A

PROJECT REPORT

ON

"JARVIS"

For

NeoSoft Services

BY

Manish Jangid

Seat No. :10791

UNDER THE GUIDANCE OF

Ms. Kalyani Sahastrabuddhe

SAVITRIBAI PHULE PUNE UNIVERSITY (SPPU)
IN PARTIAL FULFILLMENT OF DEGREE FOR
MASTER OF COMPUTER APPLICATIONS

Dr. D. Y. PATIL UNITECH SOCIETY'S

Dr. D. Y. PATIL INSTITUTE OF MANAGEMENT AND
RESEARCH, PIMPRI, PUNE-18
2023 - 2025

DYP DPU

Dr. D. Y. Patil Unitech Society's
Dr. D.Y. Patil Institute of Management & Research,
Sant Tukaram Nagar, Pimpri, Pune-411018.

Recipient of the "Best College Award" of Savitribai Phule Pune University	Accredited by NAAC with "A++ Grade" (CGPA 3.52)	MBA & MCA Programme Accredited by NBA

CERTIFICATE

This is to certify that **Manish Tulcharam Jangid** has successfully completed the project on **''JARVIS ''**as a partial fulfillment of his **Master of Computer Applications (MCA)** under the curriculum of **Savitribai Phule Pune University, Pune** for the academic year 2024-25

Ms.Kalyani Sahastrabuddhe	Dr. Shikha Dubey	Dr. Vishal Wadajkar
Project Guide	**H.O.D. MCA**	**Director**

Signature	Signature
Name	Name
Internal Examiner	**External Examiner**
Date :	Date :

NEOSOFT SERVICES

INTERNSHIP COMPLETION CERTIFICATE

Dear Mr. **Manish Jangid** **Date: 24th Apr 2025**

This is to certify that **Mr. Manish Tulcharam Jangid** pursuing MCA from Dr. D.Y. Patil Institute of Management and Research, Pune has completed internship with **NeoSoft Services**. He has been working on the project Title : "JARVIS" during this period and also completed the tasks assigned to him as "Software Developer Intern".

The Internship started on **7th January 2025**. The intern has completed the assigned tasks within the mentioned period. The technologies used in the project are as listed below:

Frontend: Next.js (React-based framework)

Database: PostgreSQL (via Drizzle ORM)

API Models: Gemini-2.0-Flash API

We wish him all the Best.

Regards,

For Neosoft Services, Solapur

[illegible]

NEOSOFT SERVICES * SOLAPUR *

Director

ACKNOWLEDGEMENT

The successful completion of my final-year project, **"JARVIS – Job AI Ready Virtual Interview System"**, marks a significant milestone in my academic journey, and I would like to express my heartfelt gratitude to all those who supported and guided me throughout this endeavor.

First and foremost, I am profoundly thankful to **Dr. Vishal Wadajkar (Director)**, and **Dr. Shikha Dubey (Head of Department)** for providing an environment that fosters innovation and research. Their leadership and vision encouraged me to aim higher and push the boundaries of what I could achieve.

I extend my deepest appreciation to my project guide, **Ms. Kalyani sahastrabuddhe**, for her continuous support, insightful feedback, and expert guidance. Her valuable suggestions and mentorship were instrumental in shaping the project and helping me navigate technical challenges with clarity and confidence.

I would also like to thank all the faculty members for their encouragement and for sharing their knowledge, which has been a source of constant learning. A special mention goes to the laboratory staff for their timely help and cooperation during the practical implementation of the system.

A sincere thank you to my friends and fellow students who stood by me during every phase of this journey. Their honest feedback and camaraderie made this process enjoyable and enriching.

Finally, I owe everything to my family, whose unwavering support, patience, and belief in me have been my greatest strength. Their motivation kept me going even in the toughest moments. This project would not have been possible without the collective support of each of these individuals, and I am genuinely grateful to have had them by my side.

YoursSincerely,
Manish Jangid

DECLARATION

This declaration is part of the project work entitled **“JARVIS”** is submitted as part of academic requirement for 4th semester of MCA Management.

I Manish Tulcharam Jangid solely declare that

1. I have not used any unfair means to complete the project.
2. I have followed the discipline and the rules of the organization where I was doing the project.
3. I have not been part of any act which may impact the college reputation adversely.

The information I have given is true, complete and accurate. I understand that failure to give truthful, incomplete and inaccurate information may result in cancellation of my project work.

Yours Sincerely,
Manish Jangid

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<u>Chapter 1: Introduction</u>

Chapter1:Introduction

1.1 Abstract

In today’s competitive job market, performing well in interviewsis a key factor for success. However, not everyone has access to regular mock interviews, professional mentors, or structured practice environments. JARVIS (Job AIReady Virtual Interview System) is a web- based, AI-powered mock interview platform that addresses this gap by offering a smart, automated, and personalized interview simulation system.

This project uses modern technologies like **Next.js**, **PostgreSQL**, and **Drizzle ORM**, combined with AI tools such as **GPT APIs**, to deliver domain-specific questions, evaluate responses, and provide detailed feedback. The system supports role-based question sets, user authentication, performance tracking, and a dashboard-driven experience. It is designed to help students, job seekers, and institutions conduct interview preparation efficiently and effectively.

JARVIS empowers candidates to rehearseinterviews, reduce anxiety, and improve their skills through consistent and intelligent feedback, making it a valuable solution for placement readiness and career growth.

1.2 Company Profile

This project was developed under the guidance and mentorship of Neosoft Services, a recognized software solutions provider established in January 2011. Neosoft Services specializes in Web, Desktop, and Hybrid Mobile Application Development, focusing on innovation, timely delivery, and customer satisfaction.

With a presence in the ever-evolving global tech landscape, Neosoft Services standsout by delivering highly distinct digital identities for its clients. The company prides itself on its innovative vision and standard of excellence, which drives every project — whether for local enterprises or global brands.

The organization aims to make technology a true asset for its clients by thoroughly evaluating business needs and offering robust, scalable, and high-quality software solutions. Their customer-centric approach ensures that every product not only meets but often exceeds expectations in terms of usability, performance, and visual impact.

By integrating modern technologies and following industry best practices, Neosoft Services has built a reputation for delivering innovative solutions.

Website: https://neosoftservices.co.in/

1.3 Existing System and Need for System

Traditional mock interview systems aretypically:

- **Manual and Time-Consuming**: Depend heavily on human evaluators.
- **Subjective**: Feedback is not always consistent or data-driven.
- **Generic**: Often lack role-based customization.
- **Limitedin Analytics**: Donot provide measurableinsights.

Theselimitations make it difficult for candidates to identify weakareas or track progress.

JARVIS solves these problems by automatingthe entire process — from dynamic question generation to feedback delivery. It offers scalability, personalization, and real-time evaluation using AI models, thereby making interview preparation more accessible and effective.

1.4 Scope of System

JARVIS is built for:

- **Students** preparing for campus placements.
- **Job seekers** who want regularmock practice.
- **Institutions** that want to offer interview trainingat scale. It

provides a digital platform where users can:

- Attempt role-specific mock interviews.
- Record and store responses.
- Receive intelligent, structured feedback.

Out of Scope:

- Real-timehuman interviewer interactions.
- Advanced biometric features (e.g., emotion detection, eye tracking).
- Resume based Questions (planned as a future enhancement).

1.5 Operating Environment – Hardware and Software

JARVIS is a web-based platform that can be used across multiple devices and platforms. It uses the following hardware and software configuration:

- **Operating Systems**: Windows 10/11, Linux (Ubuntu), macOS Ventura+
- **Browser Compatibility**: Chrome, Firefox, Edge, Safari
- **Database**: PostgreSQL (relational database), managed using Drizzle ORM
- **Backend Stack**: JavaScript (Next.js API routes), Drizzlefor ORM
- **Frontend Stack**: React(via Next.js), TailwindCSS forstyling

No special hardware is required beyond standard computing devices with internet access and a webcam/microphone for future features.

1.6 Brief Description of Technology Used

The JARVIS mock interview platform is built using a full-stack web development architecture that combines a modern frontend, a serverless backend, AI-powered APIs, and a cloud-based database. Below is a detailed breakdown of the actual technologies used:

1. Next.js(Frontend and API Layer)

JARVISis builtusing **Next.js**, a React-basedframeworkthatpowers both the **frontend interface** and **API routes**. It enables server-side rendering, dynamic routing, and fast performance. Pages like Sign In, Dashboard, Interview Session, and Feedback are all developed using this framework.

2. React.js(UI Components)

React components are used to create dynamic and interactive UI elements such as:

- Interviewquestion cards
- Collapsible feedback per question
- Responsive dashboards

3. Tailwind CSS (Styling)

Tailwind CSS is used for consistent and responsive styling across the platform. It helps create a clean and professional UI for all components including buttons, cards, modals, and feedback sections.

4. React Speech Recognition (Speech-to-Text Hook)

JARVIS integrates react-speech-recognition, a library that uses the browser's Web Speech API to convert spoken responses into text. This allows users to answer interview questions via **voice input**, improving realism and accessibility.

5. Gemini Flash 2.0 API (AI Integration)

Thesystem uses **Gemini Flash 2.0**, a powerfullargelanguagemodel from Google, integrated via API. It performs two key functions:

- **Question Generation**: It dynamically generatesinterview questionsbased on selected roles like "Frontend Developer" or "HR".
- **Answer Analysis**: It analyzes each answer submitted by the user and returns intelligent, structured feedbackfocusingon **clarity, fluency, tone, and relevance**.

This AI integration removes theneed for manually curated question banks and provides personalized feedback at scale.

6. Drizzle ORM (Database Layer)

The backend of JARVIS uses **Drizzle ORM**, a modern TypeScript-based ORM to handle interaction with the database. It provides type-safe schema definitions, smooth query building, and easy migration support.

7. PostgreSQL (Database)

Data such as users, interview sessions, questions, answers, and feedback are stored in a **Neon serverless PostgreSQL database**, making the system scalable and reliable. It allows efficient retrieval and storage of session data and user activity.

Thistech stack ensures JARVISis:

- **AI-powered**
- **Speech-enabled**
- **Fully responsive**
- **Serverless and scalable**

It creates a realistic, engaging, and professional mock interview experience for users preparing for job interviews.

Chapter 2: Proposed System

Chapter 2: Proposed System

2.1 Proposed System

Theproposedsystem, **JARVIS (Job AI Ready Virtual Interview System)**, isan AI-powered mock interview platform designed to simulate real interview environments using modern web technologies. The platform addresses the limitations of traditional mock interview methods by offeringa fully digital, voice-enabled, and intelligent solution for self-practice.

Users can sign up, attempt role-specificinterviews, answer questions by speaking, and receive structured AI feedback. Unlike manual systems, JARVIS offers personalization, instant analysis, and performance tracking, all within an intuitive web interface.

The system is suitablefor students preparing forplacements, professionals preparing for interviews, and institutions wanting to offer mock interview solutions to large batches.

2.2 Feasibility Study

Before development, a detailed feasibility study was conducted across three main aspects:

a. Technical Feasibility

- Thesystem uses **Next.js** forbuilding scalable UIand APIs.
- It integrates with **Gemini Flash 2.0 API** for AI-powered questiongeneration and feedback analysis.
- Uses **React Speech Recognition** for speech-to-text functionality.
- Backend is powered by **Drizzle ORM + PostgreSQL (Neon serverless DB)** for reliable data storage.

Result: Technically feasible with all tools being open-source, documented, and actively supported

b. Operational Feasibility

- Endusers (students and job seekers) can easily access the platform through a web browser.
- The system flow (Login → Start Interview → Answer → Feedback) is intuitive and requires no technical training.
- Admin dashboard is not required for MVP, which reduces operational complexity.

Result: Operationally feasible with a simple onboarding flow.

c. Economic Feasibility

- Development done using free/open-source tools.
- Database hosting on **Neon** (serverless free tier).
- Gemini Flash 2.0 API used via **Google AI Studio** (free tier fordevelopment).
- No need for expensive licenses or infrastructure.

Result: Economically feasible for individual/academic deployment.

2.3 Objectivesof Proposed System

The primary objectives of JARVIS are:

- To providean **automated mock interview experience** forcandidates.
- To generate **role-specific questions** using AI.
- To allow users to **speak answers** and transcribe them using speech-to-text.
- To **evaluate answers** using AI and providereal-time feedback.
- To **track user performance** across multiple sessions.
- To offer a system that is scalable, user-friendly, and intelligent.

2.4 Modules of Proposed System

The JARVIS platform consists of the following core modules:

1. **Authentication Module**
    a. Handles user signup, login, and session management.
2. **Dashboard Module**
    a. Shows existinginterview history.
    b. Allows users to create new interview sessions.
3. **Interview Module**
    a. Generates questions based on the selected role.
    b. Captures answers via text or speech.
    c. Stores responses linked to session ID.
4. **AI Feedback Module**
    a. Sends responses to Gemini Flash 2.0 model.
    b. Receives feedback and scores for each answer.
    c. Stores and displays results for the user.
5. **Feedback Review Module**
    a. Presents feedback in a collapsible question-wise format.
    b. Includes detailed performance insights for each response.
6. **Speech Input Integration**
    a. Uses react-speech-recognition to convert speech to text.
    b. Allows voice-based answering during interviews.
7. **Database Interaction Module**
    a. Uses Drizzle ORM to manage schema and perform CRUD operations on PostgreSQL.

Chapter 3: Analysis and Design

Chapter 3: Analysis and Design

3.1 System Requirements

3.1.1 Functional Requirements

Thesedefine the corefunctionalities that the JARVIS platform must support in order to deliver a seamless mock interview experience:

- **User Registration s Login:**
  The system must provide a secure authentication system, allowing users to register and log in. Users will have their unique profiles where interview history and progress are stored.
- **Interview Creation:**
  Users can create new interview sessions by selecting a predefined role (e.g., Software Developer, HR). Based on the selected role, the system generates role- specific questions dynamically.
- **Dynamic Question Generation**:
  The Gemini API is used to generate interview questions dynamically based on the user's selected role. This feature eliminates the need for static question banks and allows for personalized mock interviews.
- **Answering Questions:**
  Users can answer questions via using speech-to-text (enabled through React Speech Recognition). This allows for a more interactive and realistic interview simulation.
- **Data Storage:**
  Each question, answer, and session metadata (user ID, timestamps, role) must be stored securely in the database for future access. This data can be used for performance tracking and historical review.
- **Feedback Generation:**
  After each interview session, the system should send user answers to the Gemini API for processing and receive feedback, which is then displayed to the user. The feedback will be question-wise, allowing users to review specific responses.
- **Performance Tracking:**
  The system will track key performance metrics such as accuracy, response time, and clarity of answers. Users should be ableto review their performance in previous sessions, making it easy to track progress over time.

3.1.2 Non-Functional Requirements

Theserequirements describe thegeneral properties of the system that ensure it meets quality standards:

- **Performance:**
  The system must load pages and respond to user actionsin a timely manner. This includes quick page loads, fast question rendering, and smooth transitions between different interview phases. APIs must respond in under 3 seconds.

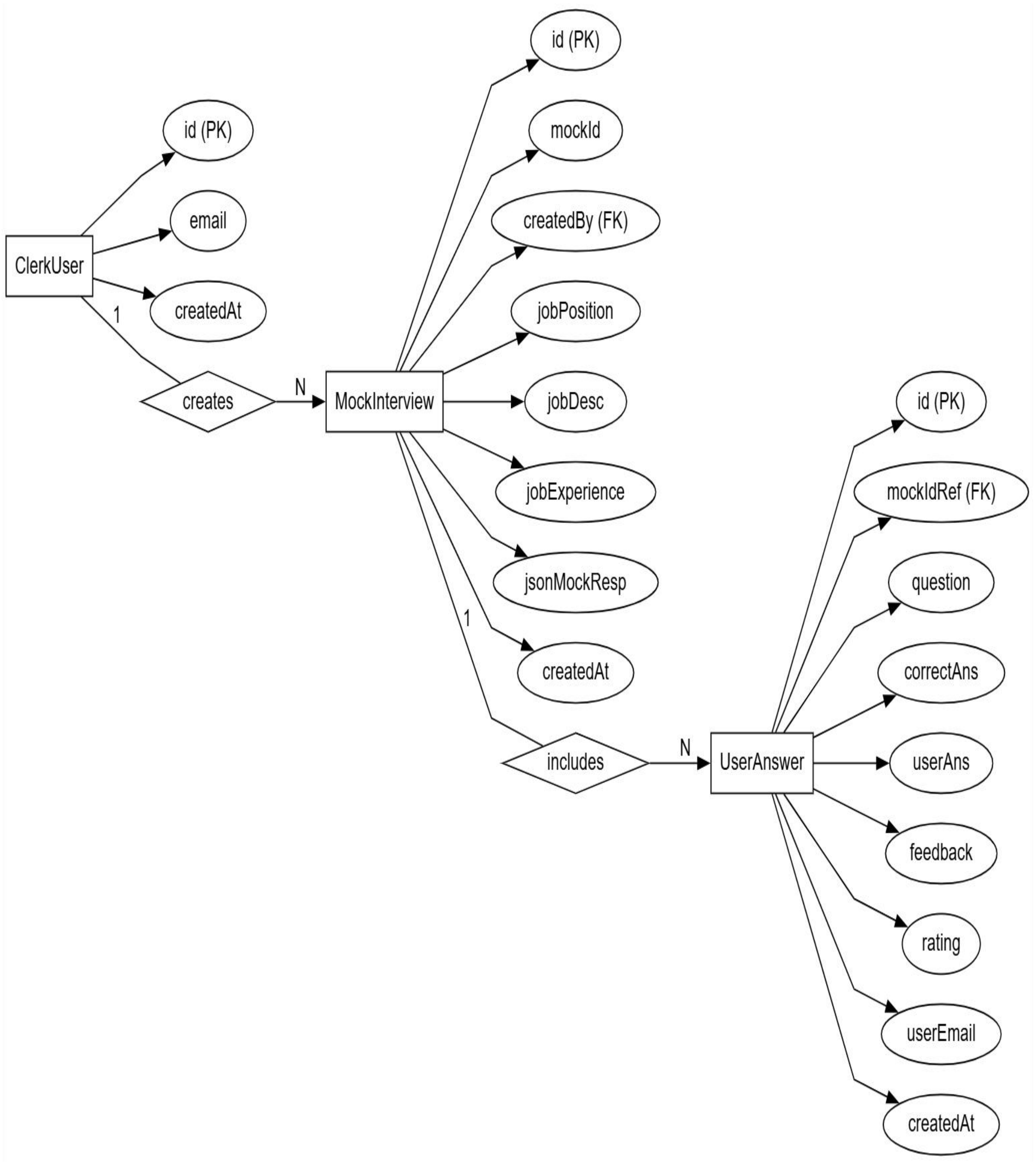
- **Usability:**
  The platform shouldhave a clean and user-friendly interface. Tailwind CSS is used to ensurea consistent, responsive design that works well across devices (mobile, tablet, and desktop). The design should allow users to easily navigate between interviews, feedback, and their performance history.

- **Scalability:**
  The system is designed to handle an increasing number of users and interviews. It is built for serverless deployment using Neon DB for cloud-based storage, making it easy to scale as the user base grows. The backend API is designed for high scalability and availability.

- **Maintainability:**
  The codebase follows best practices for modular development. React components are reusable, and the Drizzle ORM provides a streamlined database interaction.
  This ensures the system can be easily maintained and enhanced with minimal effort as new features are added.

