	Code Formatting	Keeps code clean, readable, and consistent
Postman	API Testing	Useful for testing Gemini AI endpoints or internal APIs
DotEnv	Config management	Securely store and manage environment variables like API keys and DB credentials

(Table 3.5: Dev Tools and Workflow)

- **Hosting and Storage**

Tool/Tech	Purpose	Explanation
Vercel	Frontend hosting	Ideal for Next.js. provides fast CI/CD, free SSL, and global CDN
PlanetScale	Database Hosting	Cloud DB providers for MySQL with easy setup and scaling
Cludinary	File storage	Stores user-uploaded files like resumes, profile images etc.

(Table 3.6: Hosting and Storage)

3.2.2 HARDWARE TECHNOLOGIES

- **Development Machine**

Component	Minimum	Recommended	Need
CPU	Dual-core	Quad-Core	Faster builds, Smooth dev experience, running Next.js locally
RAM	8 GB	16 GB	Prevents lag while running Node.js, dev servers, browser, and code editor
Storage	100 GB	256 GB SSD	SSD for fast project loads, dependencies and docker images

GPU	Integrated	Dedicated	Not required unless doing AI inference locally
OS	Windows 10+, macOS 12+, Linux	Any Moder OS	Full support for Dev tools and Libraries

(Table 3.7: Development Machine)

- **Production Server**

Component	Minimum	Recommended	Need
CPU	2 vCPU	4 vCPU	Handles API, Db, and Backgrund tasks
RAM	2 GB	4-8 GB	Needed for AI calls, user sessions, DB
Storage	10 GB SSD	20-50 GB SSD	App code, logs, and data
Network	1 TB/Month	Scalable with traffic	Cloud hosts like Vercel manage this automatically

(Table 3.8: Production Server)

- **Cloud Services**

Component	Need
Hosting Frontend	Vercel
Managed DB	PlanetScale
File Uploads	Cloudinary
AI Backend	Gemini via Google Cloud AI Studio

(Table 3.9: Cloud Services)

3.2.3 LIBRARIES USED

- **Core Libraries**

Library	Purpose	Needs
Next	Next.js Framework	Core Framework for SSR/SSG, routing, and API routes
React	UI Library	Core library for building components-based UIs
React-form	React-rendering	Handles rendering to the DOM

(Table 3.10: Core Libraries)

- **UI & Styling**

Library	Purpose	Needs
Tailwind	Utility-first CSS framework	Rapid, responsiveness UI Building
PostCSS	CSS processor	Required By Tailwind
Auto Prefixer	Adds vendor Prefixes	Works with Post CSS and Tailwind
Classnames	Conditional class Handling	Helps manage dynamic Tailwind Classes
shadcn	Component Library	Beautiful prebuilt components using Tailwind & Radix UI
Lucide-react	Icons	Open-source icon set with React Components

(Table 3.11: UI & Styling)

- **State Management**

Library	Purpose	Needs
Zustand	Lightweight	Minimal setup, great for small/medium apps
Redux	Predictable state Container	Used for expect-large scale state management needs
React-context	Built-in state sharing	Alternatives for small apps or auth/user state

(Table 3.12: State Management)

- **Authentication**

Library	Purpose	Needs
Next-auth	Authentication	OAuth, credentials, and JWT/sessions-based auth
Json web Token	JWT token creation	Used in custom JWT flows
bcryptjs	Password Hashing	Needed for secure user auth

(Table 3.13: Authentication)

- **AI Integration**

Library	Purpose	Needs
Generative AI	Gemini AI SDK	Official SDK to connect with Gemini API
Fetch	API requests	Use to Call Gemini or internal APIs

(Table 3.14: AI Integration)

- **Dev Tools & Utilities**

Library	Purpose	Needs
dotEnv	Load .env config	Read API keys and DB secrets from .env
eslint	Linting	Keeps Code clean and error-free
prettier	Formatting	Ensures consistent code style
Husky + Lintstaged	Pre-commit hooks	Runs Formatting before commits
nodemon	Dev Runner	Auto-restarts server when changes are made

(Table 3.15: D)

CHAPTER-4

SYSTEM DESIGN

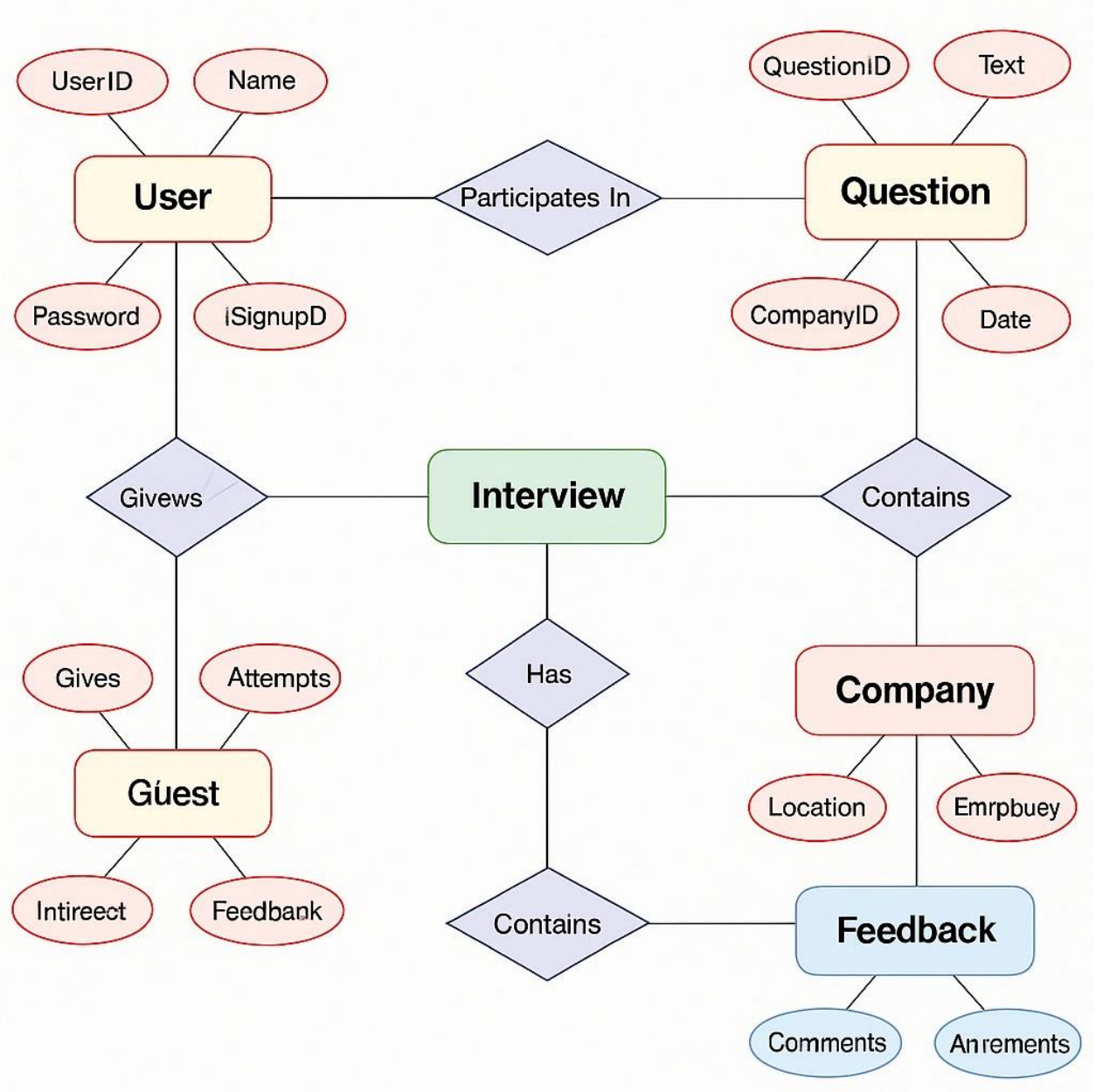
4.1 ENTITY RELATIONSHIP DIAGRAM

- **User Entity**
  - Represents: Platform's registered users (e.g., candidates, recruiters, admins).
  - Attributes:
    - User ID: Unique identifier for a user (Primary Key).
    - Name: User's name.
    - Password: Password used to log in (must be securely hashed).
    - Signup ID.
  - Relationships:
    - Participates In Interview: Users can participate in mock interviews.
    - Gives Interview: Users may create, host, or moderate an interview.

- **Guest Entity**
  - Represents: Guest users or temporary users (may be trial mode users).
  - Attributes:
    - Interact: (e.g., guest-user interaction data).
    - Feedback
  - Relationships:
    - Gives Interview: Guest users can also take or try mock interviews.
    - Attempts Interview: Represents an attempt or participation by a guest.

- **Interview Entity**
  - Represents: The simulated interview session.
  - Serves as a nexus between Users, Guests, Questions, Feedback, and Company.
  - Relationships:
    - Has Questions: An interview has several questions.
    - Has Company: Each interview can be associated with a particular company setting.
    - Has Feedback: Interview session contains user or guest feedback.

- **Company Entity**
  - Represents: Companies linked to the mock interview (e.g., questions are divided per company).
  - Attributes:
    - Location: Company's location.
    - Employee Count
  - Relationships:
    - Associated with Questions: Each question is written by or is associated with a company.
    - Associated with Feedback: Interview feedback is associated with a company setting.



(Figure 4.1: ER-Diagram)

- **Feedback Entity**
  - Represents: Post-interview feedback provided (by either users or visitors).
  - Attributes:
    - Comments: Text-based feedback.
    - Assessments: Numerical or qualitative feedback.
  - Relationships:
    - Given in Interview: Feedback is obtained through an interview.
    - Belongs to Company: Feedback can be used to judge a company's question set or interviewing process.

- **Question Entity**
  - Represents: The real interview questions.

- Attributes:
  - Question ID: Unique question identifier (Primary Key).
  - Text: The real question content.
  - Company ID: Foreign key that connects the question to a company.
  - Date: When the question was created or utilized in the interview.
- Relationships:
  - Contained in Interview: Questions belong to an interview session.
  - Linked to Company: A question is linked to a company.

- **Relationship Types**

Relationship	**Meaning**
User-participates In-Interview	A registered user takes part in an interview session
User – Gives - Interview	The User might be the creator, host, or Ai interviewer
Guest – Gives - Interview	Guest users can access and participate in interviews
Guest – attempts - Interview	Represents the trial or guest mode attempt of a session
Interview – contains - questions	Each interview includes one or more questions
Interview – Contains - Feedback	Each Interview results in feedback from AI
Feedback – Linked to - Company	Feedback is associated with company-branded interviews
Question – Linked to - Company	Every question comes from a Company-specific question set

(Table 4.1: Relationship types)

4.2 USE CASE DIAGRAM

A Use Case Diagram is a component of UML (Unified Modelling Language) utilized to:

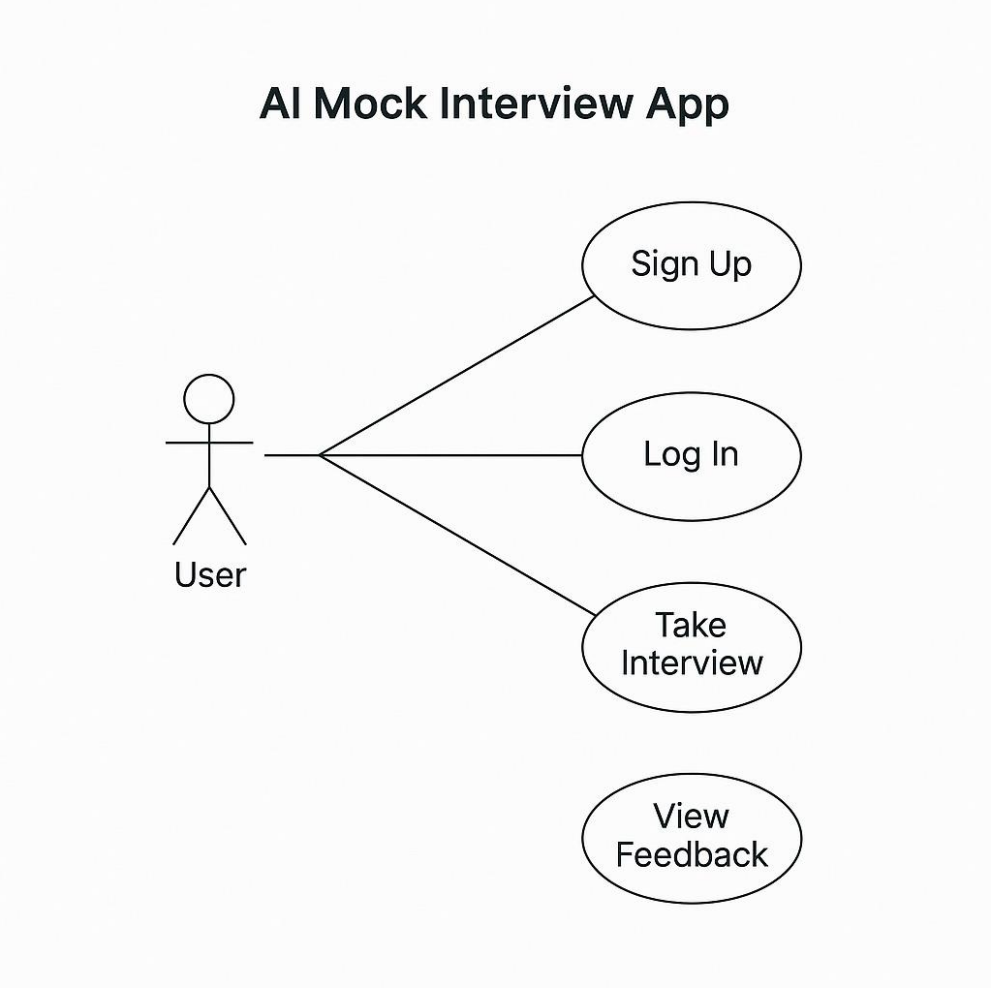
- Demonstrate user interactions with the system.
- Emphasize the functions (use cases) provided by the system.
- Illustrate the actor (user) and the objectives they wish to achieve.

Components in the Diagram

- **Actor: User**
  - Definition: Refers to any user who is interacting with the system.

- Role in MockMate: An applicant or participant interested in preparing for interviews with the help of AI-driven capabilities.
- Behaviour: Can undertake numerous activities such as registration, login, conducting mock interviews, and viewing reports.

- **Use Cases: Functions that a User can perform**
  - ❖ **Sign Up**
    - Purpose: Enables new users to sign up in the system.
    - Details:
      - The user enters personal information such as name, email, and password.
      - The system securely stores this data in the database (potentially using Drizzle ORM).
      - Verification or confirmation mail could be sent.
      - Post-signup, the user can use full features.
    - Tools Involved:
      - Frontend: Next.js Form UI + TailwindCSS
      - Auth: NextAuth.js / Firebase Auth
      - Backend/ORM: Drizzle ORM stores the user record in the database



(Figure 4.2: Use Case Diagram)

❖ **Log In**
- Purpose: Verifies existing users to view secure features.
- Details:
  - Email and password input (or Google/GitHub SSO usage) by user.
  - Backend checks credentials through auth service.
  - On success, a token or session is returned.
  - On failure, user receives an error or retry.
- Tools Used:
  - NextAuth.js / Firebase Auth / JWT
  - React hooks for state management (e.g., useSession())
  - May utilize middleware in Next.js to secure routes

❖ **Take Interview**
- Purpose: Core function through which users engage with the AI to mimic an interview.
- Details:
  - User taps "Start Interview."
  - AI (Gemini API) dynamically creates or poses questions.
  - System captures user responses (text or voice).
  - On completion, results are passed for review.
- Tools Involved:
  - Gemini AI / LLM API: For creating questions and assessing responses.
  - Frontend: React UI, question/answer fields.
  - Backend: Stores session information, questions, and answers.
  - Drizzle ORM: For Interview and Question table management.

❖ **View Feedback**
- Purpose: Enables the user to view feedback following an interview.
- Details:
  - Feedback can contain scores, strengths, weaknesses, recommended improvements.
  - Can contain sentiment analysis or behavioural advice (from Gemini AI).
  - Feedback is saved and linked to particular interviews.
- Tools Involved:
  - Frontend: Charts (such as Radar or Bar) through Chart.js or Recharts.
  - LLM: Gemini AI produces qualitative insights.
  - ORM: Retrieves feedback from Feedback Table in database.

4.3 CLASS DIAGRAM

A Class Diagram is a UML (Unified Modelling Language) component and serves to:

- Display the structure of a system.
- Specify classes, their attributes (variables), and methods (functions).
- Illustrate how classes cooperate or rely upon one another.

This diagram emphasizes the frontend interaction, authentication mechanism, and the integration of the AI model. It employs the below principal classes:

- Button
- Card
- AuthService
- AI Model

Button

- Role: UI element triggering actions such as login, signup, or interaction submission
- Attributes:
  - variant: string: Specifies the style or use of the button (primary, secondary, danger).
  - May be used with TailwindCSS/ShadCN styling.
- Methods:
  - onClick(): Called when the button is clicked.
  - May call a function such as signUp() or generateQuestion() depending on the context.
- Relationship:
  - Associates with AuthService — when clicked, it might invoke a method such as signUp().

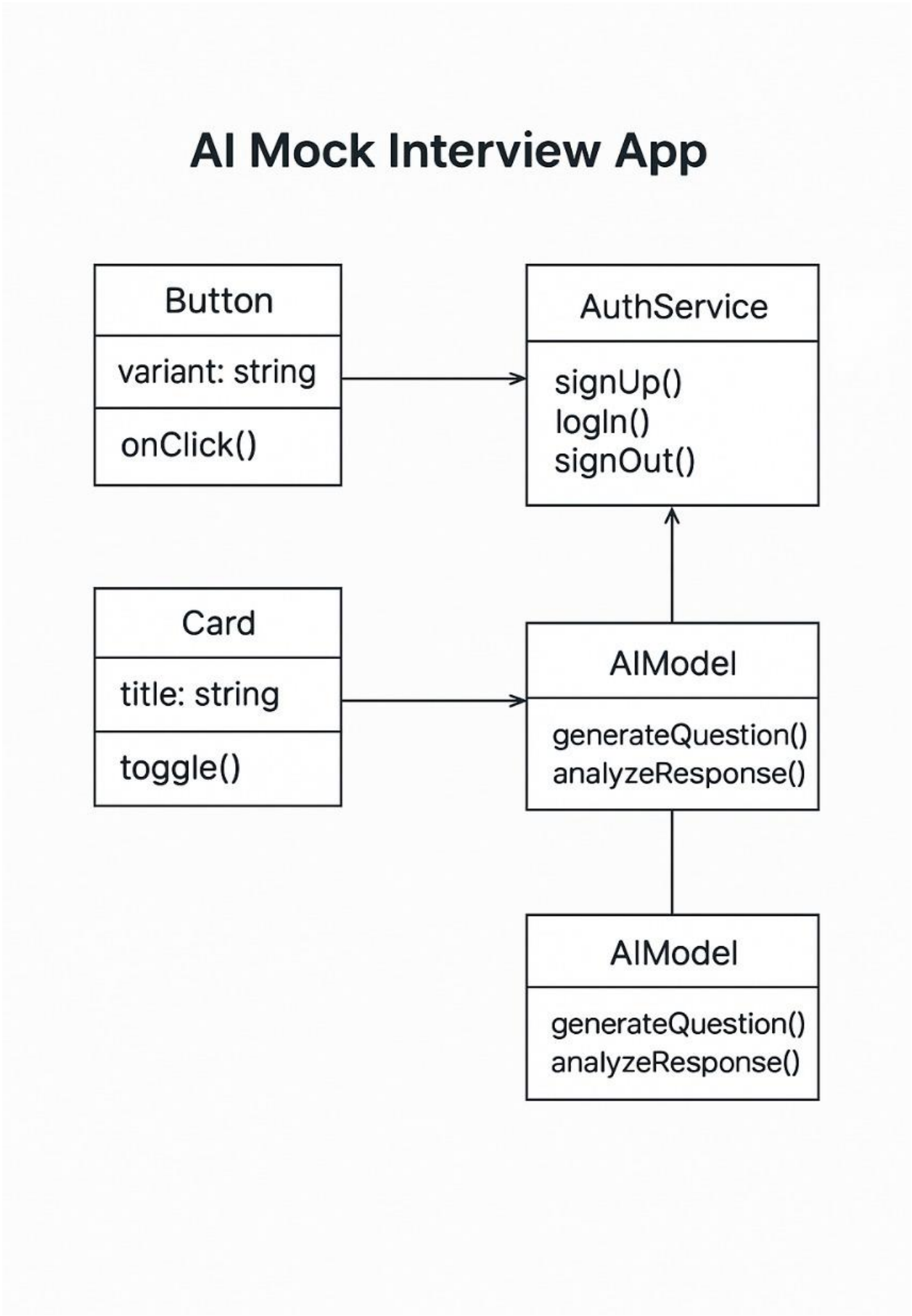
Card

- Role: UI element to present interview content such as questions, answers, feedback.
- Attributes:
  - title: string: The title or label of the card (e.g., "Your Interview Result", "AI Question").
- Methods:
  - toggle(): Might be used to open/close the card or reveal/hide feedback, depending on UI logic.
- Relationship:
  - Linked to AIModel — potentially used to present questions or AI answers.

  e.g., when a card is toggled, it may initiate a new question generation or feedback processing.

AuthService

- Role: Service or backend layer for handling user authentication as well as session management.
- Methods:
  - signUp(): Signs up a new user.
  - logIn(): Logs in existing users.
  - signOut(): Logs out users and removes session.
- Connected From:
  - The Button class — a user's UI button click might invoke one of these methods.
  - May utilize NextAuth.js, Firebase Auth, or custom logic based on JWT.



(Figure 4.3: Class Diagram)

AI Model

- Role: Central AI logic — connects to Gemini AI or other LLM to mimic interview process.
- Methods:
    - generateQuestion():
        - Uses LLM to generate questions based on user's profile, job function, or level of difficulty.
        - Can be invoked when a new interview begins or user clicks "Next Question".
    - analyzeResponse():
        - Passes user responses to Gemini API for processing.
        - Returns scores, feedback, or sentiment.
- Duplicate Class?

Occurs twice — perhaps done intentionally to indicate it supports multiple components (both Card and AuthService or concurrent service design).

- Connected From:
    - Card → Could indicate AI-generated content.
    - AuthService → May not necessarily use AI Model directly, but interaction could be hinted at for session-based individualized generation.

4.4 DATA FLOW DIAGRAM

4.4.1 DFD (level 0)

This chart breaks down the data flow complexity of the application into one general, overarching view. It aids developers and stakeholders in comprehending:

- The interaction between the user and the system.
- How information is transferred between various components.
- The essential functionalities of each system element.

Core Components

- **User:**
  The primary person interacting with the application is the user. They take the initiative to log in, begin simulated interviews, and view feedback.
  Every interaction in the system is based on their inputs. These might include answers from interviews, requests for performance insights, or personal information for authentication.

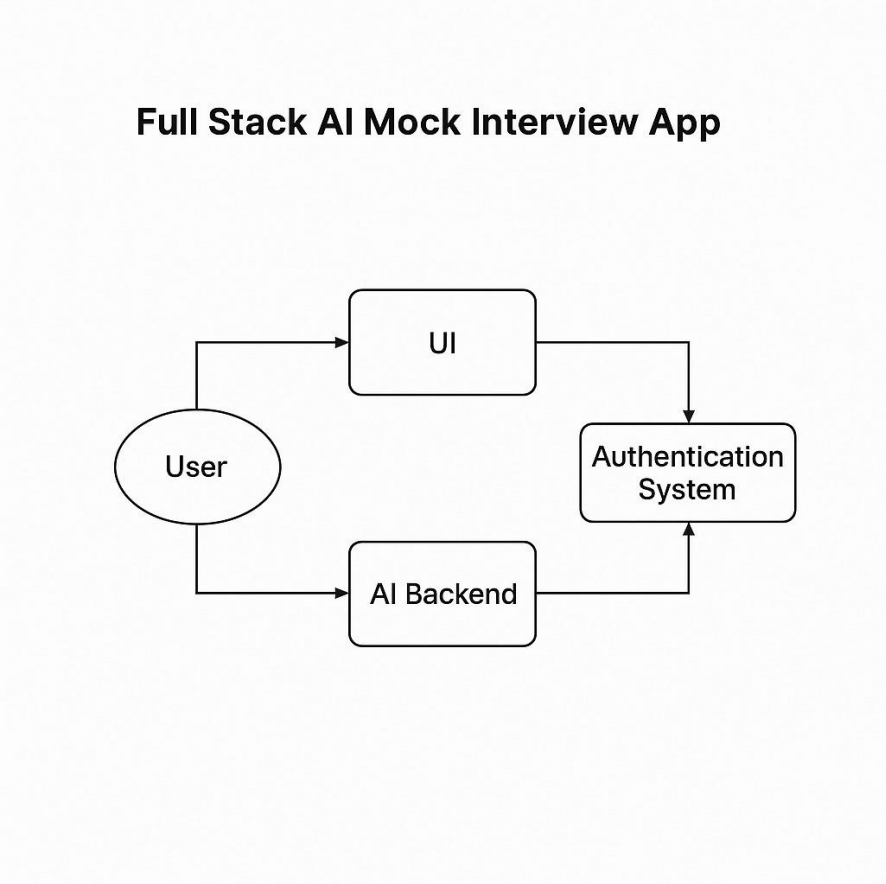
- **User Interface:**
  Between the user and the application's backend components, the user interface serves as a mediator. It ensures smooth interaction by taking user inputs and sending data to other systems. This entails posing interview questions, getting answers, presenting comments, and monitoring development.
  To give the user an engaging experience, the user interface is made to be responsive, dynamic, and interactive.

- **Authentication System:**
  In charge of confirming the user's identity and guaranteeing safe application access. When the user logs in or interacts with sensitive features, the UI communicates with the

authentication system to validate credentials. This layer ensures that only authorized users can access their personalized data and progress logs.

- **AI Backend:**
  The application's brain centre, which interprets user input and produces insightful results. Gemini AI is used by the AI backend to provide tailored suggestions and adaptive questioning. After processing the data it receives from the user interface, it returns the results.

.



(Figure 4.4: DFD level 0)

4.4.2 DFD (level 1)

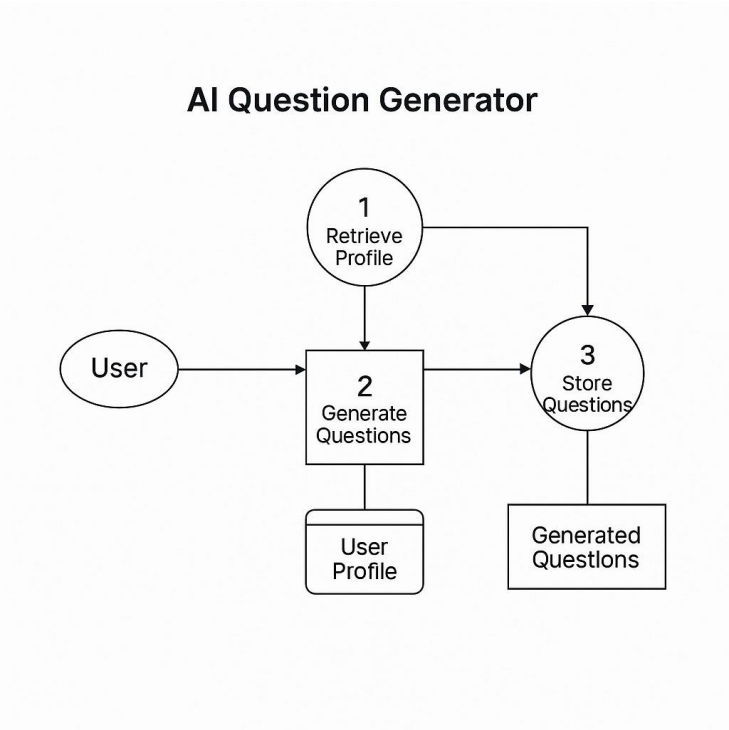
This Diagram visually represents the process of generating interview questions using an AI system.