- **Accessibility:**
  The system is browser-compatible, ensuring it works well across all major web browsers (Chrome, Firefox, Safari, Edge). The platform is also designed with accessibility in mind, supporting features like speech-to-text for users with disabilities. A mobile-friendly interface ensures it can be accessed from various devices, providing a seamless experience for all users

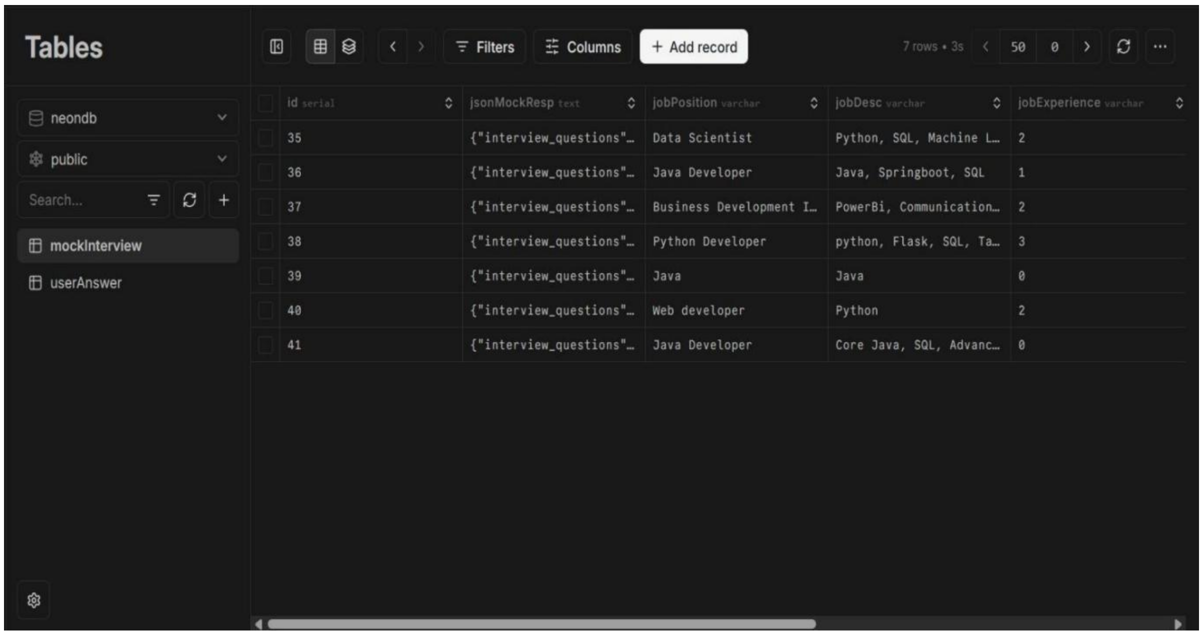
3.2 Entity Relationship Diagram (ERD)



3.3 TableStructure

Table 1: MockInterview

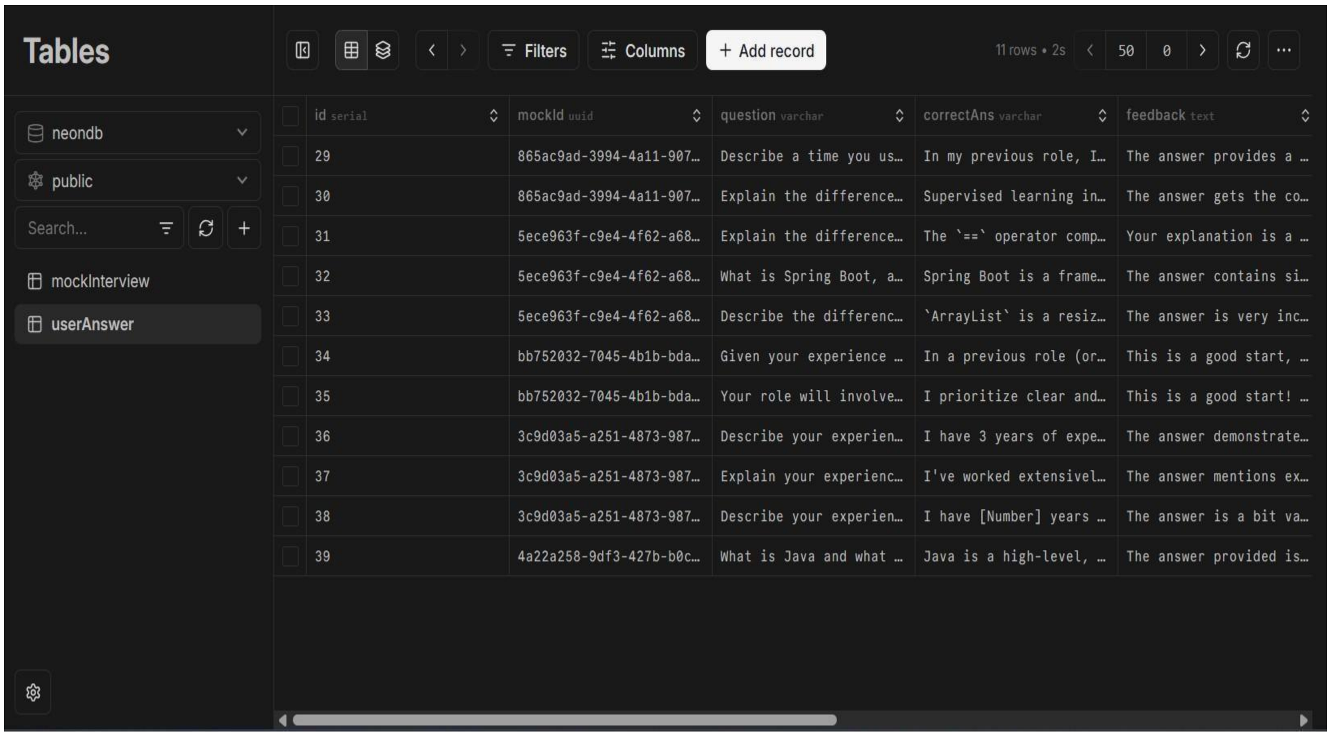
Table: mockInterview	**Type**	**Key**	**Description**
id	SERIAL	PK	Internal surrogateprimarykey
mockId	UUID		Public session identifier (external key)
createdBy	VARCHAR	FK	Clerk user's email (references user)
jobPosition	VARCHAR		Role/position for the mockinterview
jobDesc	VARCHAR		Shortjob description / tech stack
jobExperience	VARCHAR		Yearsof experiencerequired
jsonMockResp	TEXT		JSONblobof AI-generated QCA
createdAt	VARCHAR		Timestamp(YYYY-MM-DDHH:MM:SS)



id serial	jsonMockResp text	jobPosition varchar	jobDesc varchar	jobExperience varchar
35	{"interview_questions"…	Data Scientist	Python, SQL, Machine L…	2
36	{"interview_questions"…	Java Developer	Java, Springboot, SQL	1
37	{"interview_questions"…	Business Development I…	PowerBi, Communication…	2
38	{"interview_questions"…	Python Developer	python, Flask, SQL, Ta…	3
39	{"interview_questions"…	Java	Java	0
40	{"interview_questions"…	Web developer	Python	2
41	{"interview_questions"…	Java Developer	Core Java, SQL, Advanc…	0

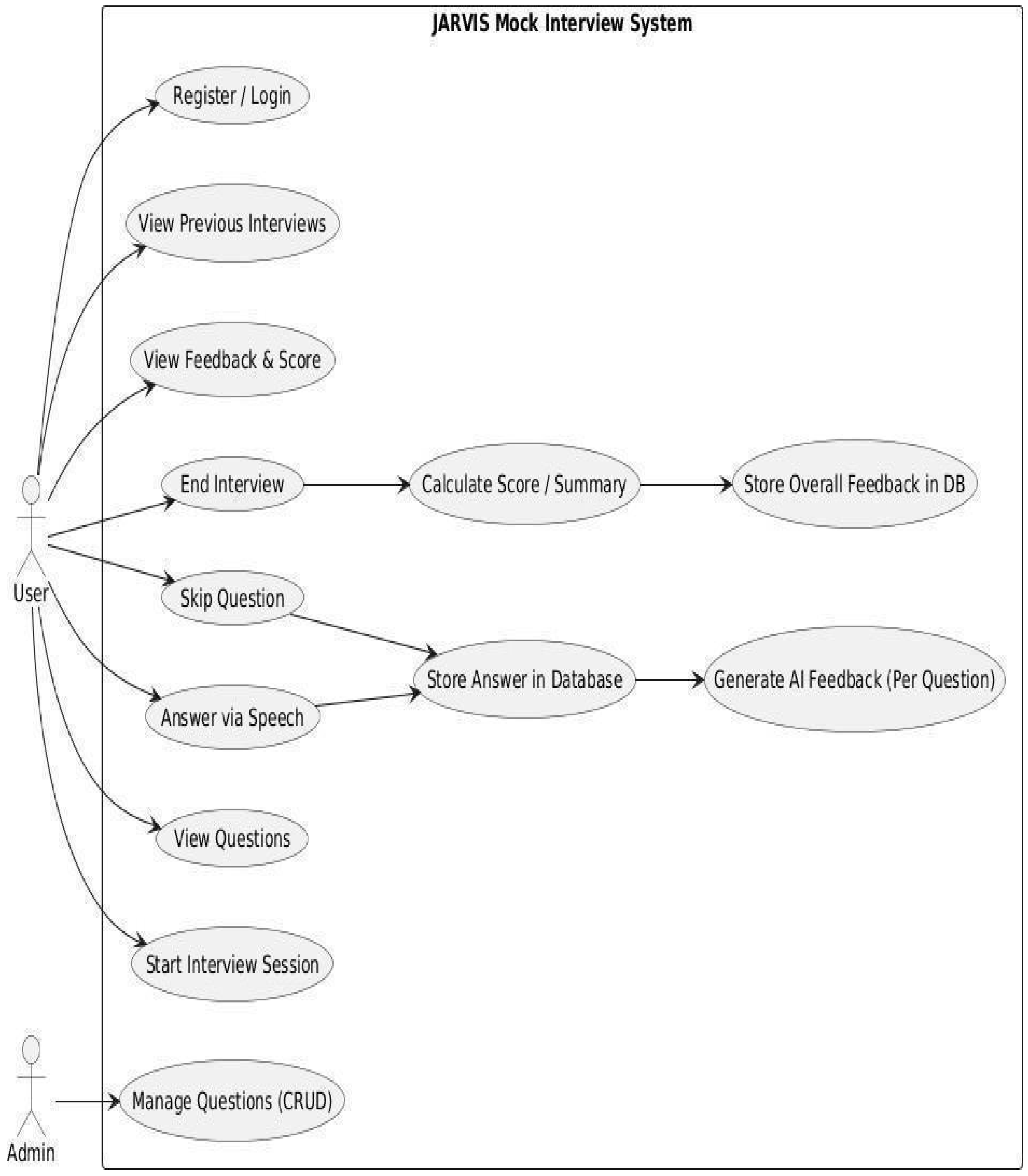
Table 2: UserAnswer

Table: userAnswer	Type	Key	Description
id	SERIAL	PK	Internalsurrogateprimarykey
mockIdRef	UUID	FK	References mockInterview.mockId
question	VARCHAR		Interview questiontext
correctAns	VARCHAR		AI-provided correct answer
userAns	TEXT		User's response (speech-to-text or text)
feedback	TEXT		AI-generatedfeedback
rating	VARCHAR		AI-assignedrating(e.g."8/10")
userEmail	VARCHAR		Clerk user's email who answered
createdAt	VARCHAR		Timestampwhen answer was recorded

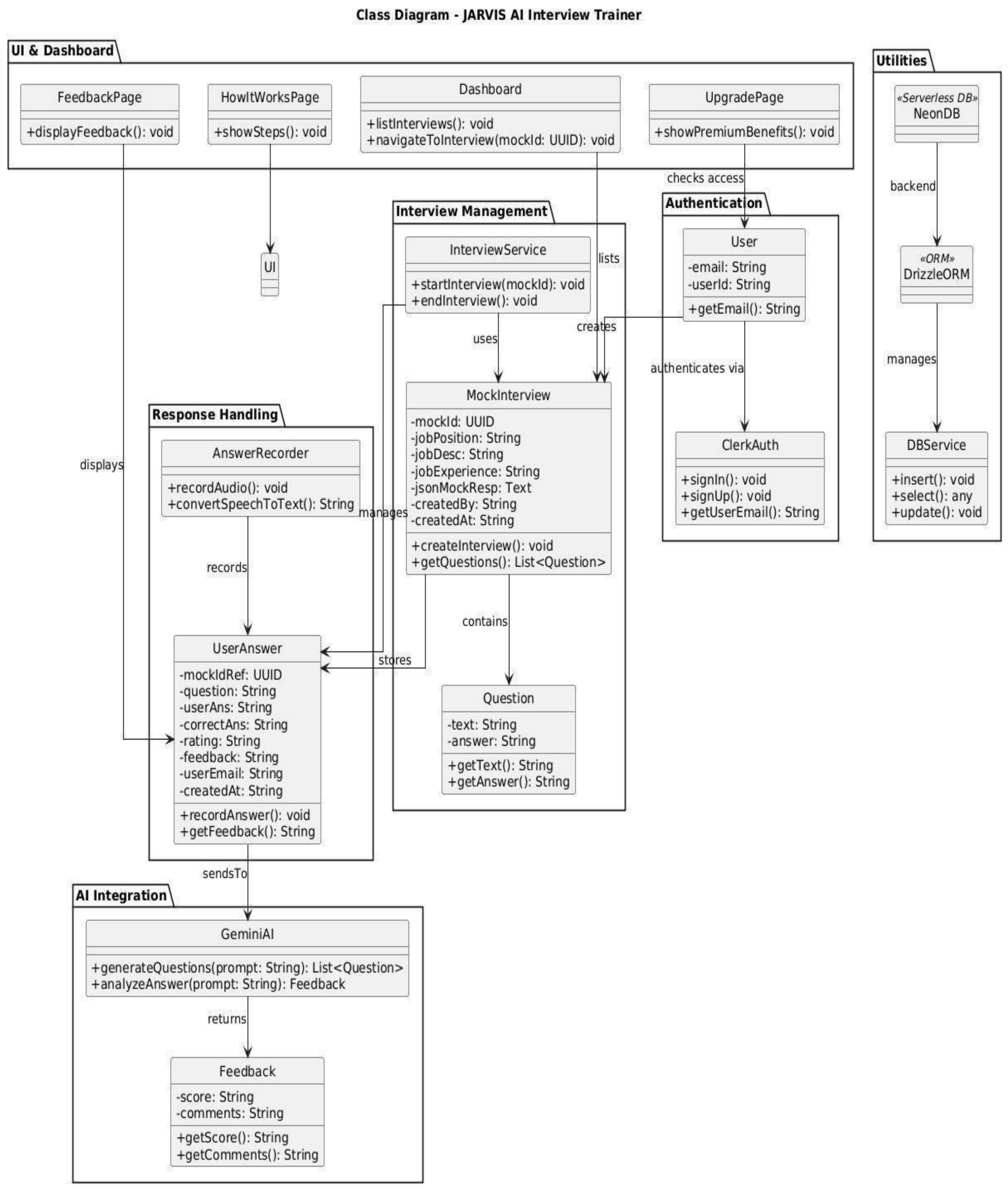


id serial	mockId uuid	question varchar	correctAns varchar	feedback text
29	865ac9ad-3994-4a11-907…	Describe a time you us…	In my previous role, I…	The answer provides a …
30	865ac9ad-3994-4a11-907…	Explain the difference…	Supervised learning in…	The answer gets the co…
31	5ece963f-c9e4-4f62-a68…	Explain the difference…	The `==` operator comp…	Your explanation is a …
32	5ece963f-c9e4-4f62-a68…	What is Spring Boot, a…	Spring Boot is a frame…	The answer contains si…
33	5ece963f-c9e4-4f62-a68…	Describe the differenc…	`ArrayList` is a resiz…	The answer is very inc…
34	bb752032-7045-4b1b-bda…	Given your experience …	In a previous role (or…	This is a good start, …
35	bb752032-7045-4b1b-bda…	Your role will involve…	I prioritize clear and…	This is a good start! …
36	3c9d03a5-a251-4873-987…	Describe your experien…	I have 3 years of expe…	The answer demonstrate…
37	3c9d03a5-a251-4873-987…	Explain your experienc…	I've worked extensivel…	The answer mentions ex…
38	3c9d03a5-a251-4873-987…	Describe your experien…	I have [Number] years …	The answer is a bit va…
39	4a22a258-9df3-427b-b0c…	What is Java and what …	Java is a high-level, …	The answer provided is…