Core Components

- **User (External Entity)**
  By communicating with the system and giving the required input, the user starts the process. Details like the user's role type, preferred industry, level of experience, and any areas they wish to concentrate on may be included in this input.
  Before continuing, the system must verify the user's information and make sure it fits into predetermined interview categories.
- **Retrieve Profile:**
  To customize the interview questions, the Retrieve Profile step collects pertinent information about the user. This includes retrieving the following data:
  - Personal details such as name and career level.
  - Historical interview performance

- Preferred job role or industry specifications
- Past feedback and improvement metrics.

- **Generative Questions:**
  The Generate Questions step is the heart of MockMate. After retrieving the user profile, the system uses an AI model (such as Gemini AI) to produce pertinent interview questions. A balanced combination of easy, medium, and hard difficulty levels is ensured by the generated questions' complexity-based structure.
- **Feedback Loop:**
  Once the MockMate generates the questions, they are stored in the system for further use. The Generative questions database is responsible for keeping track of all stored interview questions.



(Figure 4.5: DFD Level 1)

4.4.3 DFD (Level 2)

This diagram represents the workflow of a Full stack AI mock Interview application, illustrating the interaction between different components to facilitate a seamless interview experience for users.

Core Components:

- **User (External Entity):**
  By opening the application, the user starts the process. They communicate with different parts of the system, including feedback, question generation, profile management, and authentication.

- **Authentication System:**

When the user attempts to log in or sign up, their credentials are processed by the Authentication System. The authentication system verifies:

- User name and password validity
- Security protocols such as encryption and multi-factor authentication.
- Access control measures to protect sensitive user data.

Once authenticated, users gain access to their personalized dashboard.

- **Profile Management:**

The user initiates the process by launching the application. They interact with various system components, such as authentication, profile management, question creation, and feedback.

Key functions of profile management:

- Storing user details such as name, experience level, and industry preference.
- Tracking previous interview attempts and feedback history.
- Allowing users to update their profiles for improved AI recommendations.

- **AI Question Generator:**

The AI Question Generator creates pertinent interview questions based on the user's profile. The System leverages Gemini AI to:

- Analyse user skills and role preferences
- Select suitable difficulty levels for interview questions
- Adapt questions dynamically based on past performance

- **Generative Questions Storage:**

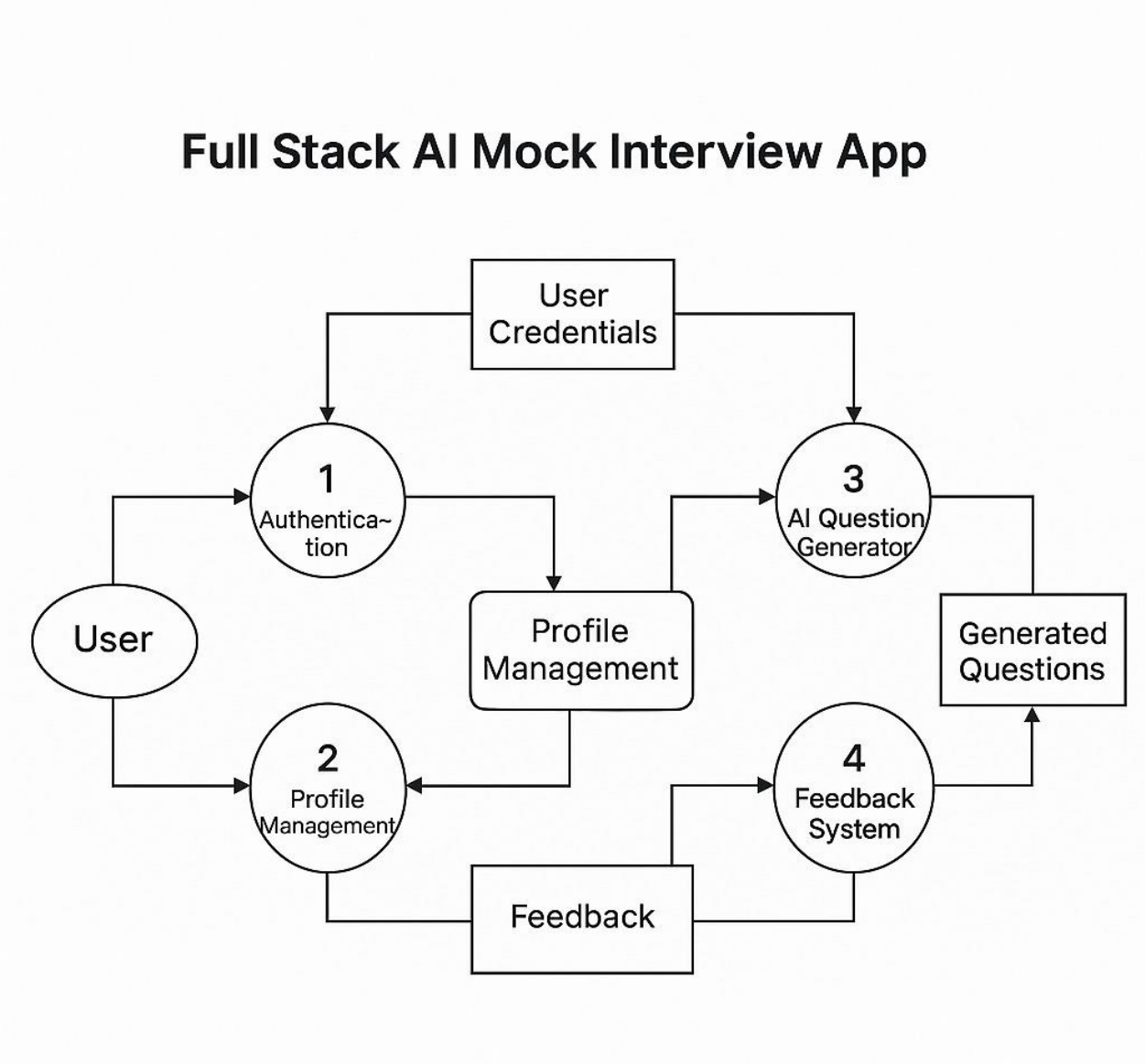
Interview questions created by AI are saved in the Generated Questions Database.
The system logs:

- Questions for reuse in similar interviews
- AI-generated variations for industry-specific interviews
- Metadata such as difficulty level and questions type

- **Feedback System:**

The Feedback System assesses the user's answers after they finish the interview.
The feedback system incorporates:

- AI-powered assessment of the user’s answers
- Personalized recommendations for improvement
- Data visualization tools to track progress over multiple attempts



(Figure 4.6: DFD level 2)

CHAPTER-5

IMPLEMENTATION AND CODING

5.1 CODING DETAILS

- **Sign In**

```
import { SignIn } from '@clerk/nextjs'

export default function Page() {
  return(
  <section className="bg-white">
  <div className="lg:grid lg:min-h-screen lg:grid-cols-12">
    <section className="relative flex h-32 items-end bg-gray-900 lg:col-span-5 lg:h-full xl:col-span-6">
      <img
        alt=""
        src="https://images.unsplash.com/photo-1617195737496-bc30194e3a19?ixlib=rb-1.2.1&ixid=MnwxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8&auto=format&fit=crop&w=870&q=80"
        className="absolute inset-0 h-full w-full object-cover opacity-80"
      />

      <div className="hidden lg:relative lg:block lg:p-12">
        <a className="block text-white" href="#">
          <span className="sr-only">Home</span>
          <svg
            className="h-8 sm:h-10"
            viewBox="0 0 28 24"
            fill="none"
            xmlns="http://www.w3.org/2000/svg"
          >
            <path
              d="M0.41 10.3847C1.14777 7.4194 2.85643 4.7861 5.2639 2.90424C7.6714 1.02234 10.6393 0 13.695 0C16.7507 0 19.7186 1.02234 22.1261 2.90424C24.5336 4.7861 26.2422 7.4194 26.98 10.3847H25.78C23.7557 10.3549 21.7729 10.9599 20.11 12.1147C20.014 12.1842 19.9138 12.2477 19.81 12.3047H19.67C19.5662 12.2477 19.466 12.1842 19.37 12.1147C17.6924 10.9866 15.7166 10.3841 13.695 10.3841C11.6734 10.3841 9.6976 10.9866 8.02 12.1147C7.924 12.1842 7.8238 12.2477 7.72 12.3047H7.58C7.4762 12.2477 7.376 12.1842 7.28 12.1147C5.6171 10.9599 3.6343 10.3549 1.61 10.3847H0.41ZM23.62 16.6547C24.236 16.175 24.9995 15.924 25.78 15.9447H27.39V12.7347H25.78C24.4052 12.7181 23.0619 13.146 21.95 13.9547C21.3243 14.416 20.5674 14.6649 19.79 14.6649C19.0126 14.6649 18.2557
```

14.416 17.63 13.9547C16.4899 13.1611 15.1341 12.7356 13.745 12.7356C12.3559 12.7356 11.0001 13.1611 9.86 13.9547C9.2343 14.416 8.4774 14.6649 7.7 14.6649C6.9226 14.6649 6.1657 14.416 5.54 13.9547C4.4144 13.1356 3.0518 12.7072 1.66 12.7347H0V15.9447H1.61C2.39051 15.924 3.154 16.175 3.77 16.6547C4.908 17.4489 6.2623 17.8747 7.65 17.8747C9.0377 17.8747 10.392 17.4489 11.53 16.6547C12.1468 16.1765 12.9097 15.9257 13.69 15.9447C14.4708 15.9223 15.2348 16.1735 15.85 16.6547C16.9901 17.4484 18.3459 17.8738 19.735 17.8738C21.1241 17.8738 22.4799 17.4484 23.62 16.6547ZM23.62 22.3947C24.236 21.915 24.9995 21.664 25.78 21.6847H27.39V18.4747H25.78C24.4052 18.4581 23.0619 18.886 21.95 19.6947C21.3243 20.156 20.5674 20.4049 19.79 20.4049C19.0126 20.4049 18.2557 20.156 17.63 19.6947C16.4899 18.9011 15.1341 18.4757 13.745 18.4757C12.3559 18.4757 11.0001 18.9011 9.86 19.6947C9.2343 20.156 8.4774 20.4049 7.7 20.4049C6.9226 20.4049 6.1657 20.156 5.54 19.6947C4.4144 18.8757 3.0518 18.4472 1.66 18.4747H0V21.6847H1.61C2.39051 21.664 3.154 21.915 3.77 22.3947C4.908 23.1889 6.2623 23.6147 7.65 23.6147C9.0377 23.6147 10.392 23.1889 11.53 22.3947C12.1468 21.9165 12.9097 21.6657 13.69 21.6847C14.4708 21.6623 15.2348 21.9135 15.85 22.3947C16.9901 23.1884 18.3459 23.6138 19.735 23.6138C21.1241 23.6138 22.4799 23.1884 23.62 22.3947Z"
            fill="currentColor"
          />
        </svg>

      <h2 className="mt-6 text-2xl font-bold text-white sm:text-3xl md:text-4xl">
        Welcome to AI mock interview App
      </h2>

      Prepare for Interviews online

  </section>

  <main
    className="flex items-center justify-center px-8 py-8 sm:px-12 lg:col-span-7 lg:px-16 lg:py-12 xl:col-span-6"
  >

      <a
 className="inline-flex size-16 items-center justify-center rounded-full bg-white text-blue-600 sm:size-20"
 href="#"
>
 Home
 <img
src="https://img.clerk.com/eyJ0eXBlIjoicHJveHkiLCJzcmMiOiJodHRwczovL2ltYWdlcy5jbGVyay5kZXYvdXBsb2FkZWQvaW1nXzJwd2JIM1BIdWFRREI1U1d4SXpPTHJXTWU2eSJ9?width=200" alt="Home" />

        <h1 className="mt-2 text-2xl font-bold text-gray-900 sm:text-3xl md:text-4xl">

```
          Welcome to Mockmate AI
        </h1>

        <p className="mt-4 leading-relaxed text-gray-500">
          Prepare for Interviews online.
        </p>
       </div>

      <SignIn></SignIn>
     </div>
    </main>
  </div>
</section>

 )}
```

- **Sign Up**

```
import { SignUp } from '@clerk/nextjs'

export default function Page() {
  return <SignUp />
}
```

- **About Us**

```
'use client'
import { useState } from 'react'
import {
  Users,
  Target,
  Award,
  Briefcase,
  BookOpen,
  Rocket
} from 'lucide-react'

const AboutUsPage = () => {
  const [activeTab, setActiveTab] = useState('mission')

  const tabContent = {
    mission: {
      icon: <Target className="mr-2 text-indigo-600" />,
      content: (
        <div className="space-y-4">
          <p className="text-base md:text-lg">MockMate AI is on a mission to revolutionize interview preparation by providing personalized, intelligent AI coaching tailored to individual career aspirations.</p>
          <p className="text-base md:text-lg">With MockMate AI, the goal is to bridge the gap between preparation and success, empowering users to unlock their full potential.</p>
        </div>
      )
    },
```

```
  story: {
    icon: <BookOpen className="mr-2 text-indigo-600" />,
    content: (
      <div className="space-y-4">
        <p className="text-base md:text-lg">The idea for MockMate AI was born from firsthand experiences with the challenges of interview preparation. As a solo developer, I wanted to create a platform that simplifies the process and builds confidence in individuals.</p>
        <p className="text-base md:text-lg">This journey has been a testament to the power of passion and innovation, leading to the creation of an impactful tool for career growth.</p>
      </div>
    )
  },
  approach: {
    icon: <Rocket className="mr-2 text-indigo-600" />,
    content: (
      <div className="space-y-4">
        <p className="text-base md:text-lg">MockMate AI leverages advanced AI algorithms to generate dynamic, contextually relevant interview questions based on your professional background and goals.</p>
        <p className="text-base md:text-lg">Through real-time analysis and feedback, the platform provides actionable insights, enabling users to improve with every mock interview attempt.</p>
      </div>
    )
  }
}

const coreValues = [
  {
    icon: <Award className="w-12 h-12 text-indigo-600 mb-4" />,
    title: "Continuous Learning",
    description: "Always striving to improve and provide better tools for growth."
  },
  {
    icon: <Users className="w-12 h-12 text-indigo-600 mb-4" />,
    title: "Empowerment",
    description: "Supporting individuals in building confidence and achieving professional success."
  },
  {
    icon: <Briefcase className="w-12 h-12 text-indigo-600 mb-4" />,
    title: "Excellence",
    description: "Delivering high-quality, impactful features to simplify interview preparation."
  }
]

return (
```

```
  <div className="min-h-screen bg-gray-50 py-8 sm:py-12 md:py-16 px-4 sm:px-6 lg:px-8">
    <div className="max-w-7xl mx-auto">
      {/* Hero Section */}
      <div className="text-center mb-8 sm:mb-12 md:mb-16">
        <h1 className="text-3xl sm:text-4xl md:text-5xl lg:text-6xl font-extrabold text-gray-900">
          About MockMate AI
        </h1>
        <p className="mt-4 max-w-xl mx-auto text-base sm:text-lg md:text-xl text-gray-600 px-4">
          Empowering professionals to ace interviews through intelligent, personalized AI coaching
        </p>
      </div>

      {/* Tabs Section */}
      <div className="bg-white shadow-lg rounded-lg overflow-hidden mb-8 sm:mb-12 md:mb-16">
        <div className="flex flex-col sm:flex-row border-b">
          {Object.keys(tabContent).map((tab) => (
            <button
              key={tab}
              onClick={() => setActiveTab(tab)}
              className={`w-full sm:flex-1 py-3 sm:py-4 px-4 sm:px-6 flex items-center justify-center
                ${activeTab === tab
                  ? 'bg-indigo-50 text-indigo-700 border-b-2 border-indigo-600'
                  : 'text-gray-500 hover:bg-gray-100'}`}
            >
              {tabContent[tab].icon}
              <span className="hidden sm:inline">
                {tab.charAt(0).toUpperCase() + tab.slice(1)}
              </span>
            </button>
          ))}
        </div>
        <div className="p-4 sm:p-6 md:p-8">
          {tabContent[activeTab].content}
        </div>
      </div>

      {/* Values Section */}
      <div className="bg-white rounded-lg shadow-md p-6 sm:p-8 md:p-12">
        <h2 className="text-2xl sm:text-3xl md:text-4xl font-bold text-center text-gray-900 mb-8 sm:mb-10 md:mb-12">
          Our Core Values
        </h2>
        <div className="grid grid-cols-1 sm:grid-cols-2 lg:grid-cols-3 gap-6 sm:gap-8">
          {coreValues.map((value, index) => (
            <div
```

```
            key={index}
            className="text-center bg-gray-50 p-6 rounded-lg shadow-sm hover:shadow-
md transition-all duration-300"
          >
            <div className="flex justify-center">{value.icon}</div>
            <h3 className="text-lg sm:text-xl font-semibold text-gray-900 mb-
3">{value.title}</h3>
            <p className="text-base text-gray-600">{value.description}</p>
          </div>
        ))}
       </div>
      </div>
     </div>
   </div>
  )
}

export default AboutUsPage
```

- **Fetch User Data**

```
import { NextResponse } from 'next/server';
import { db } from '../../../utils/db';
import { eq } from 'drizzle-orm';
import { UserAnswer } from '../../../utils/schema';

export async function POST(request) {
   try {
      const { userEmail } = await request.json();

      const userAnswers = await db
         .select()
         .from(UserAnswer)
         .where(eq(UserAnswer.userEmail, userEmail));

      return NextResponse.json({
         userAnswers: userAnswers.length > 0 ? userAnswers : []
      }, { status: 200 });

   } catch(err) {
      console.error('Fetch error:', err);
      return NextResponse.json({
         message: 'Internal server error',
         error: err.message
      }, { status: 500 });
   }
}
```

- **Dashboard**

```
"use client";
import React, { useState } from "react";
import {
```

```
  Dialog,
  DialogContent,
  DialogDescription,
  DialogHeader,
  DialogTitle,
} from "@/components/ui/dialog";
import { Button } from "@/components/ui/button";
import { Input } from "@/components/ui/input";
import { Textarea } from "@/components/ui/textarea";
import { chatSession } from "@/utils/GeminiAIModal";
import { LoaderCircle, Sparkles } from "lucide-react";
import { MockInterview } from "@/utils/schema";
import { v4 as uuidv4 } from 'uuid';
import { db } from "@/utils/db";
import { useUser } from "@clerk/nextjs";
import moment from "moment";
import { useRouter } from "next/navigation";
import { toast } from "sonner";

// Job Role Suggestions
const JOB_ROLE_SUGGESTIONS = [
  'Full Stack Developer',
  'Frontend Developer',
  'Backend Developer',
  'Software Engineer',
  'DevOps Engineer',
  'Data Scientist',
  'Machine Learning Engineer',
  'Cloud Engineer',
  'Mobile App Developer',
  'UI/UX Designer'
];

// Tech Stack Suggestions
const TECH_STACK_SUGGESTIONS = {
  'Full Stack Developer': 'React, Node.js, Express, MongoDB, TypeScript',
  'Frontend Developer': 'React, Vue.js, Angular, TypeScript, Tailwind CSS',
  'Backend Developer': 'Python, Django, Flask, Java Spring, PostgreSQL',
  'Software Engineer': 'Java, C++, Python, AWS, Microservices',
  'DevOps Engineer': 'Docker, Kubernetes, Jenkins, AWS, Azure',
  'Data Scientist': 'Python, TensorFlow, PyTorch, Pandas, NumPy',
  'Machine Learning Engineer': 'Python, scikit-learn, Keras, TensorFlow',
  'Cloud Engineer': 'AWS, Azure, GCP, Terraform, Kubernetes',
  'Mobile App Developer': 'React Native, Flutter, Swift, Kotlin',
  'UI/UX Designer': 'Figma, Sketch, Adobe XD, InVision'
};

function AddNewInterview() {
  const [openDialog, setOpenDialog] = useState(false);
  const [jobPosition, setJobPosition] = useState("");
  const [jobDescription, setJobDescription] = useState("");
```

```
  const [jobExperience, setJobExperience] = useState("");
  const [loading, setLoading] = useState(false);
  const { user } = useUser();
  const router = useRouter();

  // Auto-suggest tech stack based on job role
  const autoSuggestTechStack = (role) => {
    const suggestion = TECH_STACK_SUGGESTIONS[role];
    if (suggestion) {
      setJobDescription(suggestion);
      toast.info(`Auto-filled tech stack for ${role}`);
    }
  };

  const onSubmit = async (e) => {
    e.preventDefault();
    setLoading(true);

    const inputPrompt = `Job position: ${jobPosition}, Job Description: ${jobDescription},
Years of Experience: ${jobExperience}.
    Generate 5 interview questions and answers in JSON format.`;

    try {
      const result = await chatSession.sendMessage(inputPrompt);
      const responseText = await result.response.text();

      const cleanedResponse = responseText.replace(/```json\n?|```/g, '').trim();

      const mockResponse = JSON.parse(cleanedResponse);

      const res = await db.insert(MockInterview)
        .values({
          mockId: uuidv4(),
          jsonMockResp: JSON.stringify(mockResponse),
          jobPosition: jobPosition,
          jobDesc: jobDescription,
          jobExperience: jobExperience,
          createdBy: user?.primaryEmailAddress?.emailAddress,
          createdAt: moment().format('DD-MM-YYYY'),
        }).returning({ mockId: MockInterview.mockId });

      toast.success('Interview questions generated successfully!');
      router.push(`dashboard/interview/${res[0]?.mockId}`);
    } catch (error) {
      console.error("Error generating interview:", error);
      toast.error('Failed to generate interview questions.');
    } finally {
      setLoading(false);
    }
  };
```

```
  return (
    <div>
      <div
        className="p-10 border rounded-lg bg-secondary hover:scale-105 hover:shadow-md
cursor-pointer transition-all"
        onClick={() => setOpenDialog(true)}
      >
        <h1 className="font-bold text-lg text-center">+ Add New</h1>
      </div>
      <Dialog open={openDialog} onOpenChange={setOpenDialog}>
        <DialogContent className="max-w-2xl">
          <DialogHeader>
            <DialogTitle className="font-bold text-2xl">
              Create Your Interview Preparation
            </DialogTitle>
          </DialogHeader>
          {/* DialogDescription changed from <p> to <div> to prevent block element nesting
*/}
          <div>
            <form onSubmit={onSubmit}>
              <div>
                <div className="mt-7 my-3">
                  <label>Job Role/Position</label>
                  <div className="flex items-center space-x-2">
                    <Input
                      placeholder="Ex. Full Stack Developer"
                      value={jobPosition}
                      required
                      onChange={(e) => setJobPosition(e.target.value)}
                      list="jobRoles"
                    />
                    <datalist id="jobRoles">
                      {JOB_ROLE_SUGGESTIONS.map(role => (
                        <option key={role} value={role} />
                      ))}
                    </datalist>
                    <Button
                      type="button"
                      variant="ghost"
                      size="icon"
                      onClick={() => autoSuggestTechStack(jobPosition)}
                      disabled={!jobPosition}
                    >
                      <Sparkles className="h-4 w-4" />
                    </Button>
                  </div>
                </div>
                <div className="my-3">
                  <label>Job Description/Tech Stack</label>
                  <Textarea
                    placeholder="Ex. React, Angular, NodeJs, MySql etc"
```

```
                value={jobDescription}
                required
                onChange={(e) => setJobDescription(e.target.value)}
              />
            </div>
            <div className="my-3">
              <label>Years of Experience</label>
              <Input
                placeholder="Ex. 5"
                type="number"
                min="0"
                max="70"
                value={jobExperience}
                required
                onChange={(e) => setJobExperience(e.target.value)}
              />
            </div>
          </div>
          <div className="flex gap-5 justify-end">
            <Button type="button" variant="ghost" onClick={() => setOpenDialog(false)}>
              Cancel
            </Button>
            <Button type="submit" disabled={loading}>
              {loading ? (
                <>
                  <LoaderCircle className="animate-spin mr-2" /> Generating
                </>
              ) : (
                'Start Interview'
              )}
            </Button>
          </div>
        </form>
      </div>
    </DialogContent>
  </Dialog>
 </div>
 );
}

export default AddNewInterview;

import React from "react";
import { CopyrightIcon, Github, Linkedin, Twitter } from "lucide-react";

const Footer = () => {
 return (
  <footer className="bg-gray-900 text-white py-6">
   <div className="container mx-auto px-4 flex flex-col md:flex-row justify-between
items-center space-y-4 md:space-y-0">
    {/* Copyright Section */}
```

```
        <div className="flex items-center text-sm">
          <CopyrightIcon className="mr-2 h-5 w-5 text-gray-400" />
          <span>{new Date().getFullYear()} Mockmate AI. All Rights Reserved.</span>
        </div>



        {/* Social Media Links */}
        <div className="flex space-x-4">
          <a
            href="https://github.com/mockmate"
            target="_blank"
            rel="noopener noreferrer"
            className="hover:text-indigo-500 transition-colors"
            aria-label="GitHub"
          >
            <Github className="h-6 w-6" />
          </a>
          <a
            href="https://linkedin.com/company/mockmate"
            target="_blank"
            rel="noopener noreferrer"
            className="hover:text-indigo-500 transition-colors"
            aria-label="LinkedIn"
          >
            <Linkedin className="h-6 w-6" />
          </a>
          <a
            href="https://twitter.com/mockmate"
            target="_blank"
            rel="noopener noreferrer"
            className="hover:text-indigo-500 transition-colors"
            aria-label="Twitter"
          >
            <Twitter className="h-6 w-6" />
          </a>
        </div>
      </div>
    </footer>
  );
};

export default Footer;

"use client";
import { SignInButton, UserButton, SignedOut, SignedIn } from "@clerk/nextjs";
import React, { useState, useEffect, useCallback } from "react";
import Link from "next/link";
import { usePathname } from "next/navigation";
import { Menu, X, Bot } from "lucide-react";
```

```
function Header() {
  const path = usePathname();
  const [isMobileMenuOpen, setIsMobileMenuOpen] = useState(false);
  const [isVisible, setIsVisible] = useState(true);
  const [lastScrollY, setLastScrollY] = useState(0);

  const controlNavbar = useCallback(() => {
    if (typeof window !== "undefined") {
      const currentScrollY = window.scrollY;

      if (currentScrollY > lastScrollY && currentScrollY > 100) {
        setIsVisible(false);
      } else {
        setIsVisible(true);
      }

      setLastScrollY(currentScrollY);
    }
  }, [lastScrollY]);

  useEffect(() => {
    if (typeof window !== "undefined") {
      window.addEventListener("scroll", controlNavbar);
      return () => window.removeEventListener("scroll", controlNavbar);
    }
  }, [controlNavbar]);

  const toggleMobileMenu = () => {
    setIsMobileMenuOpen((prev) => !prev);

    // Prevent body scrolling when menu is open
    if (!isMobileMenuOpen) {
      document.body.style.overflow = 'hidden';
    } else {
      document.body.style.overflow = 'unset';
    }
  };

  const closeMobileMenu = () => {
    setIsMobileMenuOpen(false);
    document.body.style.overflow = 'unset';
  };

  const navItems = [
    { href: "/", label: "Home" },
    { href: "/dashboard", label: "Dashboard" },
    { href: "/how-it-works", label: "How it works" },
    { href: "/about-us", label: "About us" },
  ];

  return (
```

```
    <>
      <header
        className={`
          fixed top-0 left-0 right-0
          flex justify-between items-center
          p-4 sm:p-5
          bg-white/90 backdrop-blur-md
          shadow-md z-50
          transition-all duration-300 ease-in-out
          ${isVisible ? "translate-y-0" : "-translate-y-full"}
        `}
      >
        {/* Logo */}
        <Link
          href="/"
          className="flex items-center gap-2"
          aria-label="Mockmate AI Home"
          onClick={closeMobileMenu}
        >
          <Bot className="text-indigo-600" size={28} />
          <span  className="text-xl  sm:text-2xl  font-bold  text-indigo-600">Mockmate
AI</span>
        </Link>

        {/* Desktop Navigation */}
        <nav
          className="hidden md:flex gap-4 lg:gap-6"
          aria-label="Main Navigation"
        >
          {navItems.map((item) => (
            <NavItem
              key={item.href}
              path={path}
              href={item.href}
              label={item.label}
              onClick={closeMobileMenu}
            />
          ))}
        </nav>

        {/* Mobile Menu Toggle */}
        <div className="md:hidden">
          <button
            onClick={toggleMobileMenu}
            className="focus:outline-none  text-gray-600  hover:text-indigo-600  transition-
colors"
            aria-label={isMobileMenuOpen ? "Close Menu" : "Open Menu"}
            aria-expanded={isMobileMenuOpen}
          >
            {isMobileMenuOpen ? <X size={24} /> : <Menu size={24} />}
          </button>
```

```
  </div>

  {/* Desktop Authentication */}
  <div className="hidden md:block">
    <SignedOut>
      <SignInButton mode="modal">
        <button
          className="
            px-4 py-2
            bg-indigo-600 text-white
            rounded-md
            hover:bg-indigo-700
            transition-colors
            focus:outline-none
            focus:ring-2
            focus:ring-indigo-500
            focus:ring-offset-2
          "
        >
          Sign In
        </button>
      </SignInButton>
    </SignedOut>
    <SignedIn>
      <UserButton
        afterSignOutUrl="/"
        appearance={{
          elements: {
            userButtonAvatarBox: "w-10 h-10",
          },
        }}
      />
    </SignedIn>
  </div>
</header>

{/* Mobile Menu Overlay */}
{isMobileMenuOpen && (
  <div
    className="
      fixed inset-0 top-0
      bg-white z-40 md:hidden
      overflow-hidden
      pt-16
    "
    role="dialog"
    aria-modal="true"
    aria-label="Mobile Navigation Menu"
  >
    <div className="h-full overflow-y-auto pb-16">
      <nav className="space-y-6 p-6">
```

```
          {navItems.map((item) => (
            <NavItem
              key={item.href}
              path={path}
              href={item.href}
              label={item.label}
              mobile
              onClick={closeMobileMenu}
            />
          ))}

          {/* Mobile Authentication */}
          <div className="pt-6 border-t">
            <SignedOut>
              <SignInButton mode="modal">
                <button
                  className="
                    w-full px-4 py-2
                    bg-indigo-600 text-white
                    rounded-md
                    hover:bg-indigo-700
                    transition-colors
                    focus:outline-none
                    focus:ring-2
                    focus:ring-indigo-500
                    focus:ring-offset-2
                  "
                  onClick={closeMobileMenu}
                >
                  Sign In
                </button>
              </SignInButton>
            </SignedOut>
            <SignedIn>
              <div className="flex justify-center">
                <UserButton
                  afterSignOutUrl="/"
                  appearance={{
                    elements: {
                      userButtonAvatarBox: "w-12 h-12 mx-auto",
                    },
                  }}
                />
              </div>
            </SignedIn>
          </div>
        </nav>
      </div>
    </div>
  )}
</>
```

```
  );
}

function NavItem({ path, href, label, mobile, onClick }) {
  return (
    <Link
      href={href}
      onClick={onClick}
      className={`
        block
        transition-all duration-300 ease-in-out
        cursor-pointer
        rounded-lg
        focus:outline-none
        focus:ring-2
        focus:ring-indigo-500
        ${mobile
          ? "w-full text-lg py-3 text-center"
          : "px-3 py-2 hover:bg-indigo-100 hover:text-indigo-600"
        }
        ${path === href
          ? "text-indigo-600 font-bold bg-indigo-100"
          : "text-gray-700 hover:text-indigo-600"
        }
      `}
    >
      {label}
    </Link>
  );
}

export default Header;

import { Button } from "@/components/ui/button";
import { useRouter } from "next/navigation";
import React, { useState } from "react";
import { db } from "@/utils/db";
import { eq } from "drizzle-orm";
import { MockInterview } from "@/utils/schema";
import { Trash } from "lucide-react";
import { toast } from "sonner";

const InterviewItemCard = ({ interview }) => {
  const router = useRouter();
  const [isDialogOpen, setIsDialogOpen] = useState(false);

  const onStart = () => {
    router.push(`/dashboard/interview/${interview?.mockId}`);
  };

  const onFeedbackPress = () => {
```

```
    router.push(`/dashboard/interview/${interview?.mockId}/feedback`);
  };

  const onDelete = async () => {
    try {
      await db.delete(MockInterview).where(eq(MockInterview.mockId,
interview?.mockId));

      // Close dialog and show success toast
      setIsDialogOpen(false);
      toast.success("Interview deleted successfully");

      // Use router to refresh instead of full page reload
      router.refresh();
    } catch (error) {
      console.error("Error deleting interview:", error);
      toast.error("Failed to delete interview");
    }
  };

  return (
    <div className="relative border shadow-sm rounded-sm p-3">
      {/* Delete button in the top-right corner */}
      <Button
        size="sm"
        variant="outline"
        className="absolute top-2 right-2 flex items-center justify-center"
        onClick={() => setIsDialogOpen(true)}
      >
        <Trash className="text-red-600" />
      </Button>

      {/* Card Content */}
      <div>
        <h2 className="font-bold text-primary">{interview?.jobPosition}</h2>
        <h2 className="text-sm text-gray-500">Experience: {interview?.jobExperience}
Year(s)</h2>
        <h2 className="text-sm text-gray-500">Created At: {interview?.createdAt}</h2>
      </div>

      <div className="flex justify-between gap-5 mt-2">
        <Button size="sm" variant="outline" className="w-full"
onClick={onFeedbackPress}>
          Feedback
        </Button>
        <Button className="w-full" size="sm" onClick={onStart}>
          Start
        </Button>
      </div>

      {/* Confirmation Dialog */}
```

```
      {isDialogOpen && (
        <div className="fixed inset-0 z-50 flex items-center justify-center bg-black/50">
          <div className="bg-white p-6 rounded-lg shadow-lg max-w-md w-full mx-4">
            <h3 className="text-lg font-bold mb-4">Confirm Deletion</h3>
            <p className="mb-4">Are you sure you want to delete this interview?</p>
            <div className="flex justify-end gap-3">
              <Button variant="outline" onClick={() => setIsDialogOpen(false)}>
                Cancel
              </Button>
              <Button
                variant="destructive"
                onClick={onDelete}
              >
                Confirm Delete
              </Button>
            </div>
          </div>
        </div>
      )}
    </div>
  );
};

export default InterviewItemCard;

"use client";
import { db } from "@/utils/db";
import { MockInterview } from "@/utils/schema";
import { useUser } from "@clerk/nextjs";
import { desc, eq } from "drizzle-orm";
import React, { useEffect, useState } from "react";
import InterviewItemCard from "./InterviewItemCard"

const InterviewList = () => {
  const { user } = useUser();
  const [InterviewList, setInterviewList] = useState([]);
  useEffect(() => {
    user && GetInterviewList();
  }, [user]);
  const GetInterviewList = async () => {
    const result = await db
      .select()
      .from(MockInterview)
      .where(
        eq(MockInterview.createdBy, user?.primaryEmailAddress?.emailAddress)
      )
      .orderBy(desc(MockInterview.id));


    setInterviewList(result)
  };
```

```
  return (
    <div>
      <h2 className="font-medium text-xl">Previous Mock Interview</h2>
      <div className="grid grid-cols-1 md:grid-cols-2 lg:grid-cols-3 gap-5 my-3">
       {InterviewList&&InterviewList.map((interview,index)=>(
          <InterviewItemCard interview={interview} key={index}/>
       ))}
      </div>
    </div>
  );
};

export default InterviewList;
```