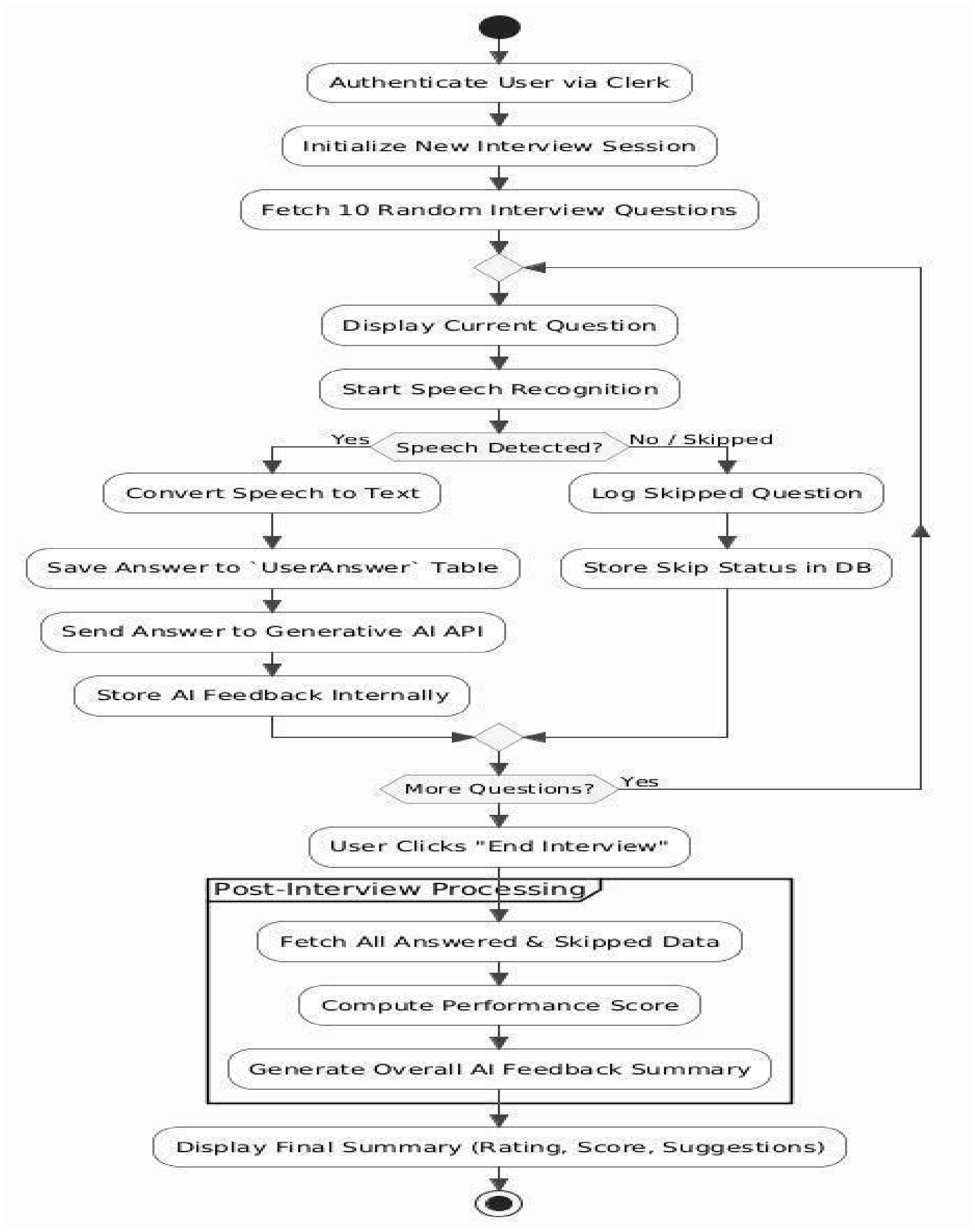
3.4 Use Case Diagram



3.5 Class Diagram

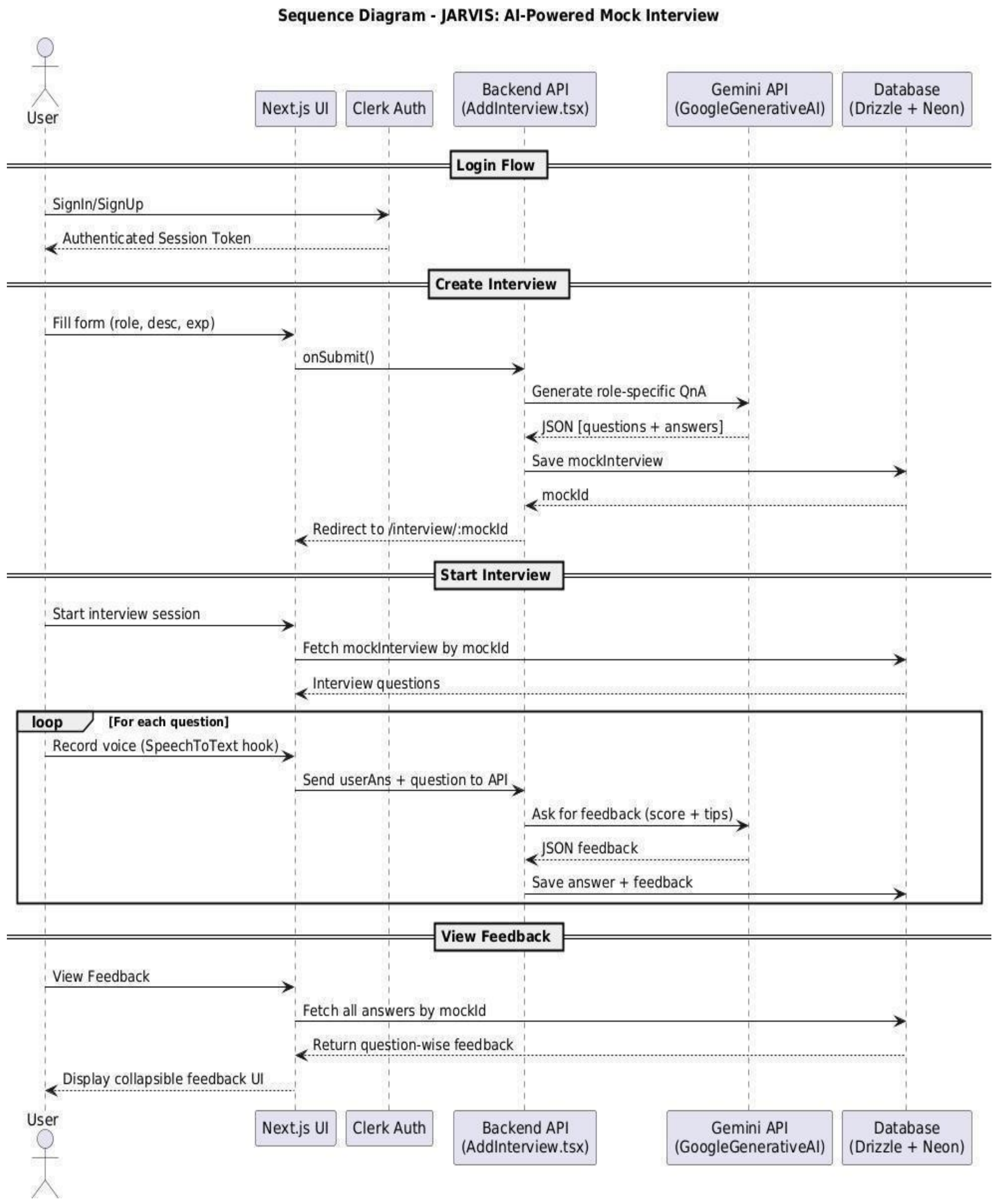


3.6 Activity Diagram



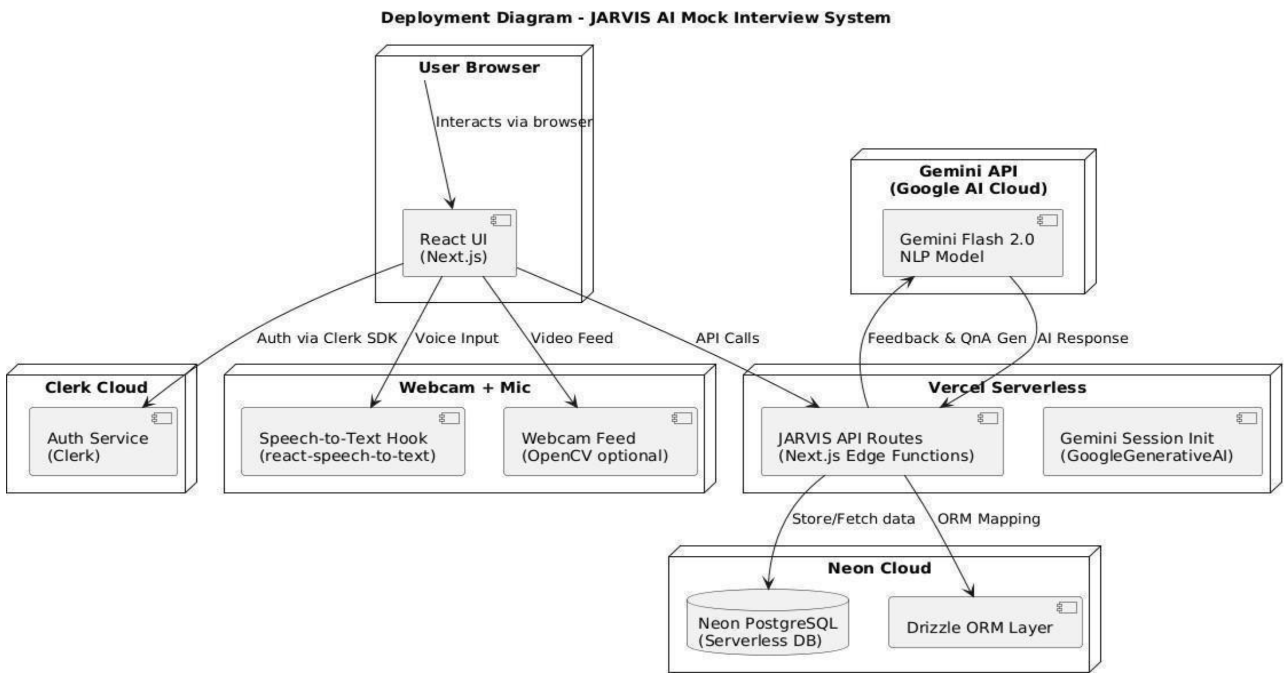
Authenticate User via Clerk
Initialize New Interview Session
Fetch 10 Random Interview Questions
Display Current Question
Start Speech Recognition
Yes
Speech Detected?
No / Skipped
Convert Speech to Text
Log Skipped Question
Save Answer to `UserAnswer` Table
Store Skip Status in DB
Send Answer to Generative AI API
Store AI Feedback Internally
More Questions?
Yes
User Clicks "End Interview"
Post-Interview Processing
Fetch All Answered & Skipped Data
Compute Performance Score
Generate Overall AI Feedback Summary
Display Final Summary (Rating, Score, Suggestions)

3.7 Sequence Diagram

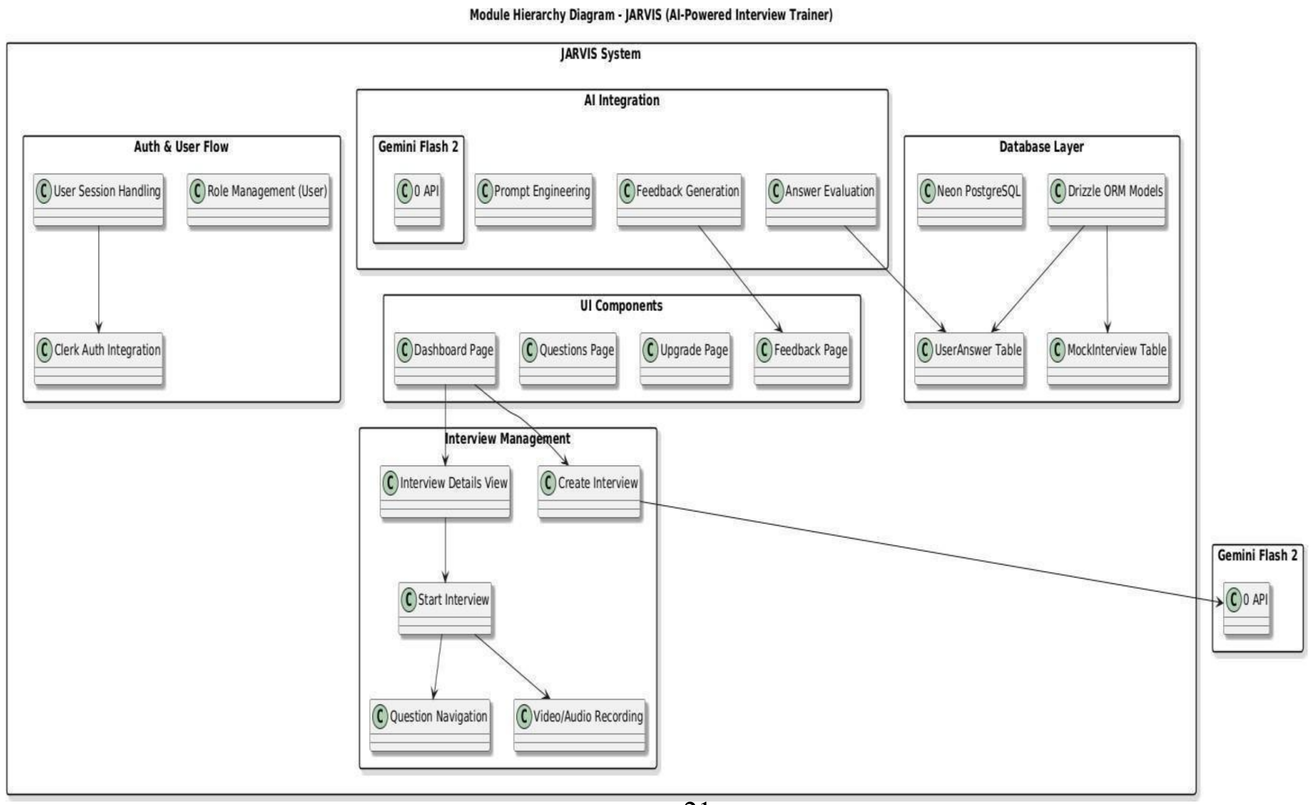


Sequence Diagram - JARVIS: AI-Powered Mock Interview
User
Next.js UI
Clerk Auth
Backend API (AddInterview.tsx)
Gemini API (GoogleGenerativeAI)
Database (Drizzle + Neon)
Login Flow
SignIn/SignUp
Authenticated Session Token
Create Interview
Fill form (role, desc, exp)
onSubmit()
Generate role-specific QnA
JSON [questions + answers]
Save mockInterview
mockId
Redirect to /interview/:mockId
Start Interview
Start interview session
Fetch mockInterview by mockId
Interview questions
loop
[For each question]
Record voice (SpeechToText hook)
Send userAns + question to API
Ask for feedback (score + tips)
JSON feedback
Save answer + feedback
View Feedback
View Feedback
Fetch all answers by mockId
Return question-wise feedback
Display collapsible feedback UI

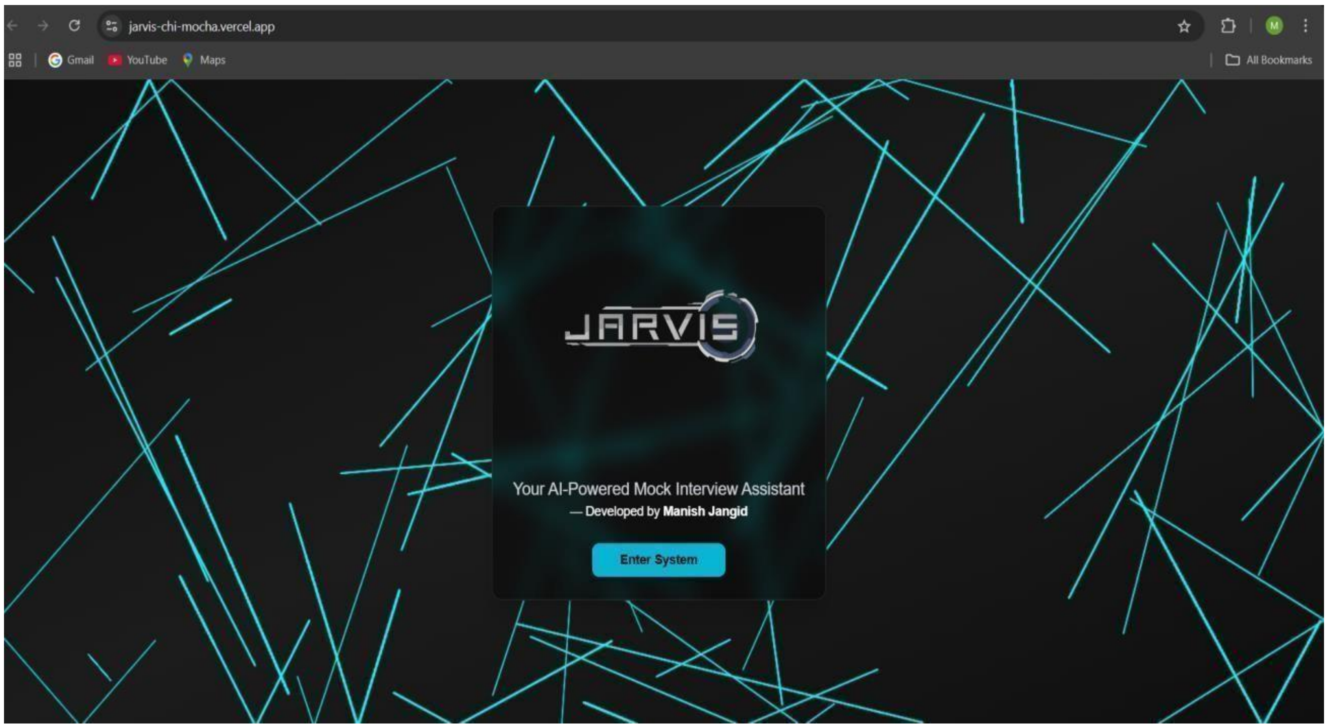
3.8 Deployment Diagram

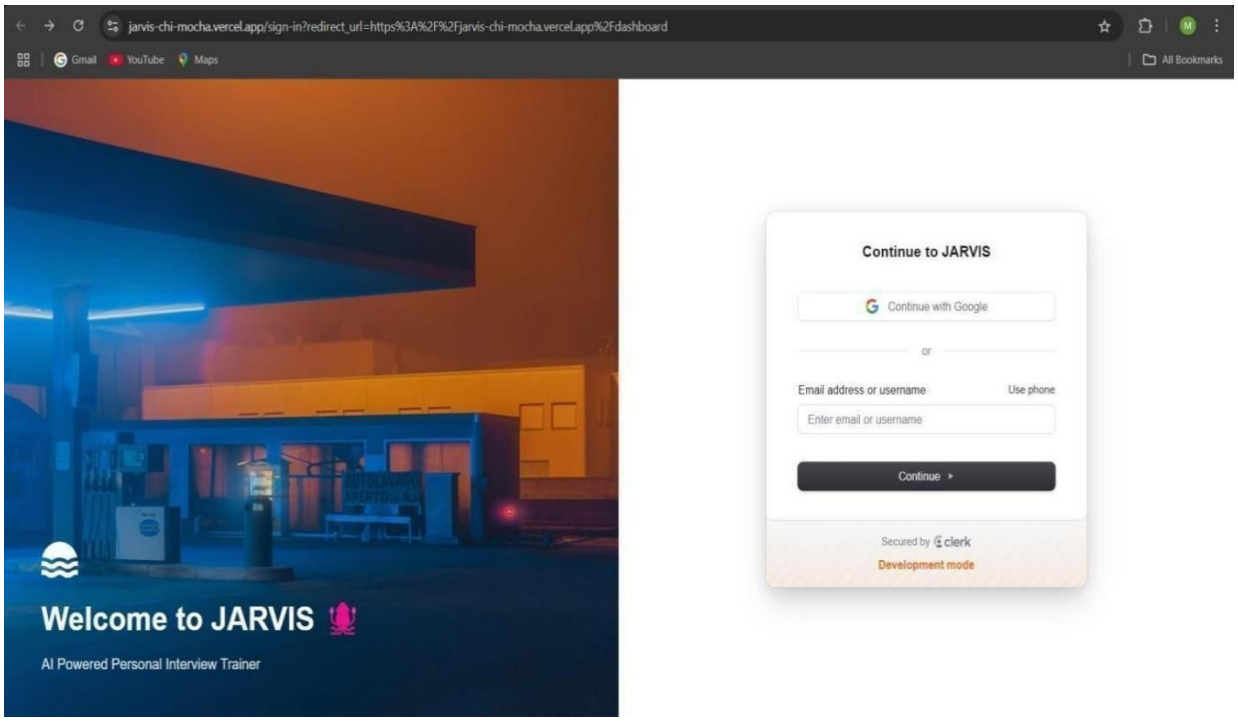

Deployment Diagram - JARVIS AI Mock Interview System
User Browser
Interacts via browser
React UI (Next.js)
Gemini API (Google AI Cloud)
Gemini Flash 2.0 NLP Model
Auth via Clerk SDK
Voice Input
Video Feed
API Calls
Feedback & QnA Gen
AI Response
Clerk Cloud
Auth Service (Clerk)
Webcam + Mic
Speech-to-Text Hook (react-speech-to-text)
Webcam Feed (OpenCV optional)
Vercel Serverless
JARVIS API Routes (Next.js Edge Functions)
Gemini Session Init (GoogleGenerativeAI)
Store/Fetch data
ORM Mapping
Neon Cloud
Neon PostgreSQL (Serverless DB)
Drizzle ORM Layer