- **Interview Feedback**

```
"use client";
import { db } from '@/utils/db';
import { UserAnswer } from '@/utils/schema';
import { eq } from 'drizzle-orm';
import React, { useEffect, useState } from 'react';
import {
  Collapsible,
  CollapsibleContent,
  CollapsibleTrigger,
} from "@/components/ui/collapsible";
import {
  CheckCircle2,
  XCircle,
  ChevronsUpDown,
  Activity,
  Target
} from 'lucide-react';
import { Button } from "@/components/ui/button";
import { useRouter } from 'next/navigation';
import { Card, CardContent, CardHeader } from "@/components/ui/card";

const Feedback = ({ params }) => {
  const [feedbackList, setFeedbackList] = useState([]);
  const [averageRating, setAverageRating] = useState(null);
  const [loading, setLoading] = useState(true);
  const router = useRouter();

  useEffect(() => {
    GetFeedback();
  }, []);

  const GetFeedback = async () => {
    setLoading(true);
    const result = await db.select()
      .from(UserAnswer)
      .where(eq(UserAnswer.mockIdRef, params.interviewId))
```

```
    .orderBy(UserAnswer.id);

  setFeedbackList(result);
  setLoading(false);

  // Calculate the average rating dynamically, only including valid ratings
  const validRatings = result
    .map((item) => parseFloat(item.rating))
    .filter((rating) => !isNaN(rating));

  const totalRating = validRatings.reduce((sum, rating) => sum + rating, 0);
  const avgRating = validRatings.length > 0
    ? (totalRating / validRatings.length).toFixed(1)
    : "N/A";

  setAverageRating(avgRating);
};

const getRatingColor = (rating) => {
  const numRating = parseFloat(rating);
  if (numRating >= 8) return "text-green-600";
  if (numRating >= 5) return "text-yellow-600";
  return "text-red-600";
};

if (loading) {
  return (
    <div className="min-h-screen flex items-center justify-center">
      <div className="text-center">
        <Activity className="mx-auto h-12 w-12 text-indigo-600 animate-pulse" />
        <p className="mt-4 text-gray-600">Loading your interview feedback...</p>
      </div>
    </div>
  );
}

return (
  <div className="container mx-auto px-4 py-8">
    {feedbackList.length === 0 ? (
      <Card className="max-w-md mx-auto">
        <CardHeader className="text-center">
          <XCircle className="mx-auto h-16 w-16 text-red-500" />
          <h2 className="text-2xl font-bold text-gray-800 mt-4">
            No Interview Feedback Available
          </h2>
        </CardHeader>
        <CardContent className="text-center">
          <p className="text-gray-600 mb-6">
            It seems like no feedback has been generated for this interview.
            This could be due to an incomplete interview or a system issue.
          </p>
```

```
        <Button
          variant="outline"
          onClick={() => router.replace('/dashboard')}
          className="w-full"
        >
          Return to Dashboard
        </Button>
      </CardContent>
    </Card>
  ) : (
    <>
      <div className="max-w-4xl mx-auto mb-8">
        <Card>
          <CardHeader className="flex flex-row items-center gap-4">
            <CheckCircle2 className="h-12 w-12 text-green-600" />
            <div>
              <h2 className="text-3xl font-bold text-green-600">Great Job!</h2>
              <p className="text-gray-600">You've completed your mock interview.</p>
            </div>
          </CardHeader>
          <CardContent>
            <div className="grid grid-cols-2 gap-4">
              <div>
                <p className="text-sm text-gray-500">Overall Rating</p>
                <p className={`text-2xl font-bold ${getRatingColor(averageRating)}`}>
                  {averageRating ? `${averageRating}/10` : 'N/A'}
                </p>
              </div>
              <div>
                <p className="text-sm text-gray-500">Total Questions</p>
                <p className="text-2xl font-bold text-indigo-600">
                  {feedbackList.length}
                </p>
              </div>
            </div>
          </CardContent>
        </Card>
      </div>

      <div className="max-w-4xl mx-auto space-y-4">
        <h3 className="text-xl font-semibold text-gray-700">
          Detailed Interview Feedback
        </h3>
        <p className="text-sm text-gray-500 mb-4">
          Review each question's performance and get insights for improvement.
        </p>

        {feedbackList.map((item, index) => (
          <Collapsible key={index} className="border rounded-lg overflow-hidden">
            <CollapsibleTrigger className="w-full">
```

```
            <div className="flex items-center justify-between p-4 bg-gray-100 hover:bg-
gray-200 transition-colors">
              <div className="flex items-center gap-3">
                <Target
                  className={`h-5 w-5 ${
                    parseFloat(item.rating) >= 7
                      ? "text-green-500"
                      : parseFloat(item.rating) >= 4
                      ? "text-yellow-500"
                      : "text-red-500"
                  }`}
                />
                <span className="font-medium text-gray-800 line-clamp-1">
                  {item.question}
                </span>
              </div>
              <ChevronsUpDown className="h-4 text-gray-500" />
            </div>
          </CollapsibleTrigger>
          <CollapsibleContent className="p-4 bg-white">
            <div className="grid md:grid-cols-2 gap-4">
              <div>
                <h4 className="font-semibold text-gray-700 mb-2">Your Answer</h4>
                <p  className="bg-red-50  p-3  rounded-lg  text-sm  text-red-900  border
border-red-200">
                  {item.userAns || "No answer provided"}
                </p>
              </div>
              <div>
                <h4 className="font-semibold text-gray-700 mb-2">Correct Answer</h4>
                <p  className="bg-green-50  p-3  rounded-lg  text-sm  text-green-900  border
border-green-200">
                  {item.correctAns}
                </p>
              </div>
            </div>
            <div className="mt-4">
              <h4 className="font-semibold text-gray-700 mb-2">Feedback</h4>
              <p  className="bg-blue-50  p-3  rounded-lg  text-sm  text-primary  border
border-blue-200">
                {item.feedback}
              </p>
            </div>
            <div className="mt-4 text-right">
              <span className={`font-bold ${getRatingColor(item.rating)}`}>
                Rating: {item.rating}/10
              </span>
            </div>
          </CollapsibleContent>
        </Collapsible>
      ))}
```

```
          <div className="text-center mt-8">
            <Button
              onClick={() => router.replace('/dashboard')}
              className="w-full md:w-auto"
            >
              Return to Dashboard
            </Button>
          </div>
        </div>
      </>
    )}
  </div>
 );
};

export default Feedback;
```