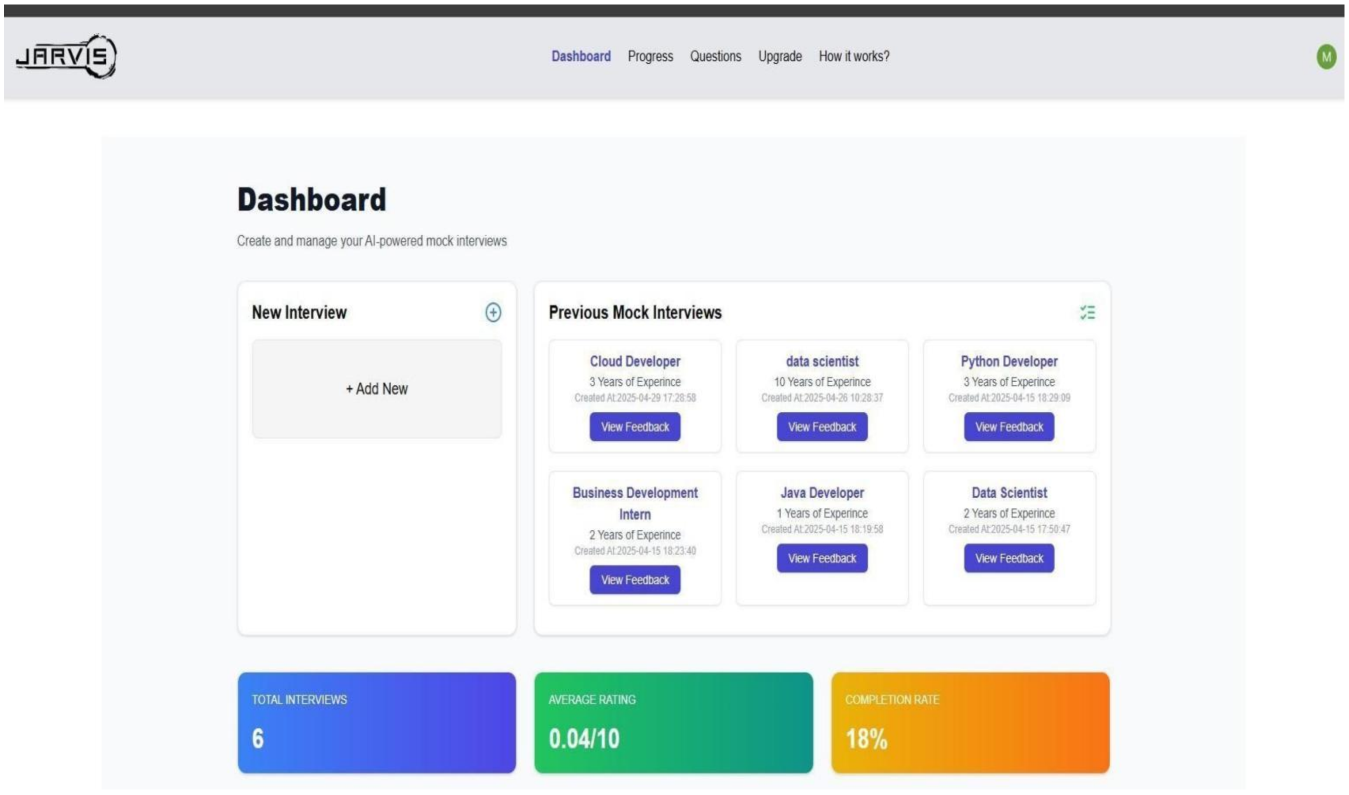
3.9 ModuleHierarchy Diagram



3.10 SampleInput and Output Screens


jarvis-chi-mocha.vercel.app
Gmail
YouTube
Maps
All Bookmarks
JARVIS
Your AI-Powered Mock Interview Assistant
— Developed by Manish Jangid
Enter System


jarvis-chi-mocha.vercel.app/sign-in?redirect_url=https%3A%2F%2Fjarvis-chi-mocha.vercel.app%2Fdashboard
Gmail
YouTube
Maps
All Bookmarks
Welcome to JARVIS
AI Powered Personal Interview Trainer
Continue to JARVIS
Continue with Google
or
Email address or username
Use phone
Enter email or username
Continue
Secured by clerk
Development mode



Dashboard

Create and manage your AI-powered mock interviews

New Interview

+ Add New

Previous Mock Interviews

Cloud Developer
3 Years of Experince
Created At:2025-04-29 17:28:58
View Feedback

data scientist
10 Years of Experince
Created At:2025-04-26 10:28:37
View Feedback

Python Developer
3 Years of Experince
Created At:2025-04-15 18:29:09
View Feedback

Business Development Intern
2 Years of Experince
Created At:2025-04-15 18:23:40
View Feedback

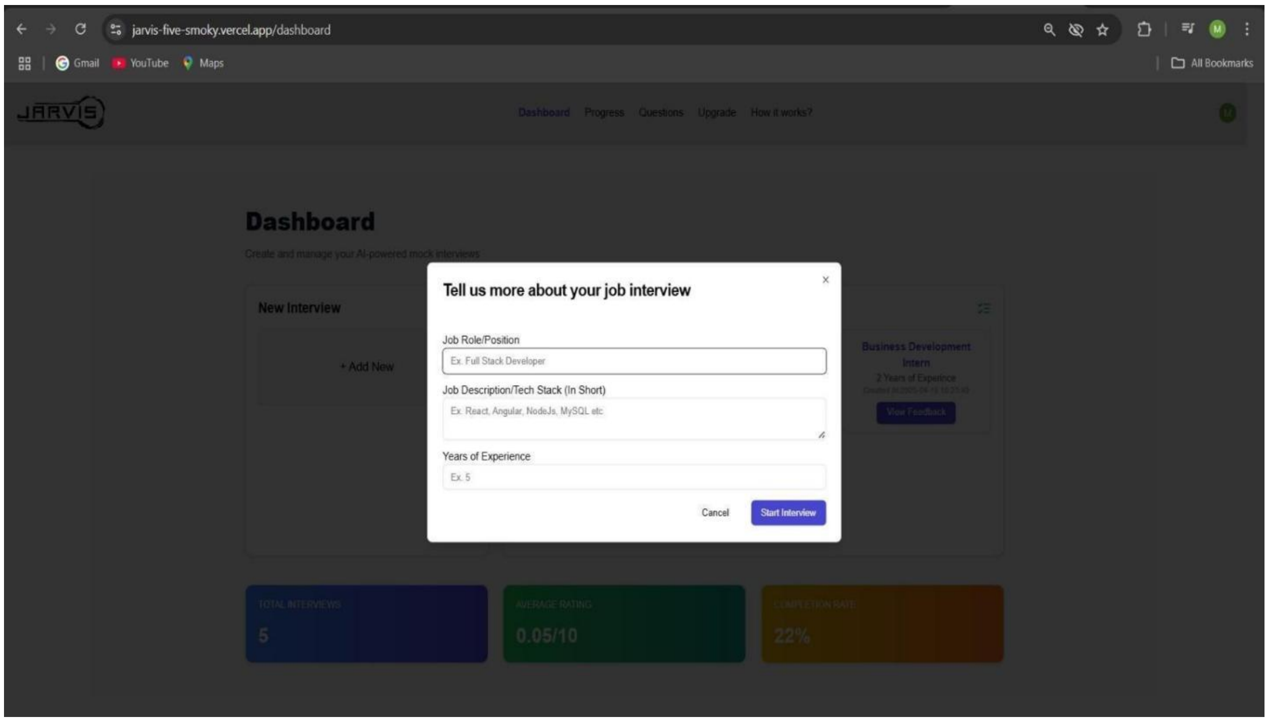
Java Developer
1 Years of Experince
Created At:2025-04-15 18:19:58
View Feedback

Data Scientist
2 Years of Experince
Created At:2025-04-15 17:50:47
View Feedback

TOTAL INTERVIEWS
6

AVERAGE RATING
0.04/10

COMPLETION RATE
18%



Dashboard

Create and manage your AI-powered mock interviews

New Interview

+ Add New

Tell us more about your job interview

Job Role/Position
Ex. Full Stack Developer

Job Description/Tech Stack (In Short)
Ex. React, Angular, NodeJs, MySQL etc

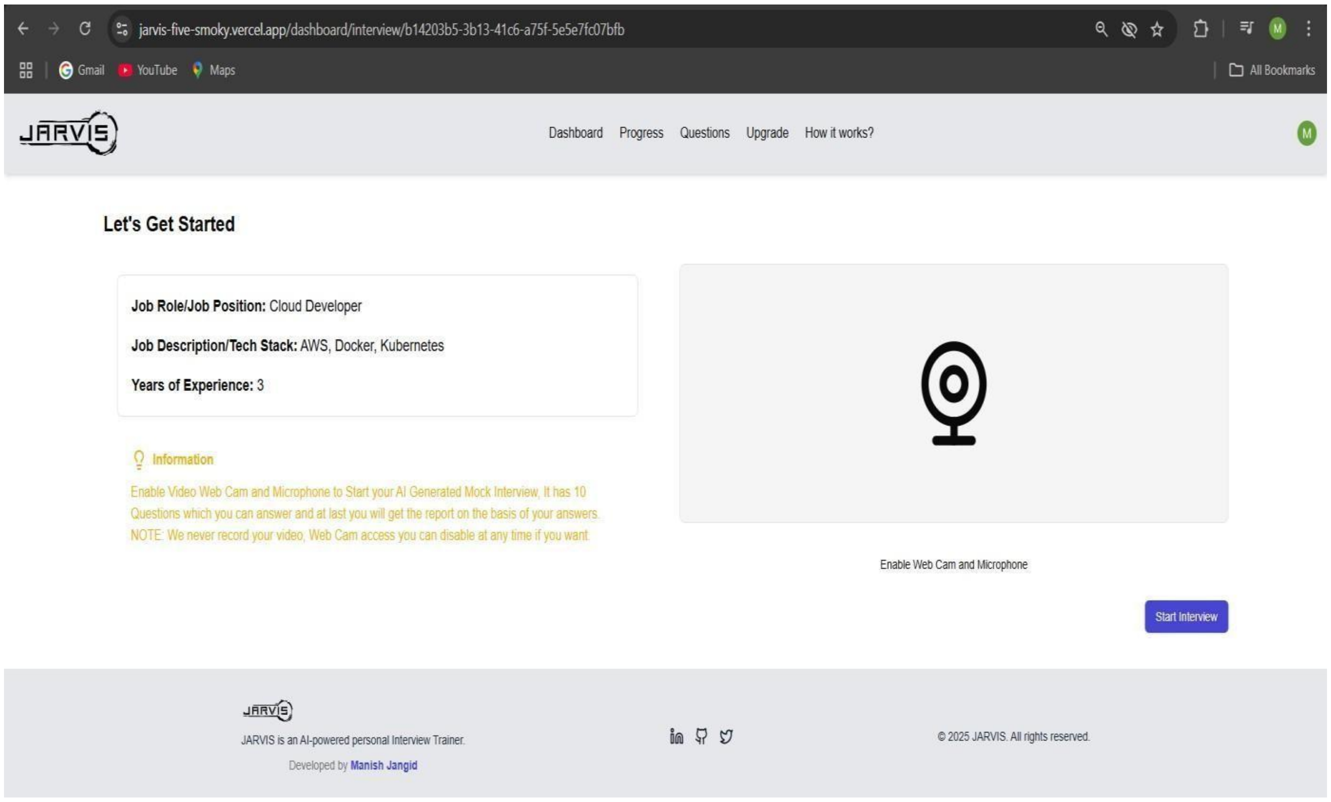
Years of Experience
Ex. 5

Cancel
Start Interview

TOTAL INTERVIEWS
5

AVERAGE RATING
0.05/10

COMPLETION RATE
22%


jarvis-five-smoky.vercel.app/dashboard/interview/b14203b5-3b13-41c6-a75f-5e5e7fc07bfb
Gmail
YouTube
Maps
All Bookmarks
JARVIS
Dashboard
Progress
Questions
Upgrade
How it works?
Enable Web Cam and Microphone
Start Interview

Let's Get Started

Job Role/Job Position: Cloud Developer

Job Description/Tech Stack: AWS, Docker, Kubernetes

Years of Experience: 3

Information

Enable Video Web Cam and Microphone to Start your AI Generated Mock Interview, It has 10 Questions which you can answer and at last you will get the report on the basis of your answers. NOTE: We never record your video, Web Cam access you can disable at any time if you want

JARVIS is an AI-powered personal Interview Trainer.
Developed by Manish Jangid

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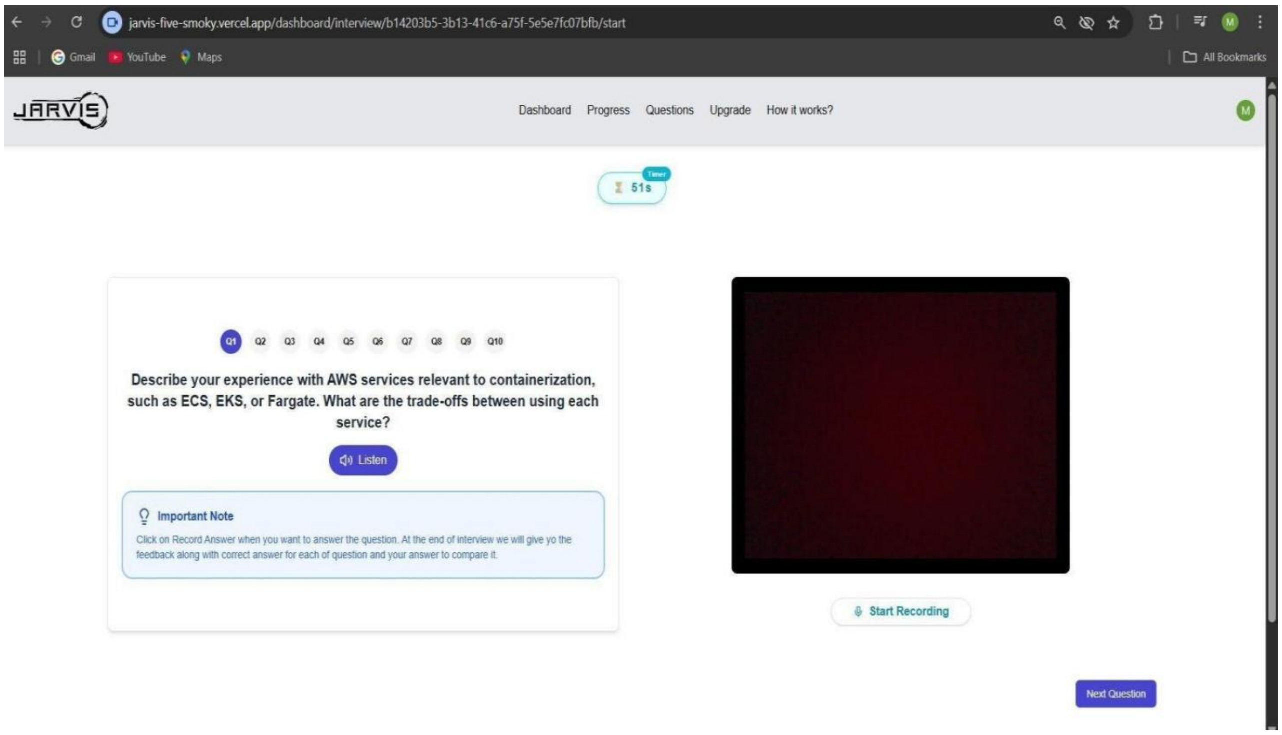
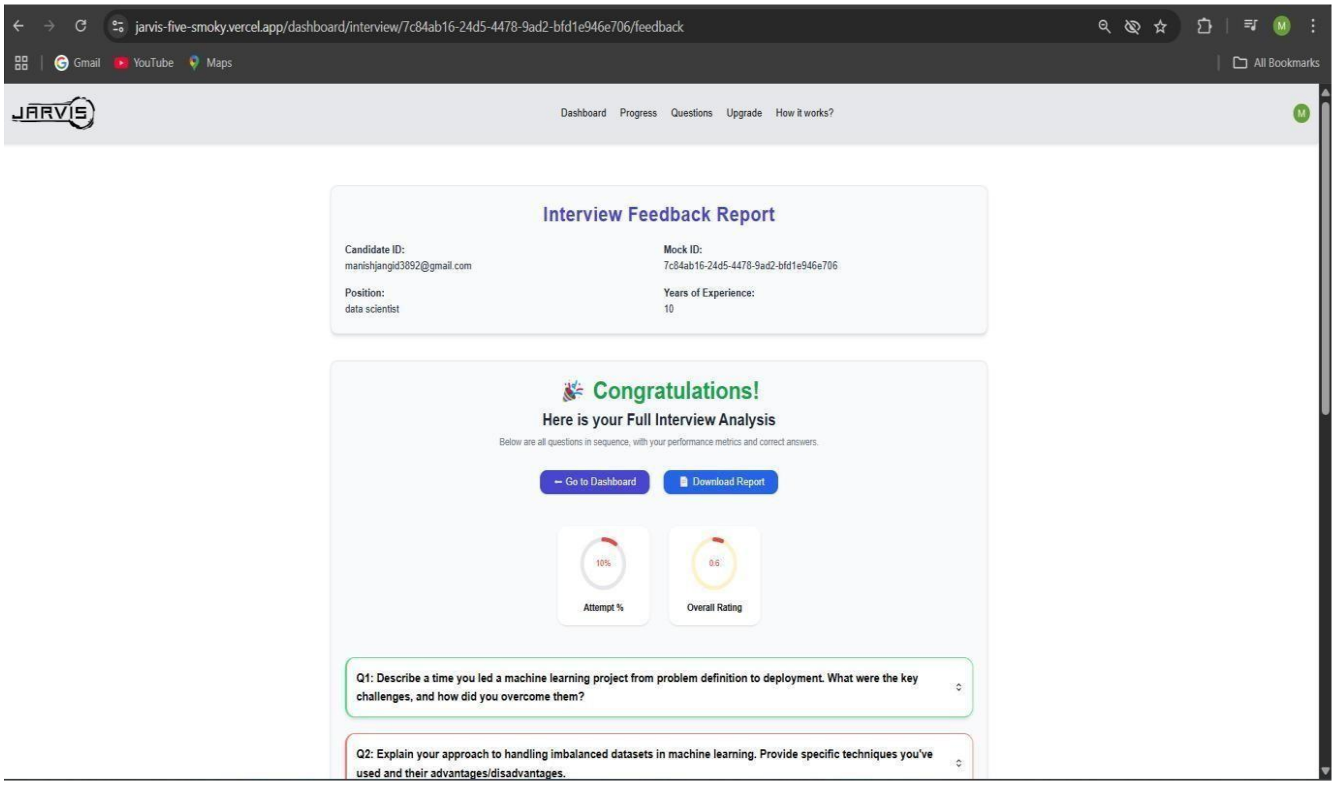


Describe your experience with AWS services relevant to containerization, such as ECS, EKS, or Fargate. What are the trade-offs between using each service?

Important Note

Click on Record Answer when you want to answer the question. At the end of interview we will give yo the feedback along with correct answer for each of question and your answer to compare it.



jarvis-five-smoky.vercel.app/dashboard/interview/7c84ab16-24d5-4478-9ad2-bfd1e946e706/feedback

Dashboard Progress Questions Upgrade How it works?

Interview Feedback Report

Candidate ID: manishjangid3892@gmail.com

Mock ID: 7c84ab16-24d5-4478-9ad2-bfd1e946e706

Position: data scientist

Years of Experience: 10

Congratulations!

Here is your Full Interview Analysis

Below are all questions in sequence, with your performance metrics and correct answers.

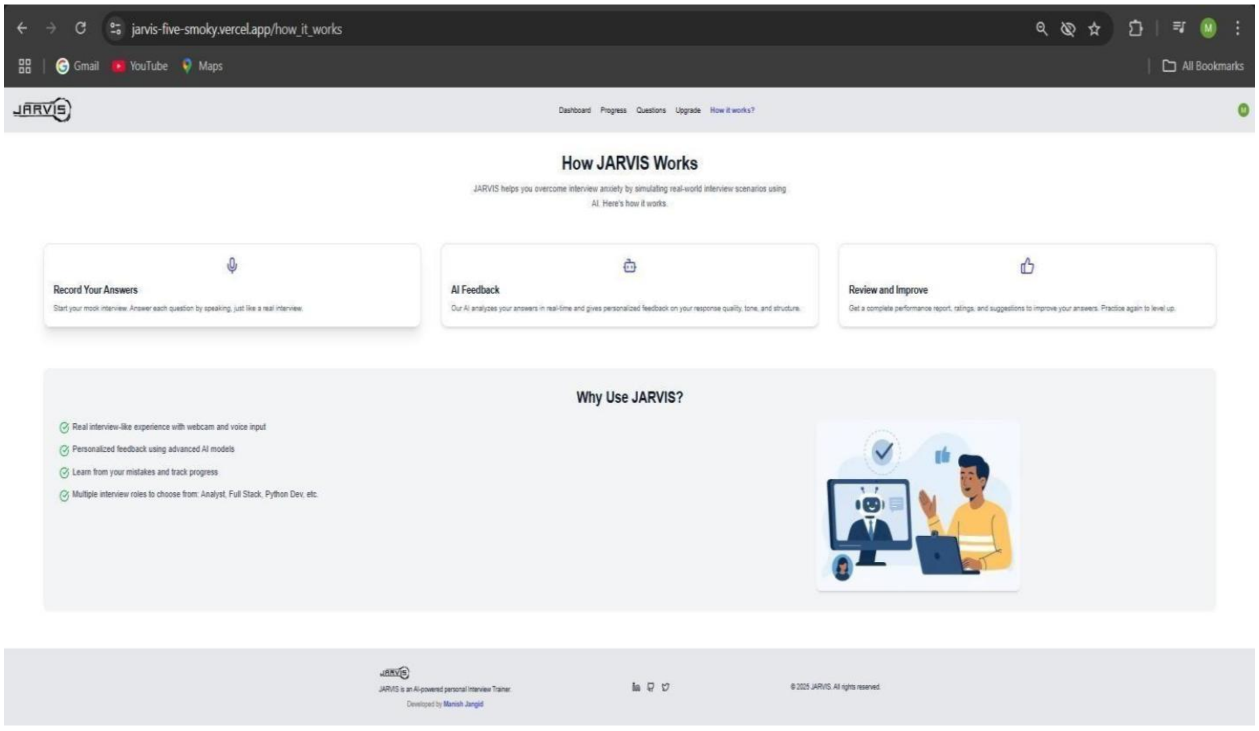
← Go to Dashboard | Download Report

10% Attempt %

0.6 Overall Rating

Q1: Describe a time you led a machine learning project from problem definition to deployment. What were the key challenges, and how did you overcome them?