- **Question and Recording Section**

```
"use client"
import { Lightbulb, Volume2 } from 'lucide-react'
import React from 'react'
const QuestionsSection = ({mockInterviewQuestion,activeQuestionIndex}) => {
 console.log("🚀 ~ file: QuestionsSection.jsx:4 ~ QuestionsSection ~ mockInterviewQuestion:", mockInterviewQuestion);
 const textToSpeach=(text)=>{
if('speechSynthesis' in window){
   const speech = new SpeechSynthesisUtterance(text);
   window.speechSynthesis.speak(speech)
}else{
   alert("Sorry, your browser does not support text to speech")
}
 }
 return mockInterviewQuestion && (
   <div className='p-5 border rounded-lg my-10'>
     <div className='grid grid-cols-2 md:grid-cols-3 lg:grid-cols-4 gap-5'>
       {mockInterviewQuestion && mockInterviewQuestion.map((question,index)=>(
         <h2 key={index} className={`p-2 bg-secondary rounded-full text-xs md:text-sm text-center cursor-pointer ${activeQuestionIndex == index && 'bg-blue-700 text-white'}`}>Question #{index+1}</h2>
       ))}
     </div>
       <h2 className='my-5 text-md md:text-lg'>
         {mockInterviewQuestion[activeQuestionIndex]?.question}
       </h2>
       <Volume2 className='cursor-pointer' onClick={()=>textToSpeach(mockInterviewQuestion[activeQuestionIndex]?.question)}/>
       <div className='border rounded-lg p-5 bg-blue-100 mt-20'>
         <h2 className='flex gap-2 items-center text-primary'>
           <Lightbulb/>
```

```
            <strong>Note:</strong>
          </h2>
          <h2 className='text-sm text-primary my-2'>Enable Video Web Cam and Microphone to Start your AI Generated Mock Interview, It Has 5 questions which you can answer and at last you will get the report on the basis of your answer . NOTE: We never record your video, Web cam access you can disable at any time if you want</h2>
        </div>
    </div>
  )
}

export default QuestionsSection

"use client";
import { Button } from "@/components/ui/button";
import React, { useEffect, useState, useRef } from "react";
import { Mic, StopCircle, Loader2, Camera, CameraOff } from "lucide-react";
import { toast } from "sonner";
import { chatSession } from "@/utils/GeminiAIModal";
import { db } from "@/utils/db";
import { UserAnswer } from "@/utils/schema";
import { useUser } from "@clerk/nextjs";
import moment from "moment";

const RecordAnswerSection = ({
  mockInterviewQuestion,
  activeQuestionIndex,
  interviewData,
  onAnswerSave,
}) => {
  const [userAnswer, setUserAnswer] = useState("");
  const { user } = useUser();
  const [loading, setLoading] = useState(false);
  const [isRecording, setIsRecording] = useState(false);
  const [webcamEnabled, setWebcamEnabled] = useState(false);
  const recognitionRef = useRef(null);
  const webcamRef = useRef(null);

  useEffect(() => {
    // Speech recognition setup (previous code remains the same)
    if (typeof window !== "undefined" && 'webkitSpeechRecognition' in window) {
      recognitionRef.current = new window.webkitSpeechRecognition();
      const recognition = recognitionRef.current;

      recognition.continuous = true;
      recognition.interimResults = true;
      recognition.lang = 'en-US';

      recognition.onresult = (event) => {
        let finalTranscript = '';
        for (let i = event.resultIndex; i < event.results.length; ++i) {
```

```
        if (event.results[i].isFinal) {
          finalTranscript += event.results[i][0].transcript + ' ';
        }
      }

      if (finalTranscript.trim()) {
        setUserAnswer(prev => (prev + ' ' + finalTranscript).trim());
      }
    };

    recognition.onerror = (event) => {
      toast.error(`Speech recognition error: ${event.error}`);
      setIsRecording(false);
    };

    recognition.onend = () => {
      setIsRecording(false);
    };
  }
}, []);

const EnableWebcam = async () => {
  try {
    const stream = await navigator.mediaDevices.getUserMedia({ video: true });
    if (webcamRef.current) {
      webcamRef.current.srcObject = stream;
    }
    setWebcamEnabled(true);
    toast.success("Webcam enabled successfully");
  } catch (error) {
    toast.error("Failed to enable webcam", {
      description: "Please check your camera permissions"
    });
    console.error("Webcam error:", error);
  }
};

const DisableWebcam = () => {
  const tracks = webcamRef.current?.srcObject?.getTracks();
  tracks?.forEach(track => track.stop());
  setWebcamEnabled(false);
};

const StartStopRecording = () => {
  // (previous recording logic remains the same)
  if (!recognitionRef.current) {
    toast.error("Speech-to-text not supported");
    return;
  }

  if (isRecording) {
```

```
      recognitionRef.current.stop();
      toast.info("Recording stopped");
    } else {
      recognitionRef.current.start();
      setIsRecording(true);
      toast.info("Recording started");
    }
  };

  const UpdateUserAnswer = async () => {
    // (previous answer saving logic remains the same)
    if (!userAnswer.trim()) {
      toast.error("Please provide an answer");
      return;
    }

    setLoading(true);

    try {
      const feedbackPrompt = `Question: ${mockInterviewQuestion[activeQuestionIndex]?.question}, User Answer: ${userAnswer}. Please give a rating out of 10 and feedback on improvement in JSON format { "rating": <number>, "feedback": <text> }`;

      const result = await chatSession.sendMessage(feedbackPrompt);
      const mockJsonResp = result.response.text().replace(/```json|```/g, '').trim();
      const JsonfeedbackResp = JSON.parse(mockJsonResp);

      const answerRecord = {
        mockIdRef: interviewData?.mockId,
        question: mockInterviewQuestion[activeQuestionIndex]?.question,
        correctAns: mockInterviewQuestion[activeQuestionIndex]?.answer,
        userAns: userAnswer,
        feedback: JsonfeedbackResp?.feedback,
        rating: JsonfeedbackResp?.rating,
        userEmail: user?.primaryEmailAddress?.emailAddress,
        createdAt: moment().format("DD-MM-YYYY"),
      };

      await db.insert(UserAnswer).values(answerRecord);

      onAnswerSave?.(answerRecord);

      toast.success("Answer recorded successfully");

      setUserAnswer("");
      if (recognitionRef.current) {
        recognitionRef.current.stop();
      }
      setIsRecording(false);
    } catch (error) {
```

```
    toast.error("Failed to save answer", {
      description: error.message
    });
    console.error("Answer save error:", error);
   } finally {
    setLoading(false);
   }
  };

  return (
   <div className="flex justify-center items-center flex-col relative">
    {loading && (
     <div className="fixed inset-0 bg-black/70 z-[9999] flex flex-col justify-center items-center">
      <Loader2 className="h-16 w-16 animate-spin text-white mb-4" />
      <p className="text-white text-lg">Saving your answer...</p>
     </div>
    )}
    <div className="flex flex-col my-20 justify-center items-center bg-black rounded-lg p-5">
     {webcamEnabled ? (
      <video
       ref={webcamRef}
       autoPlay
       playsInline
       className="w-[200px] h-[200px] object-cover rounded-lg"
      />
     ) : (
      <div className="w-[200px] h-[200px] flex justify-center items-center bg-gray-200 rounded-lg">
       <p className="text-gray-500">Webcam Disabled</p>
      </div>
     )}

     <Button
      variant="outline"
      className="mt-4"
      onClick={webcamEnabled ? DisableWebcam : EnableWebcam}
     >
      {webcamEnabled ? (
       <>
        <CameraOff className="mr-2 h-4 w-4" /> Disable Webcam
       </>
      ) : (
       <>
        <Camera className="mr-2 h-4 w-4" /> Enable Webcam
       </>
      )}
     </Button>
    </div>
```

```
      <Button
        disabled={loading}
        variant="outline"
        className="my-10"
        onClick={StartStopRecording}
      >
        {isRecording ? (
          <h2 className="text-red-600 items-center animate-pulse flex gap-2">
            <StopCircle /> Stop Recording
          </h2>
        ) : (
          <h2 className="text-primary flex gap-2 items-center">
            <Mic /> Record Answer
          </h2>
        )}
      </Button>

      <textarea
        className="w-full h-32 p-4 mt-4 border rounded-md text-gray-800"
        placeholder="Your answer will appear here..."
        value={userAnswer}
        onChange={(e) => setUserAnswer(e.target.value)}
      />

      <Button
        className="mt-4"
        onClick={UpdateUserAnswer}
        disabled={loading || !userAnswer.trim()}
      >
        {loading ? (
          <><Loader2 className="mr-2 h-4 w-4 animate-spin" /> Saving...</>
        ) : (
          "Save Answer"
        )}
      </Button>
    </div>
  );
};

export default RecordAnswerSection;
```

- **Start Interview**

```
"use client";
import { db } from "@/utils/db";
import { MockInterview } from "@/utils/schema";
import { eq } from "drizzle-orm";
import React, { useEffect, useState } from "react";
import QuestionsSection from "./_components/QuestionsSection";
import RecordAnswerSection from "./_components/RecordAnswerSection";
import { Button } from "@/components/ui/button";
import { Loader2 } from "lucide-react";
```

```
import Link from "next/link";
import { use } from "react"; // Import `use` to unwrap params

const StartInterview = ({ params }) => {
  // Unwrap params using React.use() before accessing interviewId
  const interviewId = use(params).interviewId;

  const [interViewData, setInterviewData] = useState();
  const [mockInterviewQuestion, setMockInterviewQuestion] = useState();
  const [activeQuestionIndex, setActiveQuestionIndex] = useState(0);
  const [isLoading, setIsLoading] = useState(true);

  useEffect(() => {
    GetInterviewDetails();
  }, [interviewId]); // Depend on interviewId to trigger re-fetch

  const GetInterviewDetails = async () => {
    try {
      setIsLoading(true);
      const result = await db
        .select()
        .from(MockInterview)
        .where(eq(MockInterview.mockId, interviewId));

      const jsonMockResp = JSON.parse(result[0].jsonMockResp);
      setMockInterviewQuestion(jsonMockResp);
      setInterviewData(result[0]);
    } catch (error) {
      console.error("Failed to fetch interview details:", error);
      // Optionally add error toast or error state handling
    } finally {
      setIsLoading(false);
    }
  };

  const handleAnswerSave = (answerRecord) => {
    // Optional: Add any additional logic when an answer is saved
    // For example, you might want to automatically move to the next question
    if (activeQuestionIndex < mockInterviewQuestion.length - 1) {
      setActiveQuestionIndex(prev => prev + 1);
    }
  };

  if (isLoading) {
    return (
      <div className="flex justify-center items-center min-h-screen">
        <div className="text-center">
          <Loader2 className="mx-auto h-12 w-12 animate-spin" />
          <p className="mt-4 text-gray-600">Loading interview details...</p>
        </div>
      </div>
```

```
    );
  }

  if (!mockInterviewQuestion || mockInterviewQuestion.length === 0) {
    return (
      <div className="flex justify-center items-center min-h-screen">
        <p className="text-red-500">No interview questions found.</p>
      </div>
    );
  }

  return (
    <div>
      <div className="grid grid-cols-1 md:grid-cols-2 gap-10">
        {/* Questions */}
        <QuestionsSection
          mockInterviewQuestion={mockInterviewQuestion}
          activeQuestionIndex={activeQuestionIndex}
        />
        {/* video or audio recording */}
        <RecordAnswerSection
          mockInterviewQuestion={mockInterviewQuestion}
          activeQuestionIndex={activeQuestionIndex}
          interviewData={interViewData}
          onAnswerSave={handleAnswerSave}
        />
      </div>
      <div className="flex justify-end gap-6">
        {activeQuestionIndex > 0 && (
          <Button onClick={() => setActiveQuestionIndex(activeQuestionIndex - 1)}>
            Previous Question
          </Button>
        )}
        {activeQuestionIndex != mockInterviewQuestion?.length - 1 && (
          <Button onClick={() => setActiveQuestionIndex(activeQuestionIndex + 1)}>
            Next Question
          </Button>
        )}
        {activeQuestionIndex == mockInterviewQuestion?.length - 1 && (
          <Link href={'/dashboard/interview/' + interViewData?.mockId + '/feedback'}>
            <Button>End Interview</Button>
          </Link>
        )}
      </div>
    </div>
  );
};

export default StartInterview;
```

- **How it Works**

```
"use client";

import React from "react";
import { Bot, UserCheck, Settings, Play, Send, ChartBar, Repeat } from "lucide-react";

const HowItWorksPage = () => {
  const steps = [
    {
      icon: <UserCheck size={48} className="text-indigo-600" />,
      title: "Sign Up or Log In",
      description: "Create an account or log in using Clerk. Build a personalized profile that tracks your interview journey and stores preferences."
    },
    {
      icon: <Settings size={48} className="text-indigo-600" />,
      title: "Choose Your Interview Type",
      description: "Select from technical, behavioral, or mixed interviews. Customize difficulty, topics, and duration to match your career goals."
    },
    {
      icon: <Play size={48} className="text-indigo-600" />,
      title: "Start the Mock Interview",
      description: "Our AI generates dynamic, contextually relevant questions powered by Gemini. One question at a time keeps you focused and engaged."
    },
    {
      icon: <Send size={48} className="text-indigo-600" />,
      title: "Submit Your Answers",
      description: "Respond via text or multiple-choice options. Our intuitive interface tracks your responses and provides a seamless experience."
    },
    {
      icon: <ChartBar size={48} className="text-indigo-600" />,
      title: "Receive Real-Time Feedback",
      description: "Get instant, AI-powered analysis of your responses. Understand your strengths, areas for improvement, and receive detailed scoring."
    },
    {
      icon: <Repeat size={48} className="text-indigo-600" />,
      title: "Continue Practicing",
      description: "Access your interview history, track progress, and keep refining your skills with unlimited mock interviews and adaptive challenges."
    }
  ];

  return (
    <div className="container mx-auto px-4 py-12">
      <div className="text-center mb-12">
        <h1 className="text-4xl font-bold text-gray-800 mb-4">
          <Bot className="inline-block mr-3 text-indigo-600" size={48} />
```

```
          Mockmate AI : Your Interview Preparation Companion
        </h1>
        <p className="text-xl text-gray-600">
          Master your interviews with AI-powered practice and personalized insights
        </p>
      </div>

      <div className="grid md:grid-cols-2 lg:grid-cols-3 gap-8">
        {steps.map((step, index) => (
          <div
            key={step.title}
            className="bg-white p-6 rounded-lg shadow-md transition-transform hover:scale-
105"
          >
            <div className="flex items-center mb-4">
              {step.icon}
              <h2 className="ml-4 text-2xl font-semibold text-gray-800">
                Step {index + 1}: {step.title}
              </h2>
            </div>
            <p className="text-gray-600">{step.description}</p>
          </div>
        ))}
      </div>

      <div className="text-center mt-12">
        <a
          href="/dashboard"
          className="bg-indigo-600 text-white px-8 py-3 rounded-full text-lg hover:bg-
indigo-700 transition-colors"
        >
          Start Your Interview Journey
        </a>
      </div>
    </div>
  );
};

Export default HowItWorksPage;
```

CHAPTER-6

SOFTWARE TESTING

6.1 TESTING STRATEGY

Our Testing strategy involves a combination of manual and automated testing to thoroughly assess the functionality performances and reliability of our Project MockMate.

6.1.1 Manual Testing

These test cases are executed manually by a tester to validate UI behavior and user interactions.

- **Sign Up with Valid Details**
  - **Description**: The user enters a valid name, email, and password, then clicks "Sign Up".
  - **Expected Outcome**: The user account is created successfully and they are redirected to the interview dashboard.

- **Sign Up with an Existing Email**
  - **Description**: The user attempts to register using an email that's already in the database.
  - **Expected Outcome**: An error message appears stating "Email already in use".

- **Log In with Valid Credentials**
  - **Description**: The user logs in using correct email and password.
  - **Expected Outcome**: They are redirected to the main interview page.

- **Log In with Incorrect Password**
  - **Description**: A registered user tries logging in with the wrong password.
  - **Expected Outcome**: A message appears: "Invalid credentials".

- **Start an Interview**
  - **Description**: The user clicks the "Start Interview" button on the dashboard.
  - **Expected Outcome**: The AI generates and displays questions tailored to the user's profile.

- **Submit Interview Answers**
  - **Description**: The user provides answers and submits them at the end of the mock interview.
  - **Expected Outcome**: The system generates AI-based feedback for each answer.

- **View Feedback**
  - **Description**: After completing an interview, the user clicks on the "View Feedback" button.

    - **Expected Outcome**: A breakdown of strengths, areas to improve, and response scores are shown.
- **8. Sign Out Functionality**
    - **Description**: The user clicks the logout button/icon from the navigation bar.
    - **Expected Outcome**: The session ends and the user is redirected to the login page.

6.2.2 Automated Testing

These tests are written and executed by automation frameworks like Jest, Cypress, or Playwright.

- **Test the Sign-Up API**
    - **Description**: Simulate a POST request with valid user details.
    - **Expected Outcome**: The API returns a 201 status with a user object in the response body.

- **Test the Login API**
    - **Description**: Simulate a POST request with valid login credentials.
    - **Expected Outcome**: The response contains a 200 status and a JWT token.

- **Validate AuthService Logic**
    - **Description**: Test the signUp(), logIn(), and signOut() methods of the AuthService class.
    - **Expected Outcome**: Each method performs as expected and handles edge cases (e.g., null input).

- **Generate AI Questions**
    - **Description**: Unit test for generateQuestions() in the AI model.
    - **Expected Outcome**: The method returns an array of relevant, structured questions.

- **Navigate to Interview After Login**
    - **Description**: Simulate a successful login and check redirection.
    - **Expected Outcome**: The user is redirected to /interview.

- **Validate Feedback Page Rendering**
    - **Description**: After submitting answers, test if the feedback component loads properly.
    - **Expected Outcome**: Feedback elements (like comments or improvement suggestions) are displayed.

- **Persist Questions in Storage**
    - **Description**: Verify that generated questions are saved in the database.
    - **Expected Outcome**: Questions persist and are retrievable with a GET API call.

- **Form Validation**
    - **Description**: Leave login form fields empty and try to submit.
    - **Expected Outcome**: UI shows validation errors such as "Email is required" or "Password cannot be empty".

CHAPTER-7

RESULTS AND DISCUSSION

7.1 PROJECT OUTCOME

Project MockMate is an AI based mock interviewer where the students who lack practice for the interview can enhance their technical and communication skills by performing Interviews and tracking their progress as AI provides Feedback mechanism.

FUNCTIONALITY AND FEATURES

- **User Authentication:**
  - Sign up with email and password
  - Log in securely
  - Log out and session management
  - Form validation and error handling

- **Profile Management:**
  - Store and Retrieve user profiles
  - Personalize interviews based on profile

- **AI-Powered Interview Engine:**
  - Generate interview questions using an AI model
  - Customize questions per job role or skillset
  - Ask behavioural and technical questions

- **Interview Session Interface:**
  - Interactive mock interview screen
  - Display questions one by one
  - Accept user answers in text/audio
  - Allow user to skip or go back to questions

- **AI-based Response Analysis:**
  - Analyze answers using NLP
  - Score the response
  - Identify strong and weak points
  - Provide Improvement suggestions

- **Feedback System**
  - Sow detailed feedback after interview
  - Highlight strengths and areas to improve
  - Allow download/export of feedback report

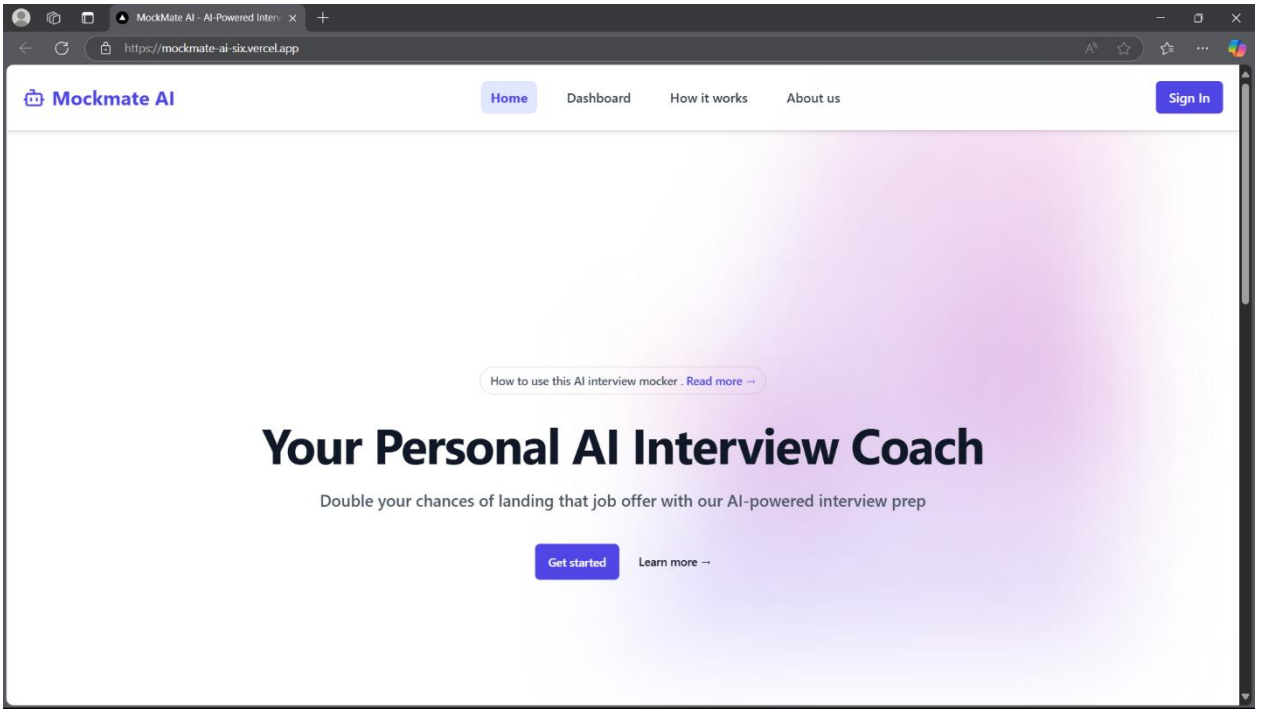
- **Data Storage & Retrieval:**
    - Save generated questions to Database
    - Link questions and feedback to specific user sessions
    - Enable users to view past interviews and feedback

- **Modern UI/UX:**
    - Responsive layout with Tailwind
    - UI components styled using shadCN
    - Accessible design and mobile-friendly

- **Routing and Navigation:**
    - Protected routes for authenticated users
    - Navigation bars for login, Interview, feedback
    - Redirect based on auth state

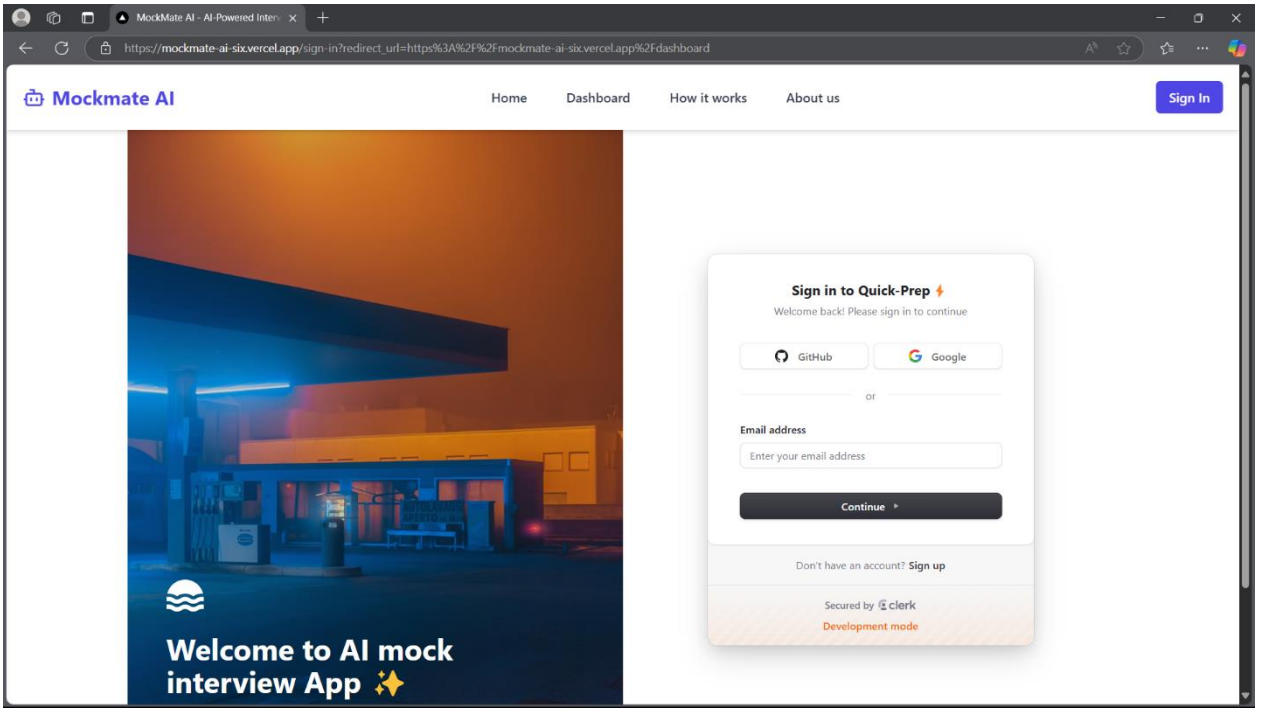
7.2 SNAPSHOTS OF PROJECT

- **Home Page**



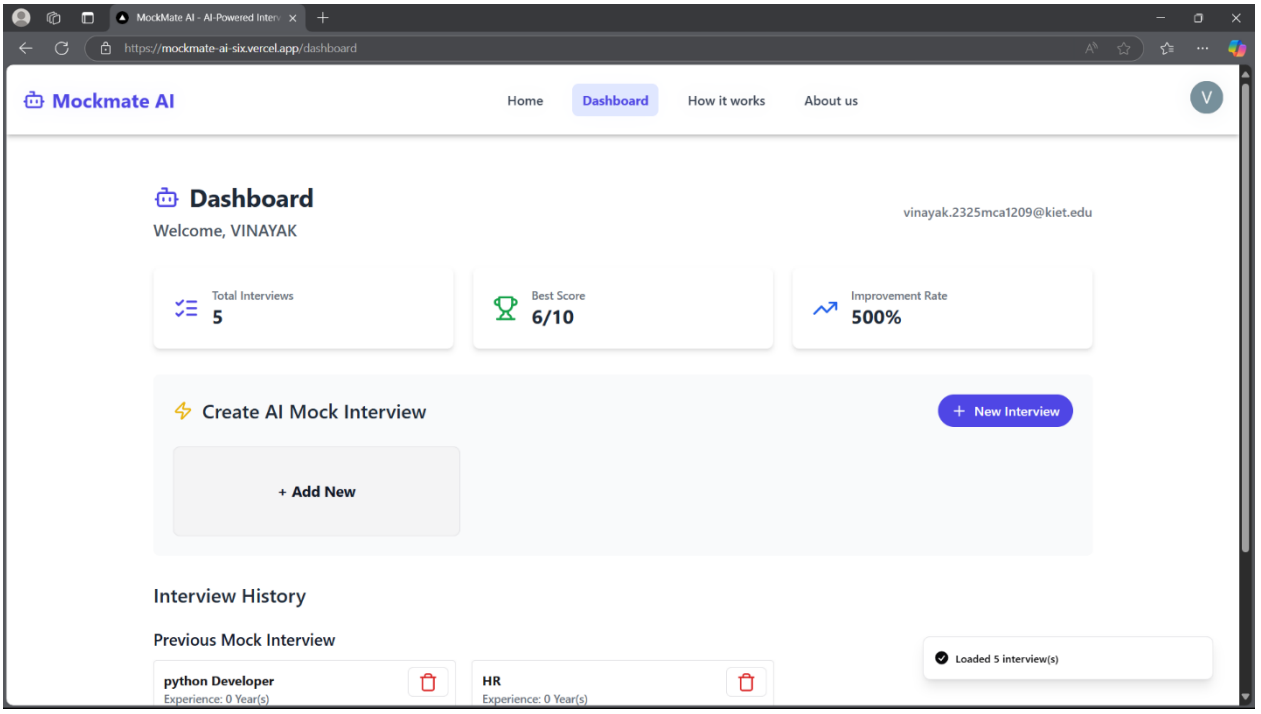
(Figure 7.1: Home Page)