Q2: Explain your approach to handling imbalanced datasets in machine learning. Provide specific techniques you've used and their advantages/disadvantages.



jarvis-five-smoky.vercel.app/how_it_works

Dashboard Progress Questions Upgrade How it works?

How JARVIS Works

JARVIS helps you overcome interview anxiety by simulating real-world interview scenarios using AI. Here's how it works.

Record Your Answers
Start your mock interview. Answer each question by speaking, just like a real interview.

AI Feedback
Our AI analyzes your answers in real-time and gives personalized feedback on your response quality, tone, and structure.

Review and Improve
Get a complete performance report, ratings, and suggestions to improve your answers. Practice again to level up.

Why Use JARVIS?

- Real interview-like experience with webcam and voice input
- Personalized feedback using advanced AI models
- Learn from your mistakes and track progress
- Multiple interview roles to choose from: Analyst, Full Stack, Python Dev, etc.

JARVIS is an AI-powered personal Interview Trainer.
Developed by Manish Jangid

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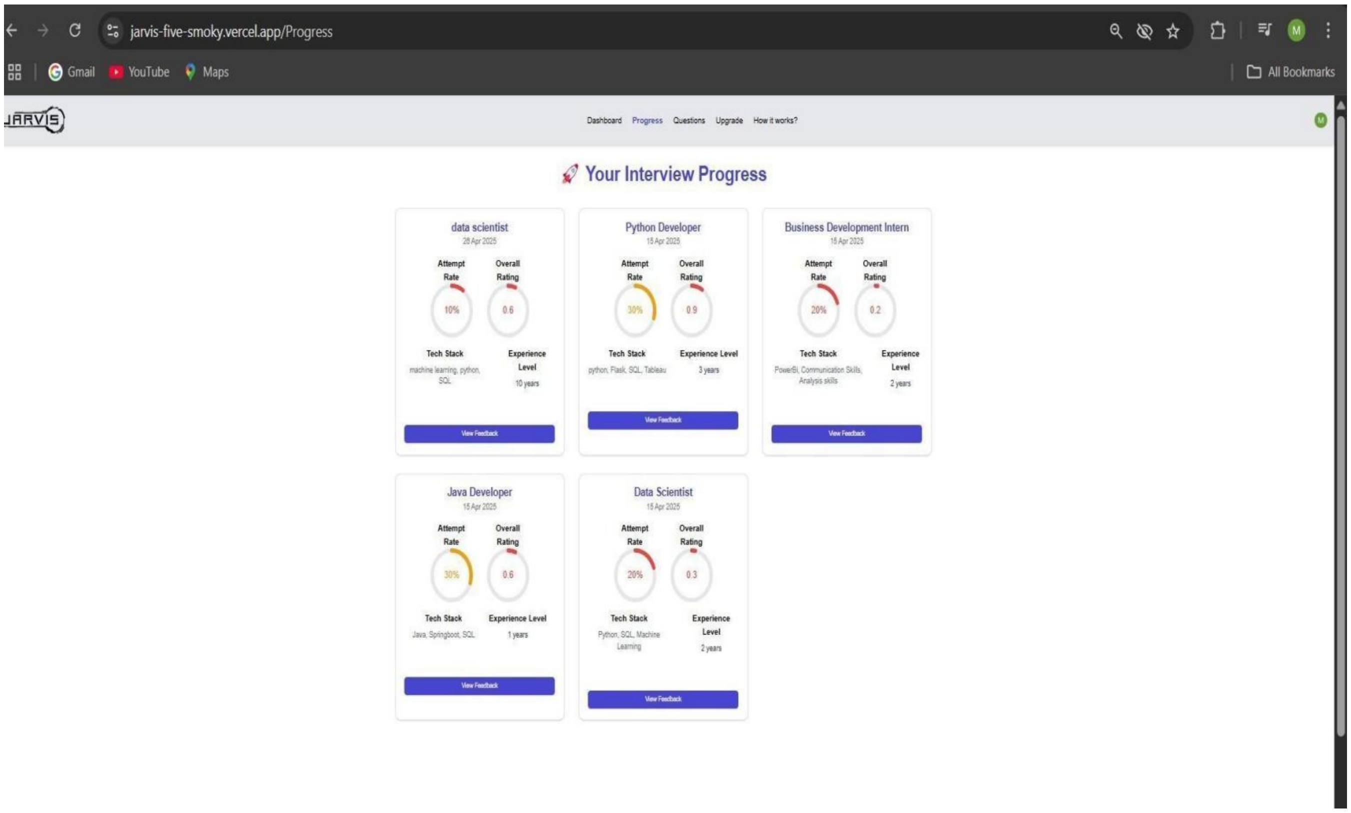


jarvis-five-smoky.vercel.app/Progress

🚀 Your Interview Progress

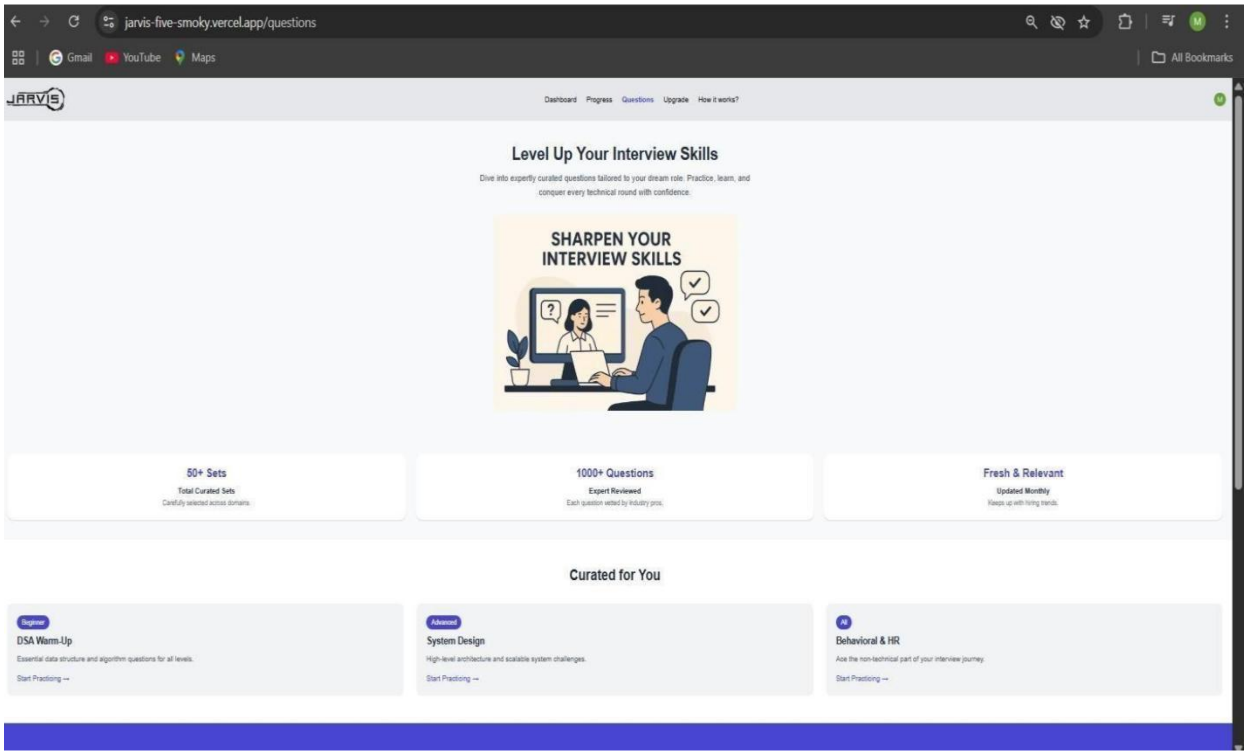
data scientist
28 Apr 2025
Attempt Rate: 10%
Overall Rating: 0.6
Tech Stack: machine learning, python, SQL
Experience Level: 10 years
View Feedback

Python Developer
15 Apr 2025
Attempt Rate: 30%
Overall Rating: 0.9
Tech Stack: python, Flask, SQL, Tableau
Experience Level: 3 years
View Feedback

Business Development Intern
15 Apr 2025
Attempt Rate: 20%
Overall Rating: 0.2
Tech Stack: PowerBi, Communication Skills, Analysis skills
Experience Level: 2 years
View Feedback

Java Developer
15 Apr 2025
Attempt Rate: 30%
Overall Rating: 0.6
Tech Stack: Java, Springboot, SQL
Experience Level: 1 years
View Feedback

Data Scientist
15 Apr 2025
Attempt Rate: 20%
Overall Rating: 0.3
Tech Stack: Python, SQL, Machine Learning
Experience Level: 2 years
View Feedback



jarvis-five-smoky.vercel.app/questions

Level Up Your Interview Skills

Dive into expertly curated questions tailored to your dream role. Practice, learn, and conquer every technical round with confidence.

50+ Sets
Total Curated Sets
Carefully selected across domains.

1000+ Questions
Expert Reviewed
Each question vetted by industry pros.

Fresh & Relevant
Updated Monthly
Keeps up with hiring trends.

Curated for You

Beginner
DSA Warm-Up
Essential data structure and algorithm questions for all levels.
Start Practicing →

Advanced
System Design
High-level architecture and scalable system challenges.
Start Practicing →

All
Behavioral & HR
Ace the non-technical part of your interview journey.
Start Practicing →

Chapter 4: Coding

Chapter4:Coding

4.1 Code Snippets

This section provides an overview of the core code implementations used to bring the JARVIS mock interview system to life. The code is written using modern technologies such as React.js, Next.js, Drizzle ORM, Neon DB, Gemini AI API, and Clerk for authentication.

4.1.1 DatabaseConfiguration using Drizzle ORM

```
// db.js

import{ neon} from '@neondatabase/serverless'; import

{ drizzle } from 'drizzle-orm/neon-http'; import * as

schema from './schema';

constsql=neon(process.env.NEXT_PUBLIC_DRIZZLE_DB_URL);

export const db = drizzle(sql,{schema} );
```

4.1.2 UserAnswer and MockInterview Table Schema

```
// schema.js

import { pgTable, serial, text, varchar, uuid, timestamp } from 'drizzle-orm/pg-core';

export const MockInterview = pgTable('mockInterview', {
   id: serial('id').primaryKey(),
   mockId: uuid('mockId').defaultRandom(),
   jsonMockResp: text('jsonMockResp').notNull(),
   jobPosition: varchar('jobPosition').notNull(),
   jobDesc: varchar('jobDesc').notNull(),
   jobExperience: varchar('jobExperience').notNull(),
   createdBy: varchar('createdBy').notNull(),
   createdAt:varchar('createdAt')
});

export const
   UserAnswer=pgTable('userAnswer',{ id:serial('i
   d').primaryKey(),
   mockIdRef:uuid('mockId').notNull(),
   question:varchar('question').notNull(),
   correctAns:varchar('correctAns'),
   userAns:text('UserAns'),
   feedback:text('feedback'),
   rating:varchar('rating'),
   userEmail:varchar('userEmail'),
   createdAt:varchar('createdAt')
});
```

4.1.3 Gemini AI Integration

```
// GeminiAIModel.js

import{ GoogleGenerativeAI } from"@google/generative-ai"; export

function initializeChatSession() {

  constapiKey=process.env.NEXT_PUBLIC_GEMINI_API_KEY;

  if (!apiKey) {

    console.error(" APIKey is missing. MakesureNEXT_PUBLIC_GEMINI_API_KEY is set
in .env.local");

    return                    null;}

  constgenAI=newGoogleGenerativeAI(apiKey);

  constmodel= genAI.getGenerativeModel({ model:"gemini-2.0-flash"});


  returnmodel.startChat({ generationConfig:

      { temperature: 1,

      topP: 0.95,

      topK: 40,

      maxOutputTokens: 8192, responseMimeType:

      "text/plain",

    },

  });

}
```

4.1.4 Clerk Authentication in RootLayout

```
// layout.js

import { Geist, Geist_Mono } from "next/font/google";

import { ClerkProvider } from "@clerk/nextjs";

import "./globals.css";
import dynamic from 'next/dynamic';
import { Toaster } from "@/components/ui/sonner";

const geistSans = Geist({ variable: "-

 -font-geist-sans", subsets: ["latin"],

});
constgeistMono=

 Geist_Mono({ variable: "--font-

 geist-mono", subsets: ["latin"],

});
exportconstmetadata= { title:

 "Create Next App",

 description: "Generated by createnext app",

};
export default function RootLayout({ children }) { return (

   <ClerkProvider>

   <html lang="en">

    <body

      className={`${geistSans.variable} ${geistMono.variable} antialiased`}

    >

    <Toaster />

     {children}

        </body>

   </html>
```

```
  </ClerkProvider>
)}
```

4.1.5 Start Interview: AI Question Generation s JSON Parsing

```
//Start Interview.jsx

"use client";
import React, { use, useEffect, useState } from 'react'
import { useParams } from "next/navigation"; // ✅ Import useParams() instead of props
import { MockInterview } from "@/utils/schema";
import { db } from "@/utils/db";
import { eq } from "drizzle-orm";
import RecordAnswerSection from './_components/RecordAnswerSection';
import QuestionsSection from './_components/QuestionsSection';
import { Button } from '@/components/ui/button';
import Link from "next/link";


function StartInterview() {
const params = useParams(); // ✅ Get params from Next.js
const interviewId = params?.interviewId || "";
const [interviewData, setInterviewData] = useState();
const [mockInterviewQuestion,setMockInterviewQuestion] = useState([]);
const [activeQuestionIndex,setActiveQuestionIndex] = useState(0);
const [timeLeft, setTimeLeft] = useState(60); // 60 seconds for each question
const [questionsAttempted, setQuestionsAttempted] = useState(0);



useEffect(() => {
   if (!interviewId || typeof interviewId !== "string")
      {        console.warn("Invalid         interviewId:",
      interviewId); return;
   }
   console.log("Fetching interview for ID:", interviewId);
   GetInterviewData(interviewId);
}, [interviewId]);

useEffect(() => {
   setTimeLeft(60); // Reset timer on new question
 }, [activeQuestionIndex]);

 useEffect(() => {
   if (timeLeft === 0) {
     if (activeQuestionIndex < mockInterviewQuestion.length - 1)
       { setActiveQuestionIndex((prev) => prev + 1); // Move to next question
     }
   }
   const timer = setTimeout(() => {
}, 1000);

      return () => clearTimeout(timer);
    }, [timeLeft]);


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

          if (result.length === 0) {
              console.warn(" No interview found for this ID.");
              return;
          }

          console.log("✅ Fetched Interview Details:", result[0]);

          let jsonMockResp;
          try {
              jsonMockResp = result[0]?.jsonMockResp ? JSON.parse(result[0].jsonMockResp) : null;
          } catch (error) {
              console.error("❌ Error parsing JSON:", error);
              return;
          }

          if (!jsonMockResp || Object.keys(jsonMockResp).length === 0)
              { console.error("❌ jsonMockResp is empty or invalid:", jsonMockResp);
              return;
          }

          if (!Array.isArray(jsonMockResp.interview_questions)) {
              console.error("❌ interview_questions is missing or not an array:", jsonMockResp);
              return;
          }

          console.log("✅ Valid interview questions found:", jsonMockResp.interview_questions);
          setMockInterviewQuestion(jsonMockResp.interview_questions);
          setInterviewData(result[0]);

      } catch (error) {
          console.error("❌ Error fetching interview:", error);
    {/* Timer Section */}
<div className="flex items-center justify-center my-4">
  <div className={`relative px-5 py-2 rounded-full shadow-md border ${timeLeft <= 10 ? "border-red-
500 bg-red-50 animate-pulse" : "border-cyan-400 bg-cyan-50"}`}>

    <h2 className={`text-sm md:text-base font-semibold tracking-widest ${timeLeft <= 10 ? "text-red-
600" : "text-cyan-600"}`}>
      ⌛ {timeLeft < 10 ? `0${timeLeft}` : timeLeft}s
    </h2>

    <div className={`absolute -top-2 -right-2 text-[10px] px-2 py-0.5 rounded-full font-bold shadow
${timeLeft <= 10 ? "bg-red-500 text-white" : "bg-cyan-500 text-white"}`}>
      Timer
    </div>

  </div>
</div>

    {/* Main Sections */}
    <div className="grid grid-cols-1 md:grid-cols-2 gap-10">
      <QuestionsSection
        mockInterviewQuestion={mockInterviewQuestion}
        activeQuestionIndex={activeQuestionIndex}
      />
      <RecordAnswerSection
        mockInterviewQuestion={mockInterviewQuestion}
        activeQuestionIndex={activeQuestionIndex}
        interviewData={interviewData}
        onAnswerRecorded={() => setQuestionsAttempted(prev => prev + 1)} //
        questionsAttempted={questionsAttempted} //    optional if needed
      />
    </div>

    {/* Navigation Buttons */}
    <div className="flex justify-end gap-6 mt-10">
      {activeQuestionIndex !== mockInterviewQuestion.length - 1 && (
        <Button onClick={() => setActiveQuestionIndex(activeQuestionIndex + 1)}>
          Next Question
        </Button>
      )}
      {activeQuestionIndex === mockInterviewQuestion?.length - 1 && interviewData?.mockId && (
 <Button
 disabled={questionsAttempted < 0} // Minimum 2 questions must be attempted
 onClick={() => {
   if (questionsAttempted < 2) {
     alert(`Please attempt at least 2 questions before ending the interview.`);
     return;
   }
  {/* Use Link to wrap the Button when conditions are met */}
  {questionsAttempted >= 2 ? (
   <Link href={`/dashboard/interview/${interviewData.mockId}/feedback`}>
     End Interview
   </Link>
  ) : (
   "End Interview"
  )}
</Button>
)}

      </div>

    </div>
  );

}

export default StartInterview
```

4.1.6 Recording Answer with Speech-to-Text

```
//RecordAnswerSection.jsx

"use client";
import React, { useEffect, useState } from "react";
import Image from "next/image";
import WebCam from "react-webcam";
import { Button } from "@/components/ui/button";
import useSpeechToText from "react-hook-speech-to-text";
import { Mic } from "lucide-react";
import { toast } from "sonner";
import { useUser } from "@clerk/nextjs";
import { db } from "@/utils/db";
import moment from "moment";
import { initializeChatSession } from "@/utils/GeminiAIModel";
import { UserAnswer } from "@/utils/schema"; // ✅ Importing Drizzle ORM schema
import { MockInterview } from "@/utils/schema";

function RecordAnswerSection({ mockInterviewQuestion, activeQuestionIndex, interviewData,
onAnswerRecorded }) {
  const [userAnswer, setUserAnswer] = useState("");
  const { user } = useUser();
  const [loading, setLoading] = useState(false);
  const {
    error,
    interimResult,
    isRecording,
    results,
    startSpeechToText,
    stopSpeechToText,
    setResults,
  } =
    useSpeechToText({ continuo
    us: true, useLegacyResults:
    false,
  });

  useEffect(() => {
    if (results.length > 0) {
      setUserAnswer(results.map((r) => r.transcript).join(" "));
    }
  }, [results]);

  useEffect(() => {
    if (!isRecording && userAnswer?.length > 10)
      { UpdateUserAnswer();
    }
  }, [userAnswer])
  const StartStopRecording = async () => {
    if (isRecording)
      { stopSpeechToText
      ();
    } else
      { startSpeechToText
      ();
    }
  };

  const UpdateUserAnswer = async () =>
    { console.log(" User Answer:", userAnswer);
    setLoading(true);
    const feedbackPrompt = `Question: ${mockInterviewQuestion[activeQuestionIndex]?.question},
      User Answer: ${userAnswer},
      Provide a JSON response with "rating"(out of 10) and "feedback" fields.`;

    try {
      const chatSession = initializeChatSession(); // ✅ Initialize AI Chat Session
      if (!chatSession) throw new Error("AI Chat session initialization failed");

      const result = await chatSession.sendMessage(feedbackPrompt);
      let mockJsonResp = result.response.text();

      console.log("Raw AI Response:", mockJsonResp);

      // Clean the response by removing unwanted characters and ensuring proper JSON format
      mockJsonResp = mockJsonResp.replace(/```json|```/g, '').trim();

      try {
        // Attempt to parse the cleaned JSON
        const JsonFeedbackResp = JSON.parse(mockJsonResp);

        // ✅ Insert into database using Drizzle ORM
        await
        db.insert(UserAnswer).values({ mockIdRe
        f: 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("YYYY-MM-DD HH:mm:ss"),
```

```
        setUserAnswer("");
        setResults([]);

        if (onAnswerRecorded) {
          onAnswerRecorded(); //     Increase attempted questions after success
        }


      } catch (jsonParseError) {
        console.error("❌ Invalid JSON format:", jsonParseError);
        toast.error("Failed to parse AI response. Please try again.");
      }
    } catch (error) {
      console.error("❌ Error Updating Answer:", error);
      toast.error("Something went wrong!");
    }
    setLoading(false);
  };

  return (
    <div className="flex items-center justify-center flex-col">
      <div className="flex flex-col mt-20 justify-center items-center bg-black rounded-lg p-5">
        <Image src={"/WebCam.png"} width={300} height={300} className="absolute" alt="WebCam" />
        <WebCam
          mirrored={true}
          style={{ height:
          350,
            width: "100%",
            zIndex: 10,
          }}
        />
      </div>
      {/* Record Button */}
    <Button
      disabled={loading}
      variant="outline"
      className="my-8 px-8 py-3 text-base font-semibold rounded-full shadow hover:shadow-md
transition-all"
      onClick={StartStopRecording}
    >
      {isRecording ? (
        <span className="text-red-600 flex items-center gap-2">
          <Mic className="h-5 w-5" /> Stop Recording
        </span>
      ) : (
        <span className="flex items-center gap-2 text-cyan-600">
```

```
          <Mic className="h-5 w-5" /> Start Recording
        </span>
      )}
    </Button>
    </div>
  );
}



export default RecordAnswerSection;
```

4.1.7 Feedback Design s Display

```
//Feedback.jsx

"use client";
import { useState, useEffect, useRef } from 'react';
import { db } from "@/utils/db";
import { UserAnswer, MockInterview } from "@/utils/schema";
import { eq } from "drizzle-orm";
import { useParams, useRouter } from "next/navigation";
import { jsPDF } from "jspdf";
import "jspdf-autotable"; // Import the autoTable plugin for tables in PDF
import {
  Collapsible,
  CollapsibleContent,
  CollapsibleTrigger,
} from "@/components/ui/collapsible";
import { ChevronsUpDown } from "lucide-react";
import { Button } from "@/components/ui/button";
import { CircularProgressbar, buildStyles } from "react-circular-progressbar";
import "react-circular-progressbar/dist/styles.css";
import clsx from "clsx";
import html2canvas from 'html2canvas';
import Skeleton from 'react-loading-skeleton';
import 'react-loading-skeleton/dist/skeleton.css';
import { ToastContainer, toast } from 'react-toastify';
import 'react-toastify/dist/ReactToastify.css';
import html2pdf from 'html2pdf.js'; //     Add this import


// Helper function to pick red/amber/green color
const getColorForPercentage = (pct) => {
  if (pct < 30) return "#ef4444";   // red-500
  if (pct < 70) return "#f59e0b";  // amber-500
  return "#10b981";                // green-500
};


function Feedback() {
  const { interviewId } = useParams();
  const router = useRouter();
  const [mergedList, setMergedList] = useState([]);
  const [totalQuestions, setTotalQuestions] = useState(0);
  const [attemptedQuestions, setAttemptedQuestions] = useState(0);
  const [averageRating, setAverageRating] = useState(0);
const [userDetails, setUserDetails] = useState({});
const [loading, setLoading] = useState(true); // Track loading state
const feedbackRef = useRef(null);

const [isGenerating, setIsGenerating] = useState(false);
const [openAll, setOpenAll] = useState(false); // control expand state for all collapsibles



useEffect(() => {
  if (interviewId) fetchFeedbackData();
}, [interviewId]);

const fetchFeedbackData = async () => {
  setLoading(true);  // Set loading to true when data is being fetched

  // 1) Fetch attempted answers from UserAnswer table
  const userAnswers = await db
    .select()
    .from(UserAnswer)
    .where(eq(UserAnswer.mockIdRef, interviewId))
    .orderBy(UserAnswer.id);

  // 2) Fetch interview questions and correct answers from MockInterview table
  const interview = await db
    .select()
    .from(MockInterview)
    .where(eq(MockInterview.mockId, interviewId));

  const originalQuestions =
    JSON.parse(interview[0]?.jsonMockResp)?.interview_questions || [];

  // 3) Fetch user details
  const user = await db
    .select()
    .from(UserAnswer)
    .where(eq(UserAnswer.mockIdRef, interviewId))
    .limit(1); // Assuming user info can be fetched from the UserAnswer table

  // 4) Compute summary metrics
  const total = originalQuestions.length;
  const attempted = userAnswers.filter((a) => a.userAns?.length > 0).length;
  const avgRating =
    userAnswers.length > 0
      ? (
          userAnswers.reduce((sum, a) => sum + parseFloat(a.rating || "0"), 0) /
          10
        ).toFixed(1)
      : 0;
    setTotalQuestions(total);
    setAttemptedQuestions(attempted);
    setAverageRating(avgRating);



    // Set user details (adjust field names as necessary)
    setUserDetails({
      jobDesc: interview[0]?.jobDesc || "N/A",
      jobTitle: interview[0]?.jobPosition || "N/A",
      experience: interview[0]?.jobExperience || "N/A",
      mockId: interviewId,
      createdBy: interview[0]?.createdBy || "N/A",
    });

    // 5) Merge questions with user answers and correct answers from jsonMockResp
    const merged = originalQuestions.map((q, idx) => {
      const attempt = userAnswers.find((a) => a.question === q.question);
      return {
        ...q,
        id: idx + 1,
        userAns: attempt?.userAns || null,
        feedback: attempt?.feedback || null,
        rating: attempt?.rating || null,
        correctAns: q.answer,  // Corrected: Using "answer" from the JSON response instead of a separate
column
        isAttempted: !!attempt,
      };
    });
    setMergedList(merged);

    setLoading(false);  // Set loading to false once data is fetched
  };

  const attemptPerc =
    totalQuestions > 0 ? Math.round((attemptedQuestions / totalQuestions) * 100) : 0;


    const downloadReport = async () =>
      { setIsGenerating(true);
      setOpenAll(true); // Expand all sections
    await new Promise(resolve => setTimeout(resolve, 500)); // Wait for React rerender

    const element = feedbackRef.current;

    // Hide buttons before generating
    const buttonsToHide = element.querySelectorAll('.hide-in-pdf');
    buttonsToHide.forEach(button => {
      button.style.display = 'none';
      button.style.visibility = 'hidden';



    });

    const opt = {

      margin:       0.2, // inches
      filename:     'Feedback_Report.pdf',
      image:        { type: 'jpeg', quality: 0.98 },
      html2canvas:  { scale: 2, useCORS: true },
      jsPDF:        { unit: 'in', format: 'a4', orientation: 'landscape' },
      pagebreak:    { mode: ['avoid-all', 'css', 'legacy'] }, //      handle page breaks properly
    };

    html2pdf().from(element).set(opt).save().then(() => {
      toast.success("PDF Downloaded Successfully!", { position: "bottom-right" });
      setIsGenerating(false);
      setOpenAll(false);
    }).catch(err => {
      console.error('PDF generation error:', err);
      toast.error("Failed to generate PDF", { position: "bottom-right" });
      setIsGenerating(false);
      setOpenAll(false);
    }).finally(() => {
      // Restore buttons after PDF generation
      buttonsToHide.forEach(button =>
      { button.style.display = '';
      button.style.visibility = '';


      });
    });
   };


{isGenerating && (
  <div style={{
    position: 'fixed', top: 0, left: 0, width: '100%', height: '100%',
    backgroundColor: 'rgba(0, 0, 0, 0.5)', display: 'flex',
    alignItems: 'center', justifyContent: 'center', zIndex: 9999
  }}>
    <div style={{ textAlign: 'center', color: 'white' }}>
      <div className="loader"></div>
      <p style={{ marginTop: '20px', fontSize: '18px' }}>Generating PDF...</p>
    </div>
  </div>
)}


  return (

    <div className="max-w-screen-xl mx-auto px-6 sm:px-12 py-10">

      <ToastContainer />
      {loading ? (
        <div  className="space-y-4">

          <Skeleton height={30} />
          <Skeleton height={20} count={4} />
          <div className="flex space-x-2">
            <Skeleton circle width={40} height={40} />
            <Skeleton circle width={40} height={40} />
          </div>
        </div>
      )  : mergedList.length === 0 ? (
      <div className="text-center text-gray-500 text-xl font-medium">
        No Interview Feedback Record Found
      </div>
    ) : (
      <>

        {/* Page Header */}

        <div ref={feedbackRef}  className="space-y-8  p-6 rounded-lg ">

        <div className="report-header mb-10 p-6 border rounded-xl shadow-md bg-gray-50">
  <h1 className="text-3xl font-bold text-center text-primary mb-6 tracking-wide">
    Interview Feedback Report
  </h1>
  <div className="grid grid-cols-2 gap-4 text-base text-gray-800">
    <div className="flex flex-col">
      <span className="font-semibold">Candidate ID:</span>
      <span>{userDetails.createdBy}</span>
    </div>
    <div className="flex flex-col">
      <span className="font-semibold">Mock ID:</span>
      <span>{userDetails.mockId}</span>
    </div>
    <div className="flex flex-col">
      <span className="font-semibold">Position:</span>
      <span>{userDetails.jobTitle}</span>
    </div>
    <div className="flex flex-col">
      <span className="font-semibold">Years of Experience:</span>
      <span>{userDetails.experience}</span>
    </div>
  </div>
</div>

<div className="report-header mb-10 p-6 border rounded-xl shadow-md bg-gray-50">

        <header className="text-center mb-8 space-y-2">
          <h1 className="text-4xl font-bold text-green-600">     Congratulations!</h1>

          <h2 className="text-2xl font-semibold text-gray-800">
            Here is your Full Interview Analysis
          </h2>
          <p className="text-gray-500 text-sm">
            Below are all questions in sequence, with your performance metrics and correct answers.
          </p>
        </header>

        {/* Buttons Row at the top */}
        <div className="flex justify-center gap-6 mb-12">
          <Button
            onClick={() => router.replace("/dashboard")}
            className="px-6 py-3 text-base font-medium rounded-xl hide-in-pdf"
          >
            ⬅ Go to Dashboard
          </Button>
          <Button
            onClick={downloadReport}
            className="px-6 py-3 text-base font-medium rounded-xl bg-blue-600 text-white hide-in-pdf"
          >
                Download Report
          </Button>
        </div>

        {/* Summary Cards */}
```

```
<div className="flex flex-col md:flex-row justify-center gap-8 mb-12">
  {/* Attempt % */}
  <div className="w-40 p-4 bg-white rounded-2xl shadow flex flex-col items-center">
    <div className="w-20 h-20 mb-2">
      <CircularProgressbar
        value={attemptPerc}
        text={`${attemptPerc}%`}
        styles={buildStyles({ textS
        ize: "16px",
          pathColor: getColorForPercentage(attemptPerc),
          textColor:  getColorForPercentage(attemptPerc),
          trailColor: "#e5e7eb",
        })}
      />
    </div>
    <span className="mt-2 text-sm font-semibold">Attempt %</span>
  </div>
  {/* Avg Rating */}
  <div className="w-40 p-4 bg-white rounded-2xl shadow flex flex-col items-center">
    <div className="w-20 h-20 mb-2">
      <CircularProgressbar
        value={averageRating * 10}
        text={`${averageRating}`}
        styles={buildStyles({


        textSize: "16px",
          pathColor: getColorForPercentage(averageRating * 10),
          textColor: getColorForPercentage(averageRating * 10),


          trailColor: "#fef3c7",
        })}
      />
    </div>
    <span className="mt-2 text-sm font-semibold">Overall Rating</span>
  </div>
</div>

{/* Question-by-Question Feedback */}
<section className="space-y-6">
{mergedList.map((item, index) => (
<Collapsible
key={index}
open={openAll ? true : undefined}  //      force open when needed
className={` border rounded-2xl shadow-md transition hover:shadow-lg p-4 my-4
  ${item.isAttempted ? 'bg-white border-l-4 border-green-400' : 'bg-white border-l-4 border-red-400'}
`}
```

```
>
  <CollapsibleTrigger className="w-full text-left font-semibold text-lg flex justify-between items-
center">
   {`Q${index + 1}: ${item.question}`}
   <ChevronsUpDown className="ml-2 h-5 w-5" />
  </CollapsibleTrigger>

  <CollapsibleContent className="mt-4 space-y-4">
   {item.isAttempted ? (
    <>
     {/* Rating Section */}
     <div className="flex flex-col items-center space-y-2">
      <span className="font-bold text-gray-700">Rating:</span>
      <div className="w-24 h-24">
       <CircularProgressbar
        value={item.rating ? parseFloat(item.rating) * 10 : 0}
        text={`${item.rating || 0}`}
        styles={buildStyles({ t
         extSize: "16px",
         pathColor: getColorForPercentage(item.rating * 10),
         textColor: getColorForPercentage(item.rating * 10),
         trailColor: "#e5e7eb",
        })}
       />
      </div>
     </div>

     {/* Your Answer */}
     <div className="p-4 rounded-xl border-2 border-red-500 bg-red-100 text-red-700">

<strong>Your Answer:</strong> {item.userA
      ns || "No Answer Given"}
     </div>


     {/* Correct Answer */}
     <div className="p-4 rounded-xl border-2 border-green-500 bg-green-100 text-green-700">
      <strong>Correct Answer:</strong> {item.correctAns}
     </div>

     {/* Feedback */}
     <div className="p-4 rounded-xl border-2 border-blue-500 bg-blue-100 text-blue-700">
      <strong>Feedback:</strong> {item.feedback || "No feedback available"}
     </div>
    </>
   ) : (
    <>
```

```
          {/* Unattempted */}
          <div className="text-yellow-500 font-semibold">
            Unattempted
          </div>

          {/* Correct Answer */}
          <div className="p-4 rounded-xl border-2 border-green-500 bg-green-100 text-green-700">
            <strong>Correct Answer:</strong> {item.correctAns}
          </div>

        </>
      )}
    </CollapsibleContent>
  </Collapsible>
))}

          </section>

          </div>
          </div>
        </>
      )}
    </div>
  );
}

export default Feedback;
```

Chapter 5: Testing

Chapter5:Testing

5.1 Test Strategy

The testing phase is crucial in ensuring the stability, accuracy, and performance of the JARVIS platform. It focuses on validating both functional and non-functional aspects of the system.

5.1.1 Objectives

- Ensure all modules perform as expected under different scenarios.
- Identify and fixbugs in individual components before integration.
- Validatedata integrity and AI response accuracy.

5.1.2 Testing Levels

1. **UnitTesting**
   a. Conducted on individual modules like InterviewForm, RecordAnswerSection, and FeedbackList.
   b. Ensuresisolated logic (e.g., API calls, form validations, speech recognition) works correctly.
2. **Integration Testing**
   a. Checksflowacrosscomponents: Sign In → Create Interview→ Answer → Feedback.
   b. Ensures smooth interaction between Clerk authentication, Gemini API, Drizzle DB, and Frontend.
3. **System Testing**
   a. End-to-end tests simulate a complete interview flow.
   b. Includes checking audio/video inputs, dynamic question generation, and feedback accuracy.
4. **User Acceptance Testing (UAT)**
   a. Performed with sample users (students, mentors).
   b. Ensuresthat UI is intuitive and output is meaningful and actionable

5.2 Test Cases

Test CaseID	TestScenario	Input	Expected Output	Status
TC_001	Userloginvia Clerk	Valid email/password	Redirect to Dashboard	Pass
TC_002	Add new interview session	Jobrole: Full Stack,2+ years exp.	AIquestionsgenerated, interview created	Pass
TC_003	Startinterview with speech-to-text	Voice input	Answersaved, feedback generated	Pass
TC_004	AIfeedback generation	Answerto technical question	Feedback JSON with ratingand suggestions	Pass
TC_005	Display feedback UI	Collapse/expand interaction	Questionsshownwith correct answer and rating fields	Pass
TC_006	Reviewpast sessions	Go to Interview List	Previousinterviews displayed with feedback/start option	Pass
TC_007	Use text-to-Speech for question	Question click on	System speaks question	Pass
TC_008	Sessiondata persistence	Refreshinterview screen	Questionstate and responses retained	Pass
TC_009	Invalidinput handling	Submitblankjob role	Validation error shown	Pass
TC_010	Gemini API fail scenario	API key missing	Errorlogged, useralerted	Pass

Chapter 6: Limitations of Proposed System

Chapter 6: Limitations of Proposed System

Despite offering arobust AI-driven mockinterview experience, thecurrentversion of JARVIS has certain limitations that can be addressed in future iterations:

6.1 AI FeedbackDependence on Gemini API

- Thesystem heavily depends on Gemini 2.0 Flash API for generatingquestionsand evaluating user responses.
- If the API service is interrupted or deprecated, the application loses its core NLP functionality.
- Ratelimitingor APIkey misuse can cause failures in real-time feedback generation.

6.2 LimitedReal-Time Biometric Monitoring

- While webcamsupport is available, the system **does not yet perform live facial expression analysis or emotion detection** using tools like OpenCV.
- Non-verbal cue analysis (eye contact, facial stress) is not fully implemented, limiting behavioral insight.

6.3 Limited Question Personalization

- Although questionsare generated based on role, experience, and job description, **they do notyetaccount for user historyor skillgaps**.
- No adaptive difficulty scaling or personalized learning pathsare available at this stage.

Chapter 7: Proposed Enhancements

Chapter 7: Proposed Enhancements

To evolve JARVIS into a more powerful, realistic, and insightful mock-interview platform, the following enhancements are proposed. Each enhancement addresses a current limitation (see Chapter 6) and adds significant value for end users.

7.1 Advanced Biometric and Behavioral Analytics

Objective: Capturenon-verbal cues to mirrorin-person interviews.

- **Facial Expression Analysis**
  - Integrate **OpenCV** or MediaPipeto track eye contact, smilefrequency, and micro-expressions.
  - Provide metrics on “engagement score” and “confidence level.”
- **Posture s Gesture Monitoring**
  - Usepose-estimation libraries to detect slouching, fidgeting, or confident stance.
  - Offer actionable tips (e.g. “sit upright,” “maintain steady gaze”).
- **Voice Modulation Analysis**
  - Analyze tone, pitch variation, and speech ratevia Web Audio API.
  - Generate “vocal impact” score and suggestions (e.g. “slow down,” “add emphasishere”)..

7.2 Adaptive Question Difficulty

Objective: Personalize difficulty based on user performance.

- **Skill Profiling**
  - Maintain ahistory of user scores by topic (e.g. Data Structures, System Design).
  - Identify weak areasviaanalytics.
- **Dynamic Prompt Adjustment**
  - Adjust AI prompt to generateeasier or harder follow-up questions.
  - Implement “level-up” mechanism: when user consistently scores ≥8/10, increase complexity.