- **Sign In Page**



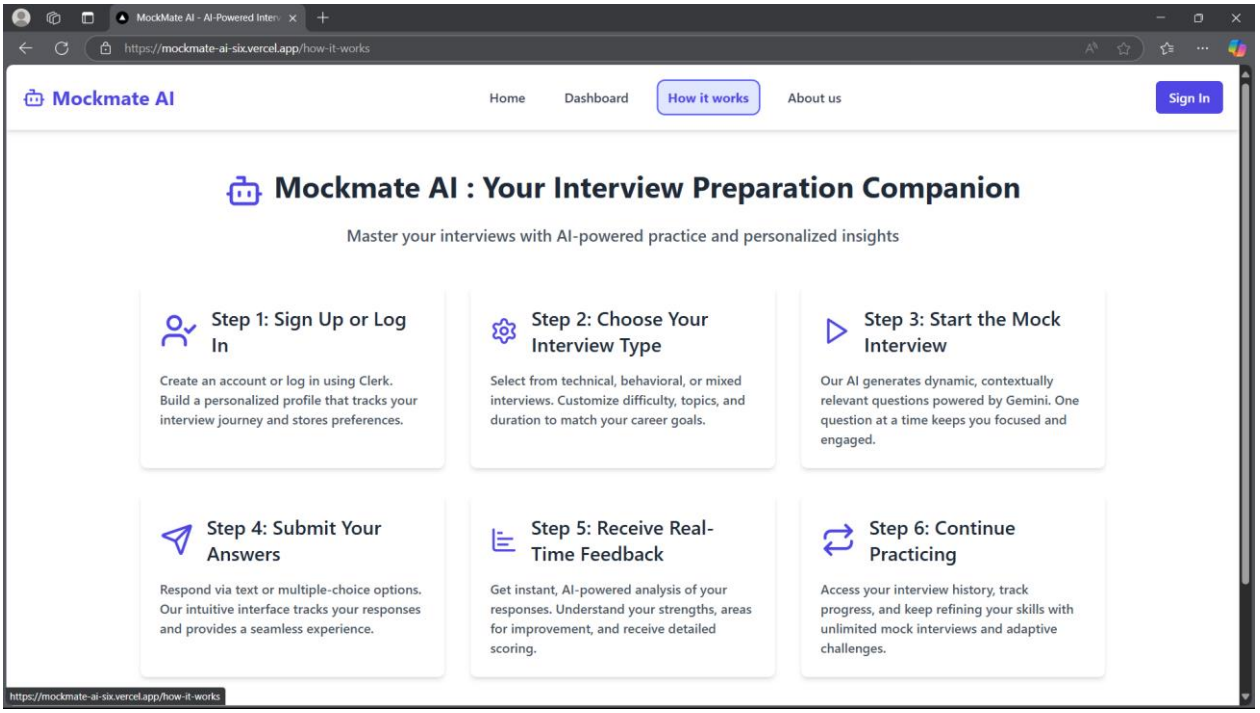
(Figure 7.2: Sign In Page)

- **Dashboard**



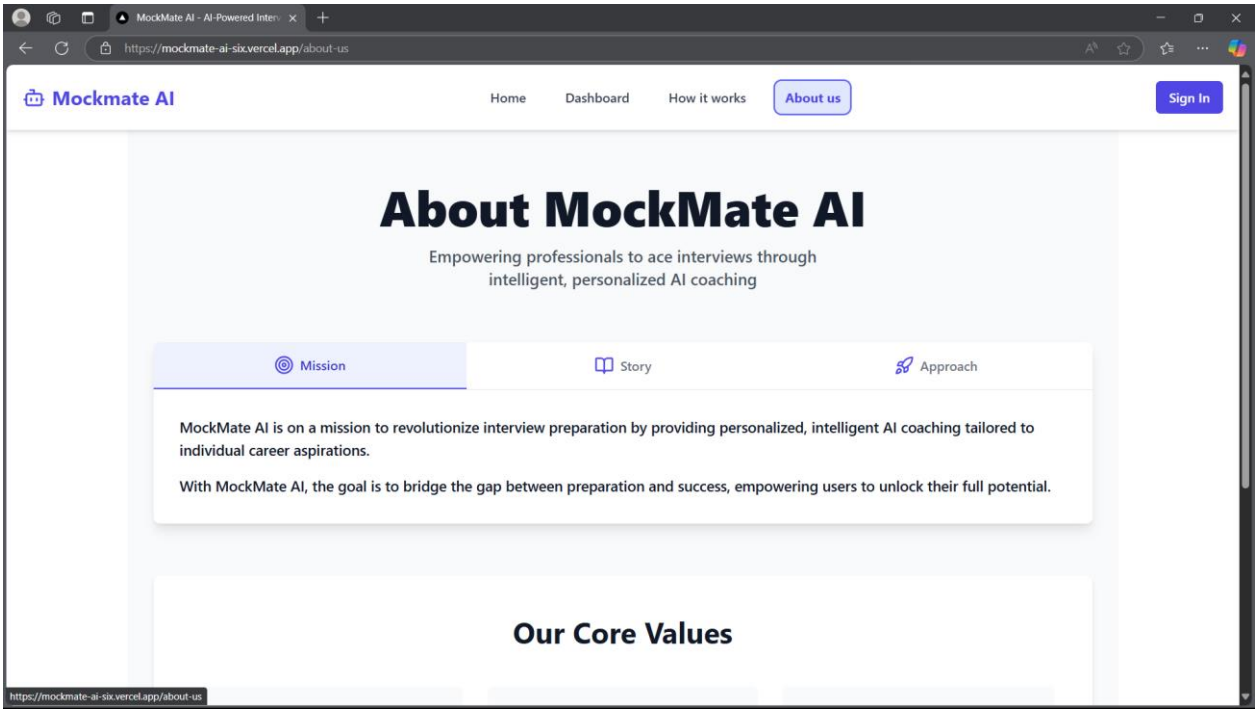
(Figure 7.3 Dashboard)

- **How It Works**



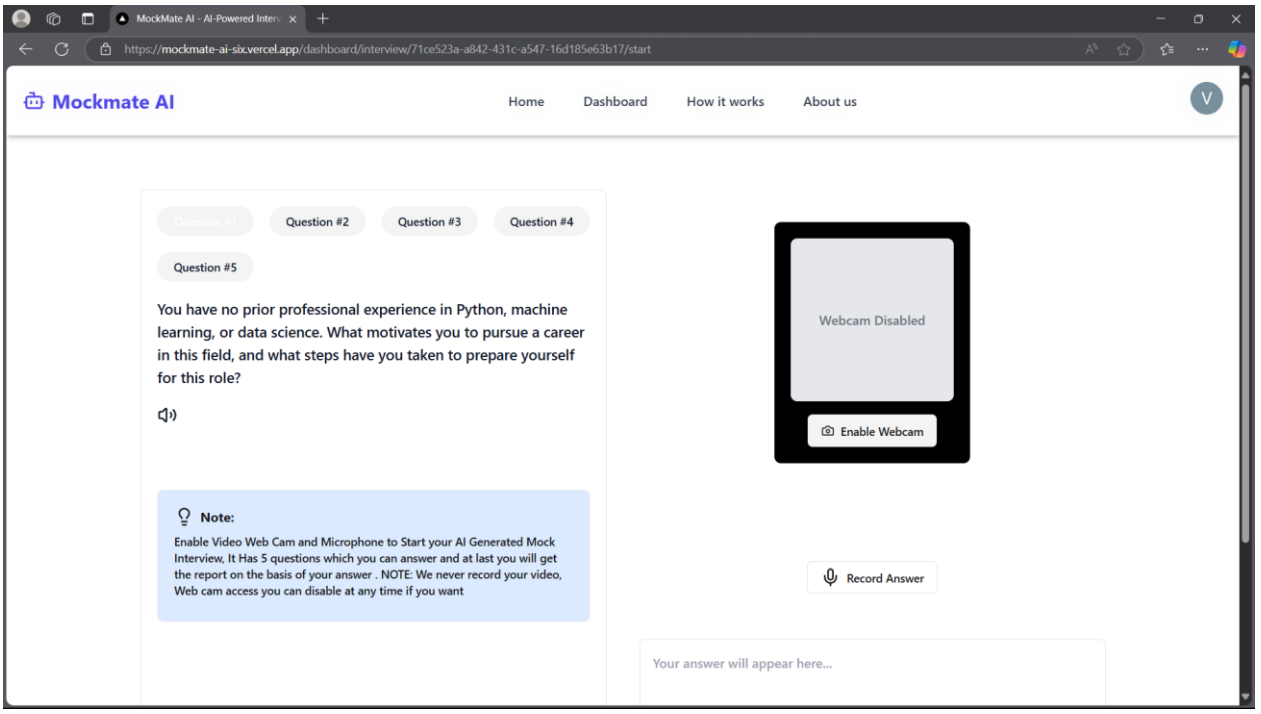
(Figure 7.4: How it Works)

- **About Us Page**



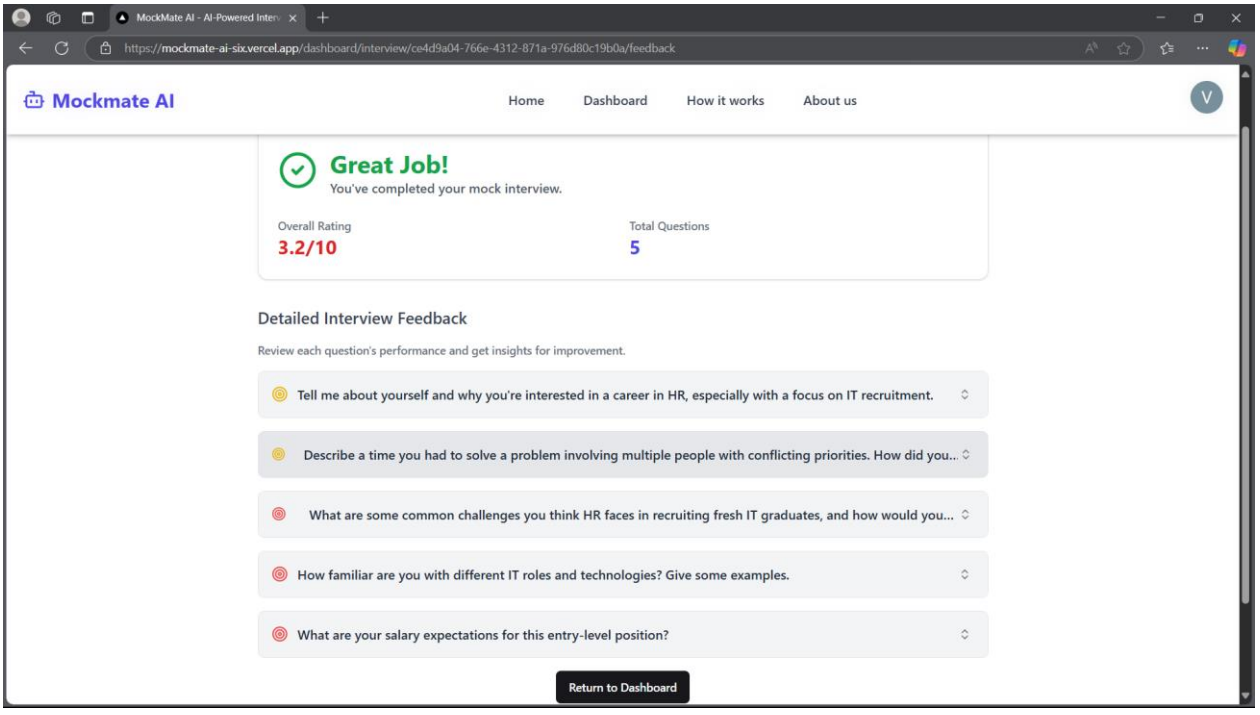
(Figure 7.5: About Us)

- **Interview Process Page**



(Figure 7.6: Interview Process)

- **Feedback Page**



(Figure 7.7: Feedback Page)

CHAPTER-8

CONCLUSION

In conclusion, the AI-powered mock interview application, *MockMate*, serves as a comprehensive and intelligent platform designed to prepare users for real-world interviews through simulated, personalized practice sessions. By leveraging modern web technologies such as Next.js and React for a robust frontend, along with Tailwind CSS and ShadCN for sleek and responsive UI design, the project delivers a seamless and user-friendly experience. The integration of powerful authentication systems like NextAuth ensures secure access control, while Drizzle ORM provides efficient database interactions and schema management. At the heart of the application lies Gemini AI, which dynamically generates interview questions tailored to each user's profile and analyzes responses with meaningful feedback, thereby making the preparation process adaptive and insightful. The platform supports features such as user sign-up, login, interview participation, and detailed feedback review, addressing the critical need for constructive and scalable interview practice tools. Furthermore, the project's structured development into modular components, along with thorough manual and automated testing, enhances its maintainability and reliability. Users benefit from a real-time evaluation mechanism that not only helps them recognize areas of improvement but also builds their confidence through realistic interview simulations. Ultimately, MockMate stands as a valuable tool for students, job seekers, and professionals aiming to refine their interview skills in a smart, efficient, and accessible manner, reflecting the potential of AI in transforming conventional learning and assessment methods.

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