7.3 Mobile-Friendly s Offline Support

Objective: Extend accessibility to mobile devices and low-connectivity scenarios.

- **Responsive PWA**
    - Convert JARVIS into a Progressive Web App foroffline cachingof question sets.
    - Enable users to practice without continuous Internet access.
- **Local Storage Sync**
    - Storeintermediateanswersin IndexedDB when offline; sync to server when reconnected.

7.4 Multi-Role and Panel Interview Simulation

Objective: Emulate real panel interviews with multiple AI "interviewers."

- **Multi-Actor Questioning**
    - Createmultiple AI agents (e.g. HR, Technical Lead) withdistinct prompt personas.
    - Rotate questioning styles: behavioral, technical, situational.
- **Panel Feedback Aggregation**
    - Collect and display feedback from each AI persona separately.
    - Provide consolidated "panel summary" and individual "panelist scores."

7.4 Integration withReal-World Platforms

Objective: BridgeJARVISwith industrytools andlearningresources.

- **LMS Integration**
    - Connectwith Learning Management Systems (Moodle, Canvas) to track student progress.
- **Job Portal APIs**
    - Fetch real job descriptions from LinkedIn or Indeed to generate up-to-date, role-specific questions.

Chapter 8: Conclusion

Chapter8:Conclusion

The JARVISprojecthas provento be an innovativeanduseful AI-powered mockinterview platform that assists users in overcoming interview anxiety and improving their performance. By simulating real-world interview scenarios, JARVIS empowers students, job seekers, and professionals to practice their interview skills in a controlled, intelligent environment.

8.1 AchievementsoftheJARVISProject

- **AI-PoweredQuestion Generation:** Theintegration oftheGemini APIenables dynamic, role-specific questions, providing users with tailored interview preparation.
- **Speech Recognition s Feedback:** The inclusion of speech-to-text technology allows for a realistic interaction with the system, and the AI provides detailed feedback based on fluency, relevance, and accuracy.
- **Real-Time Feedback Mechanism:** Users receive immediate feedback on their performance, making it easier to track their improvement and identify areas for development.
- **Personalized Learning Experience:** The system's ability to generate questions based on job roles, job descriptions, and years of experience ensures that each user receives a relevant and unique experience.

8.2 FutureScopeofJARVIS

While the current version of JARVIS providessignificant value, thereis always room for improvement and future expansion:

- **Behavioral and Non-Verbal Cues Analysis:** Integrating facial expression and gesture analysis will provide more comprehensive feedback, simulating a real interview environment.
- **Mobile Support s Offline Access:** Expanding the platform to mobile devices and supporting offline modes will increase accessibility for users across diverse locations and situations.

8.3 Conclusion Summary

JARVIS represents a significant step forward in transforming the traditional interview preparation process. By leveraging AI, speech recognition, and dynamic question generation, the system offers a personalized, intelligent, and realistic mock interview experience. As the project evolves, incorporating additional features such as biometric analysis and advanced data visualizations will enhance the platform’s ability to meet the needs of its users. The future enhancements outlined in this report aimto make JARVIS not just a mock interview tool, but a comprehensive interview coaching platform that can guide users through every stage of their preparation, offering tailored feedback and performance trackin

Chapter 9: Bibliography

Chapter 9: Bibliography

❖ Documentation and Online Resources

1. **Gemini API Documentation**, Google Cloud
    a. Guided the integration of Gemini AIfor question generationandfeedback.
2. **React Documentation**
    a. Essential for component-based development and state management.
3. **Drizzle ORM Documentation**
    a. Assisted in managing the database schema and interactions with Neon DB.
4. **Clerk Authentication Documentation**
    a. Implemented secure authentication for users in JARVIS.
5. **react-hook-speech-to-text**
    a. Enabled speech recognition for answeringinterview questions.
6. **Tailwind CSS Documentation**
    a. Used for responsive UI design in thefrontend.
7. **OpenCV Documentation**
    a. Helped integrate facial recognition andimage processing (future enhancement).
8. **GitHub Repositories for AI Models and Tools**
    a. Referenced for model integration and API setup for AI functionalities.

❖ Online Articlesand Blogs

1. **"How to Builda Machine Learning Model with OpenCVand Python"**
    a. Practical approach to OpenCV integration for future facial expression analysis.

2. **"Getting Started with Serverless Databases: Neon"**
    a. Guide to Neon serverless database setup, used in JARVIS backend.
3. **"Buildinga Scalable Web Application with React and Node.js"**
    a. Insights on integrating React frontendwith Node.jsbackend.

❖ Miscellaneous Sources

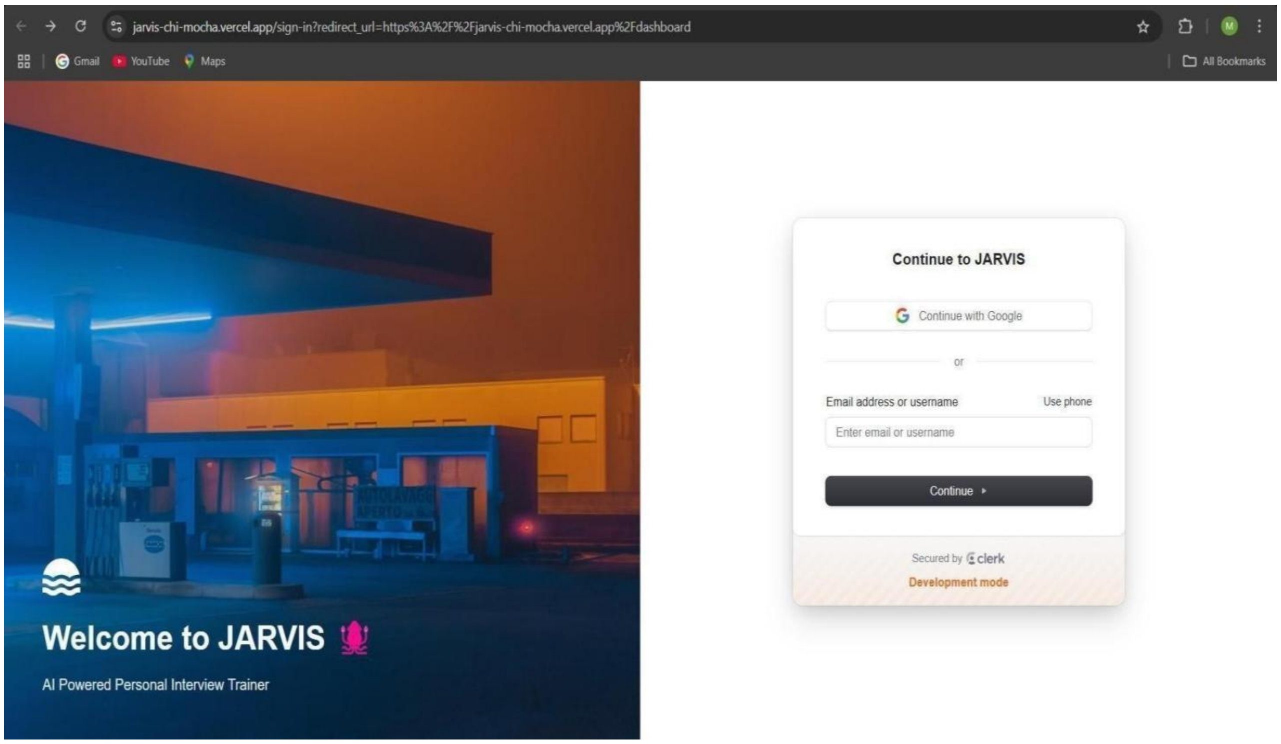
1. **YouTube Tutorialson Speech Recognition**
    a. Provided practical examples for integrating speech-to-text functionality.
2. **Stack Overflow Discussions**
    a. Community-driven solutionsfor React, Node.js, and AI model integration issues.

Theseresources were crucial forthe development of JARVIS, providingfoundational knowledge and practical implementation guidance throughout the project.

Chapter 10: User Manual

10.1 Login / Sign Up Screen

- **Purpose**:
  Allows users to securely authenticate into the system using Clerk authentication (Email or Social Login).
- **Validations:**
  1. Email format is validated (must be a valid email address).
  2. Password policies (if used) enforced by Clerk.
  3. Mandatory to complete sign-in to access any feature.


jarvis-chi-mocha.vercel.app/sign-in?redirect_url=https%3A%2F%2Fjarvis-chi-mocha.vercel.app%2Fdashboard
Gmail
YouTube
Maps
All Bookmarks
Welcome to JARVIS
AI Powered Personal Interview Trainer
Continue to JARVIS
Continue with Google
or
Email address or username
Use phone
Enter email or username
Continue
Secured by clerk
Development mode

10.2 Dashboard

- **Purpose**:
  Displays user-specific actions like creating a new interview or viewing past interviews.
- **Description**:

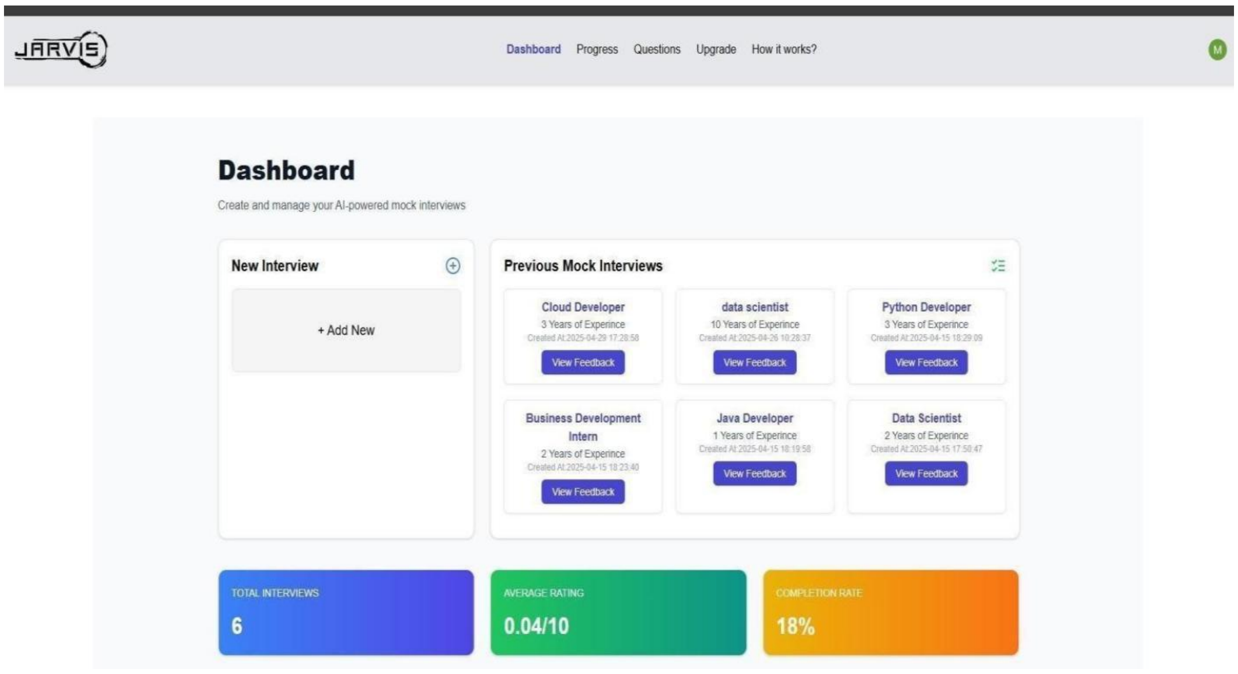
  Contains two cards:

  1. New Interview → Launches form to create a new mock session.
  2. Past Interviews → Displays previously taken interviews.

  Also displays:

  1. Total Interviews
  2. Average Rating
  3. Completion Percentage

- **Validations**:
  No manual data input; cards are auto-populated dynamically based on the database.



Dashboard

Create and manage your AI-powered mock interviews

New Interview

+ Add New

Previous Mock Interviews

Cloud Developer
3 Years of Experince
Created At:2025-04-29 17:28:58
View Feedback

data scientist
10 Years of Experince
Created At:2025-04-26 10:28:37
View Feedback

Python Developer
3 Years of Experince
Created At:2025-04-15 18:29:09
View Feedback

Business Development Intern
2 Years of Experince
Created At:2025-04-15 18:23:40
View Feedback

Java Developer
1 Years of Experince
Created At:2025-04-15 18:19:58
View Feedback

Data Scientist
2 Years of Experince
Created At:2025-04-15 17:50:47
View Feedback

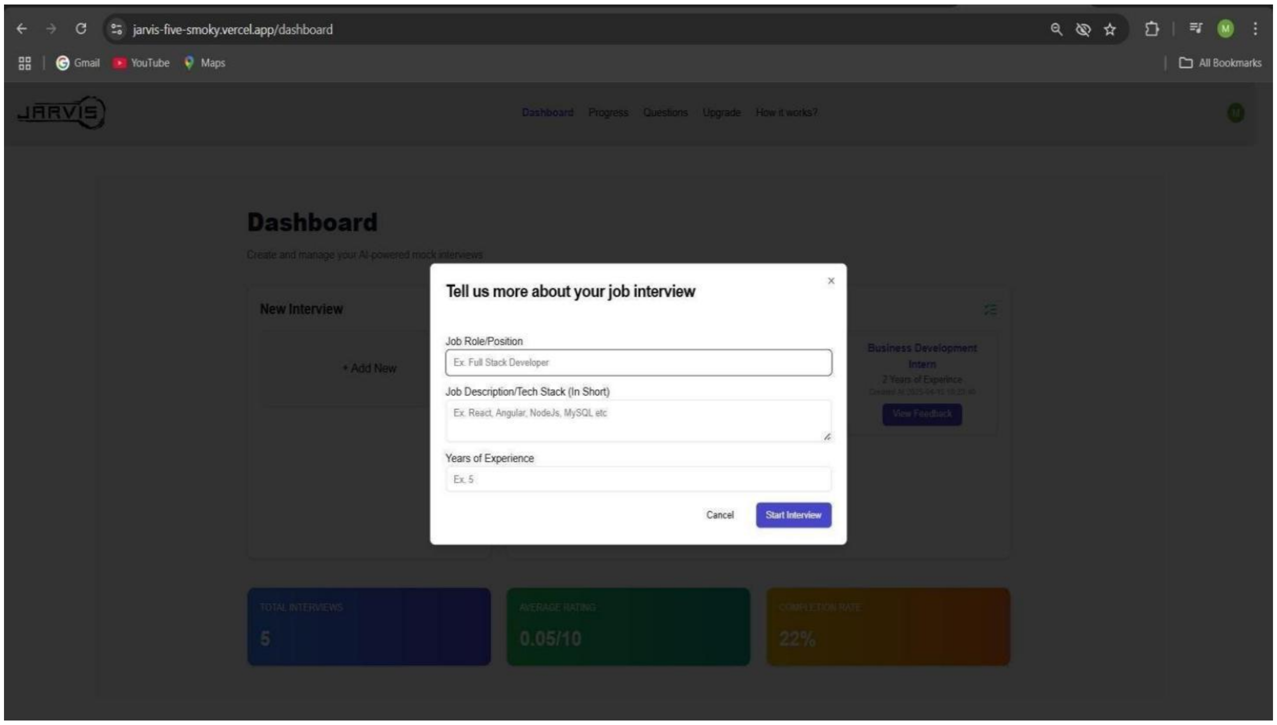
TOTAL INTERVIEWS
6

AVERAGE RATING
0.04/10

COMPLETION RATE
18%

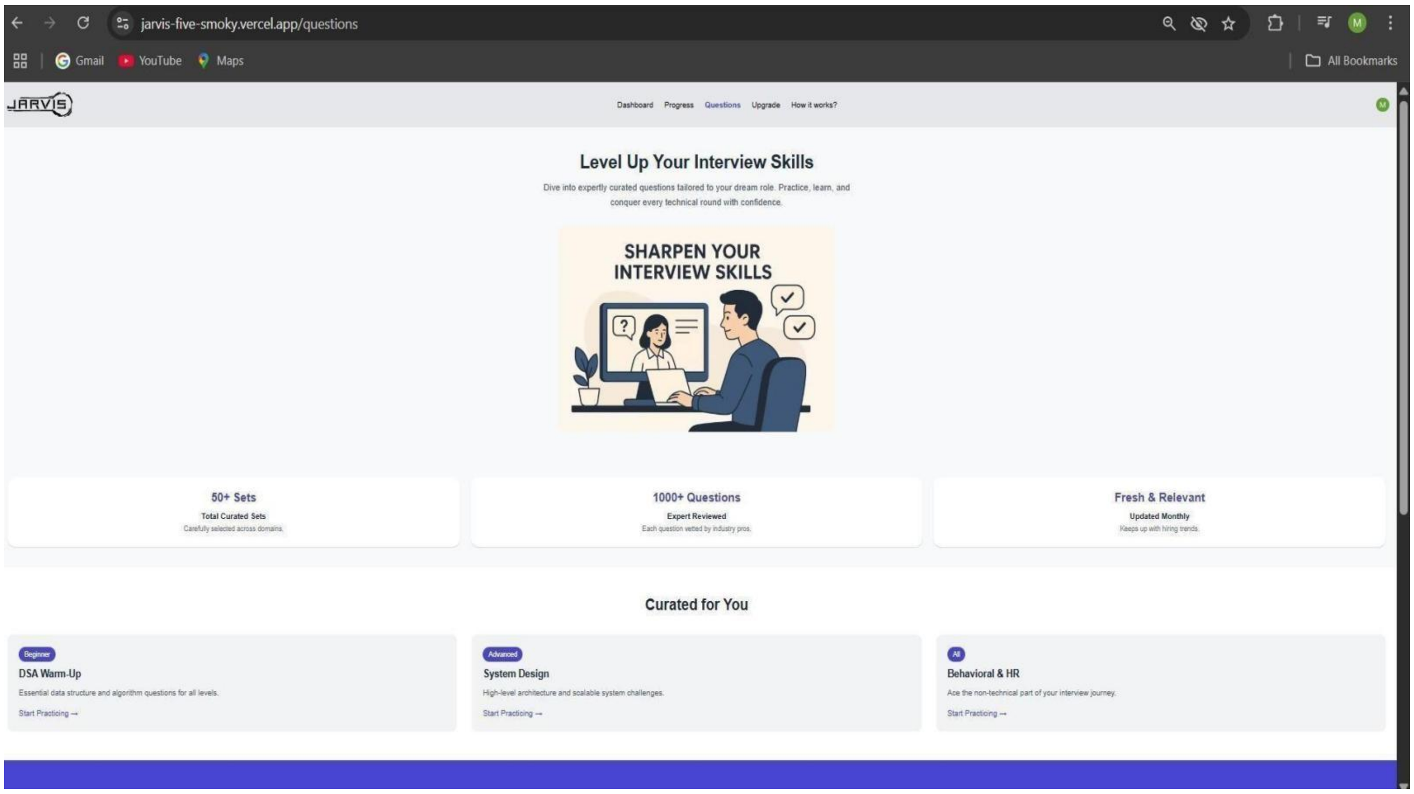
10.3 Add New Interview Screen

- **Purpose**:
  Allows user to input interview context to generate personalized AI interview question
- **Fields & Validations:**
  1. **Job Title**: Required, min 3 characters.
  2. **Job Description:** Required, min 15 characters.
  3. **Years of Experience**: Required, numeric, between 0–30.



10.4 Questions Page

- **Purpose**:
  Shows curated question sets based on topic: HR, DSA, System Design, etc.
- **Description**:
  1. Clicking a set navigates to the AI mock session.
  2. Provides resource links for preparation.
- **Validations**:
  1. No user input, only click actions.
  2. Role-based access is applied to premium content.



Level Up Your Interview Skills

Dive into expertly curated questions tailored to your dream role. Practice, learn, and conquer every technical round with confidence.

50+ Sets
Total Curated Sets
Carefully selected across domains.

1000+ Questions
Expert Reviewed
Each question vetted by industry pros.

Fresh & Relevant
Updated Monthly
Keeps up with hiring trends.

Curated for You

Beginner
DSA Warm-Up
Essential data structure and algorithm questions for all levels.
Start Practicing →

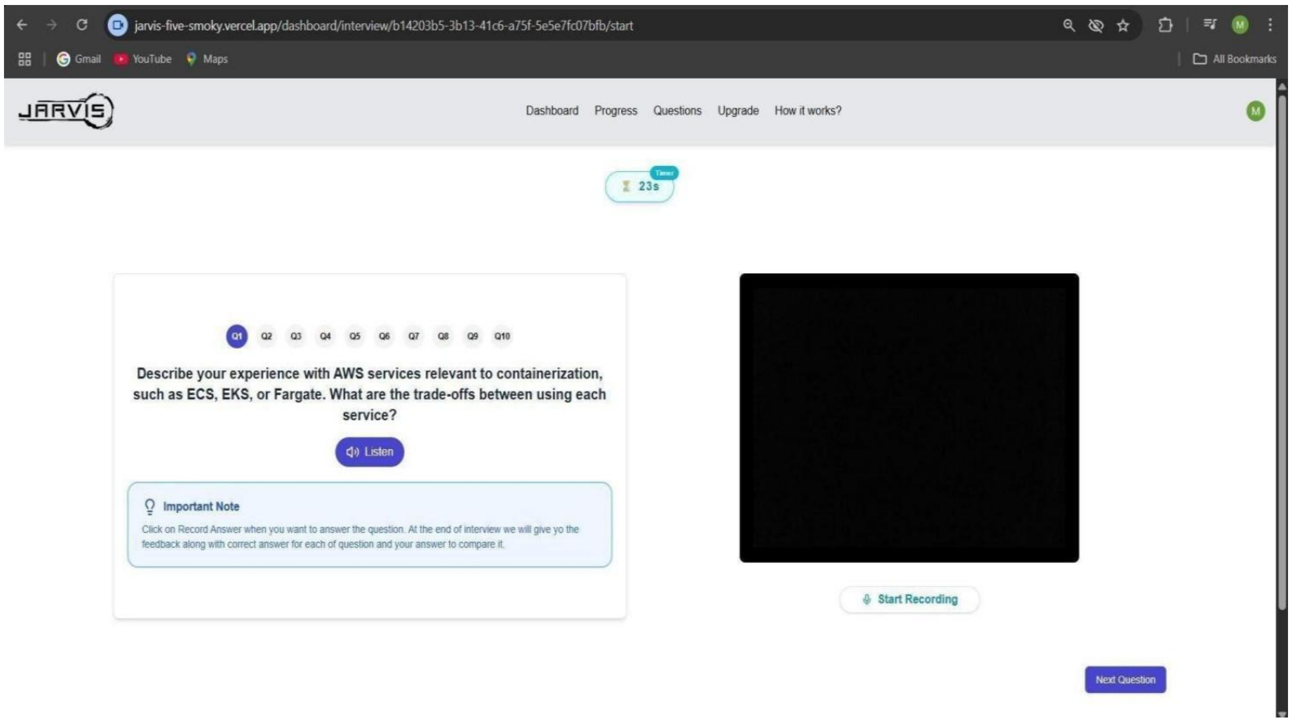
Advanced
System Design
High-level architecture and scalable system challenges.
Start Practicing →

All
Behavioral & HR
Ace the non-technical part of your interview journey.
Start Practicing →

;

10.5 Interview Screen (Mock Session)

- **Purpose**:
  Main interface for answering interview questions with recording & timer.
- **Description:**
  1. Questions appear one by one.
  2. Timer (e.g., 60 seconds) for each question.
  3. Record Answer button records audio/video.
  4. Next and Previous buttons to navigate.
  5. End Interview button only enabled after min 3 questions attempted.
- **Validations**:
  1. Timer enforces answering limit.
  2. User cannot return to previous questions after timeout.
  3. Cannot end interview unless minimum attempt threshold met.
  4. Audio must be captured before proceeding (optionally enforced).



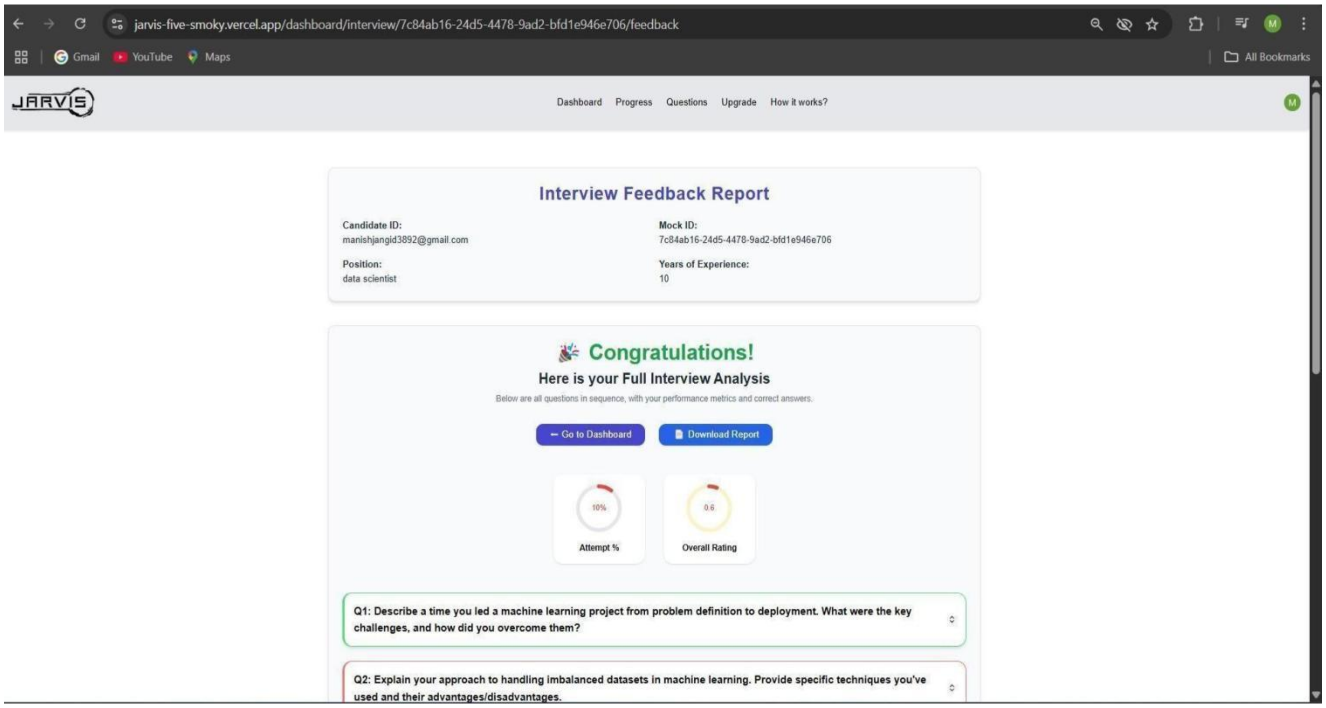
Describe your experience with AWS services relevant to containerization, such as ECS, EKS, or Fargate. What are the trade-offs between using each service?

Important Note

Click on Record Answer when you want to answer the question. At the end of interview we will give yo the feedback along with correct answer for each of question and your answer to compare it.

10.6 Feedback Page

- **Purpose**:
  Shows AI-generated analysis post-interview.
- **Description**:
  1. Lists all questions in collapsible format.
  2. For each:
     i. User Answer
     ii. Correct Answer
     iii. AI Feedback
     iv. Rating
  3. Also shows:
     i. Overall Rating (Graph)
     ii. Attempt Percentage (Graph)
- **Validations:**
  1. If a question is unattempted, user answer and feedback are shown as "Not attempted".
  2. Rating bars change color based on performance.


jarvis-five-smoky.vercel.app/dashboard/interview/7c84ab16-24d5-4478-9ad2-bfd1e946e706/feedback
Gmail
YouTube
Maps
All Bookmarks
JARVIS
Dashboard
Progress
Questions
Upgrade
How it works?
M

Interview Feedback Report

Candidate ID:
manishjangid3892@gmail.com

Mock ID:
7c84ab16-24d5-4478-9ad2-bfd1e946e706

Position:
data scientist

Years of Experience:
10

Congratulations!

Here is your Full Interview Analysis

Below are all questions in sequence, with your performance metrics and correct answers.

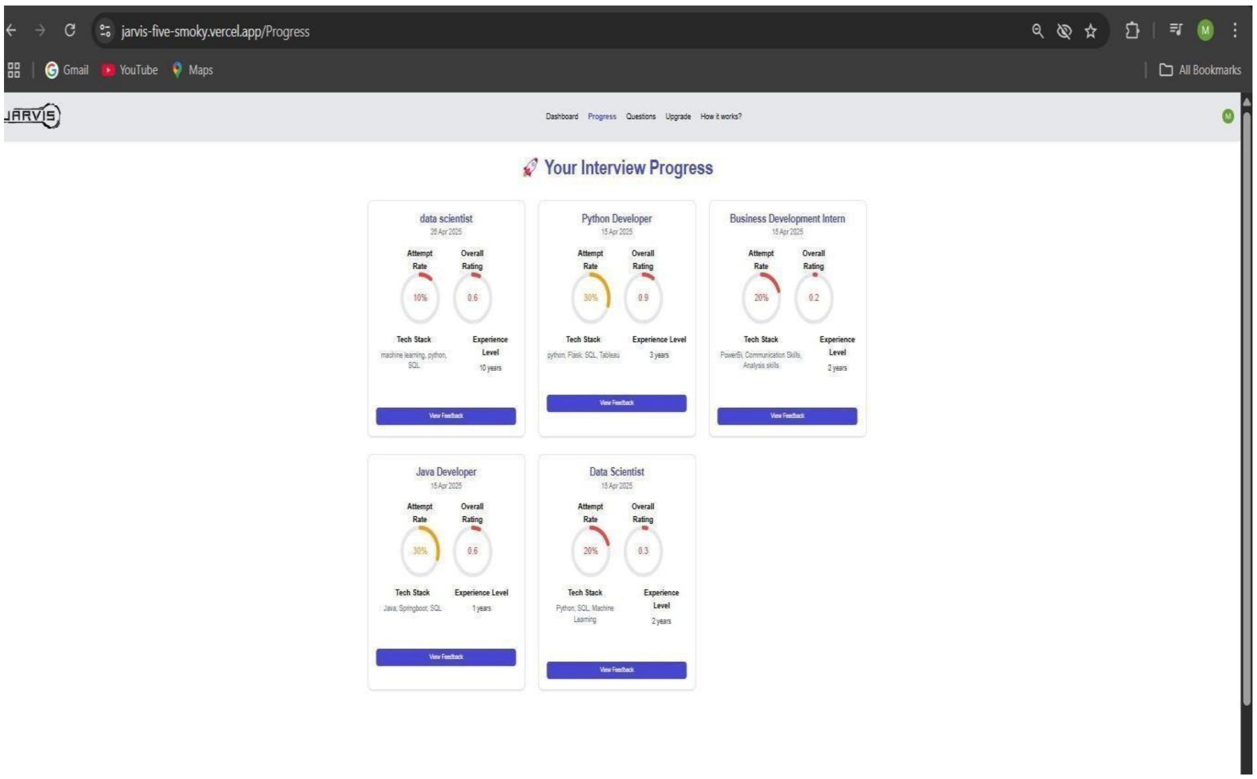
Q1: Describe a time you led a machine learning project from problem definition to deployment. What were the key challenges, and how did you overcome them?

Q2: Explain your approach to handling imbalanced datasets in machine learning. Provide specific techniques you've used and their advantages/disadvantages.

10.7 Progress Page

- **Purpose**:
  Shows analytics for all interviews.
- **Description:**
  - Card for each interview with:
    1. Job Position, Date
    2. Completion %
    3. Average Rating
    4. Tech Stack
    5. Experience Level
    6. View Feedback Button
- **Validations:**

If no interviews found, a loading animation followed by "No progress found" message is shown.



data scientist
26 Apr 2025
Attempt Rate 10%
Overall Rating 0.6
Tech Stack: machine learning, python, SQL
Experience Level: 10 years

Python Developer
15 Apr 2025
Attempt Rate 30%
Overall Rating 0.9
Tech Stack: python, Flask, SQL, Tableau
Experience Level: 3 years

Business Development Intern
15 Apr 2025
Attempt Rate 20%
Overall Rating 0.2
Tech Stack: PowerBi, Communication Skills, Analysis skills
Experience Level: 2 years

Java Developer
15 Apr 2025
Attempt Rate 30%
Overall Rating 0.6
Tech Stack: Java, Springboot, SQL
Experience Level: 1 years

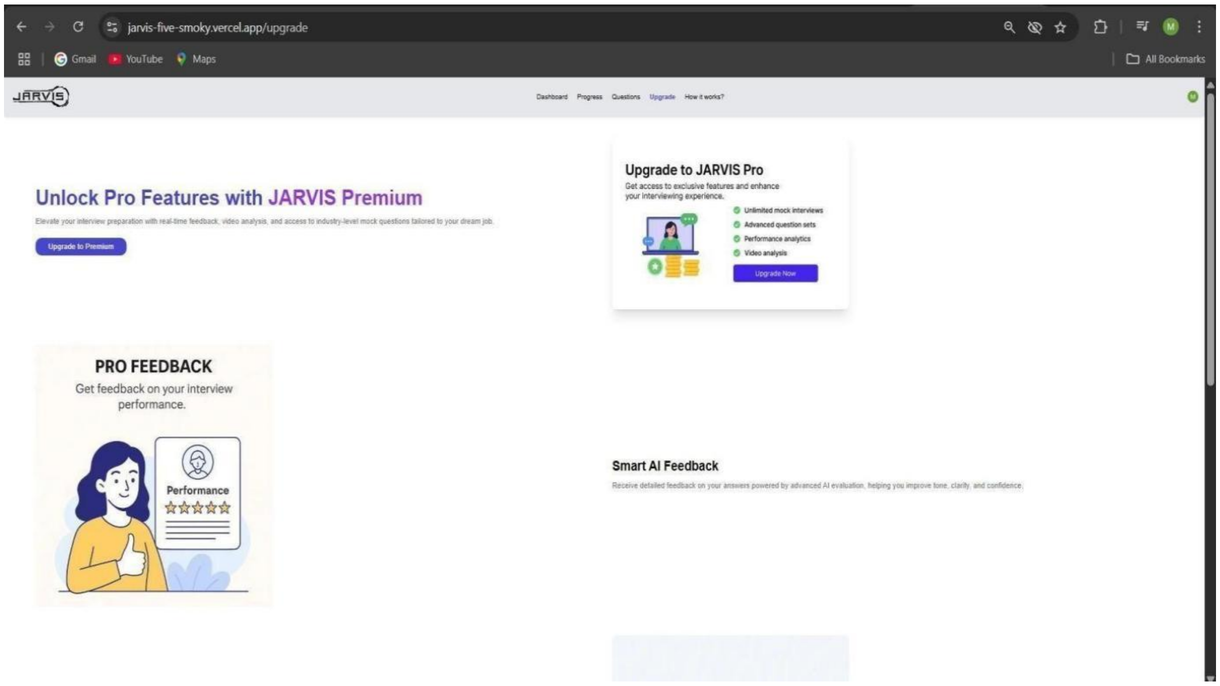
Data Scientist
15 Apr 2025
Attempt Rate 20%
Overall Rating 0.3
Tech Stack: Python, SQL, Machine Learning
Experience Level: 2 years

10.8 Upgrade Page (Optional)

- **Purpose**:
  Promotes premium features.
- **Description:**

  Lists benefits: AI Feedback, Video Analysis, Premium Question Sets, etc.
- **Validations:**

  Button to Upgrade (Currently non-functional or linked to Stripe/Upgrade plan).



Unlock Pro Features with JARVIS Premium

Elevate your interview preparation with real-time feedback, video analysis, and access to industry-level mock questions tailored to your dream job.

Upgrade to JARVIS Pro

Get access to exclusive features and enhance your interviewing experience.

- Unlimited mock interviews
- Advanced question sets
- Performance analytics
- Video analysis

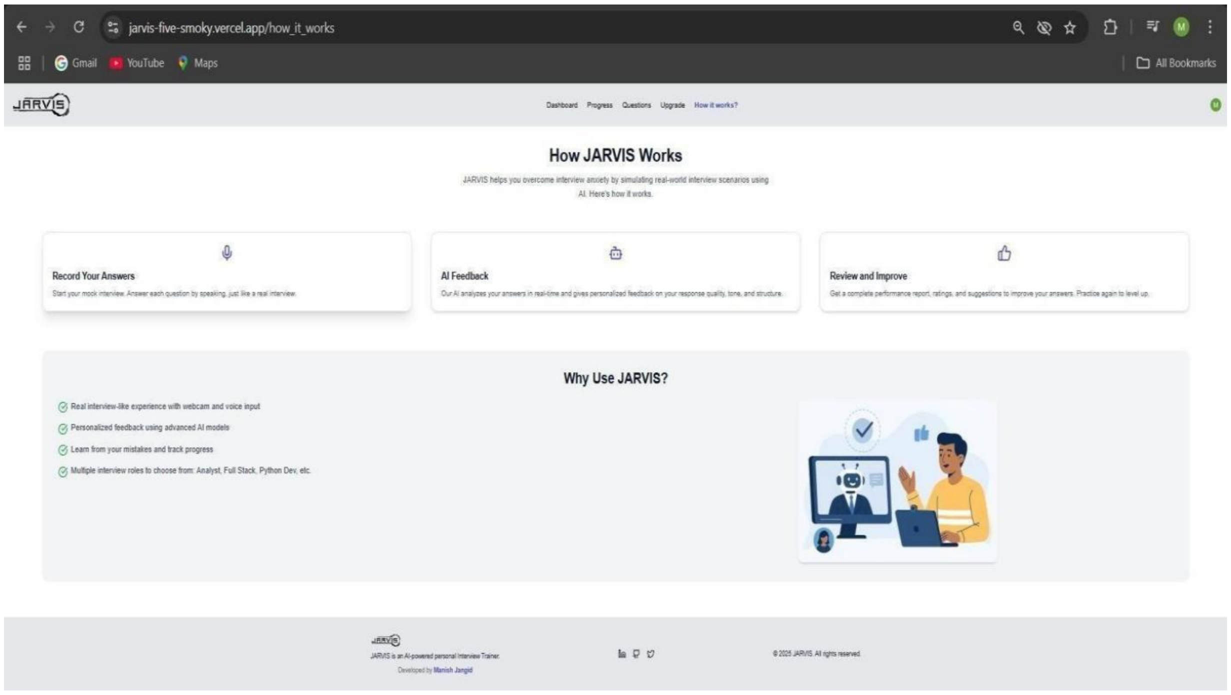
Smart AI Feedback

Receive detailed feedback on your answers powered by advanced AI evaluation, helping you improve tone, clarity, and confidence.

10.9 How It Works Page

- **Purpose**:
  Educates users on the JARVIS workflow.
- **Description**:
  1. Step-by-step explanation:
  2. Speak Answer
  3. AI Feedback
  4. Review & Improve
- **Validations**:

  Static content; no validation needed.



How JARVIS Works

JARVIS helps you overcome interview anxiety by simulating real-world interview scenarios using AI. Here's how it works.

Record Your Answers

Start your mock interview. Answer each question by speaking, just like a real interview.

AI Feedback

Our AI analyzes your answers in real-time and gives personalized feedback on your response quality, tone, and structure.

Review and Improve

Get a complete performance report, ratings, and suggestions to improve your answers. Practice again to level up.

Why Use JARVIS?

- ✓ Real interview-like experience with webcam and voice input
- ✓ Personalized feedback using advanced AI models
- ✓ Learn from your mistakes and track progress
- ✓ Multiple interview roles to choose from: Analyst, Full Stack, Python Dev, etc.

JARVIS is an AI-powered personal Interview Trainer.
Developed by Manish Jangid

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