# **A PROJECT REPORT ON "JARVIS"**

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## **TABLE OF CONTENTS**

1. Introduction to Proposed System
   1. Problem Definition
   2. System Overview
   3. Project Functionalities with Module Specification
   4. Operating Environment (H/W & S/W Requirement Specification)
2. Overview of the Proposed System
   1. Proposed System
   2. Objectives of the System
   3. Feasibility Study
   4. User Requirement Specification
3. System Analysis & Design
   1. Data Flow Diagram (Context Level Diagram)
   2. Class Diagram / ERD
   3. Activity Diagram
   4. Data Dictionary with Table Specification
   5. Use Case Diagram
4. User Manual
   1. Operational Instructions
   2. Input/Output Screens
   3. Reports
5. System Limitations
6. Future Enhancements and Conclusion
7. Bibliography and Glossary

**Submitted by –** Manish Jangid

## **1. INTRODUCTION TO PROPOSED SYSTEM**

### **1.1 Problem Definition**

Job seekers often struggle with interview anxiety and a lack of real-time feedback on their performance. Traditional interview preparation methods do not provide personalized feedback or AI-driven insights. *JARVIS* aims to bridge this gap by offering an AI-powered *mock interview* trainer that evaluates users' responses based on facial expressions, speech clarity, and answer relevance.

### **1.2 System Overview**

*JARVIS(*Job AI-Ready Virtual Interview System )is a web-based AI-powered *Interview Training System* that assists users in preparing for real-world interviews by analyzing their facial expressions, tone of speech, and answer quality. It provides *real-time feedback* using AI-based evaluation models. The system is developed using *Next.js for the frontend* and Gemini-2.0-Flash *AI-based backend processing*.

*Key Features:*

* *Speech Recognition*: Converts spoken responses into text for evaluation.
* \*AI Answer Analysis: Uses Gemini-2.0-Flash *API* to evaluate responses.
* \*Interactive UI: Built using \**Next.js* for a smooth user experience.
* \*Database Management: Utilizes \**Drizzle ORM with PostgreSQL* for structured data storage.

### **1.3 Project Functionalities with Module Specification**

#### **Modules:**

1. *User Authentication Module*: Users register and log in securely.
2. *Interview Question Module*: AI selects and asks questions dynamically.
3. \*Speech-to-Text Conversion Module: Uses \**DeepSpeech* or *Google Speech-to-Text API*.
4. *Answer Evaluation Module*: AI analyzes responses for correctness and professionalism.
5. *Feedback & Report Generation Module*: Provides real-time feedback and generates performance reports.

### **1.4 Operating Environment (H/W & S/W Requirement Specification)**

#### ***Hardware Requirements***

* A system with at least *8 GB RAM* and *quad-core processor*.
* WebCam for *facial analysis*.
* Microphone for *voice recording and speech analysis*.

#### ***Software Requirements***

* *Frontend*: Next.js (React-based framework)
* *Backend*: Flask (for AI model integration)
* *Database*: PostgreSQL (via Drizzle ORM)
* *AI Libraries*: Gemini-2.0-Flash API
* *Operating System*: Windows / Linux

## **2. OVERVIEW OF THE PROPOSED SYSTEM**

### **2.1 Proposed System**

*JARVIS* offers a *real-time AI-driven interview assessment* tool that improves job seekers' confidence by providing instant feedback on *speech clarity, facial expressions, and answer quality*.

### **2.2 Objectives of the System**

* *Enhance interview preparation* by simulating real interview environments.
* *Provide AI-powered insights* to improve users' verbal and non-verbal communication.
* *Reduce interview anxiety* with structured feedback.

### **2.3 Feasibility Study**

#### ***Technical Feasibility:***

* Uses well-established technologies (*Next.js, Clerk,Gemini API, PostgreSQL*).
* Cloud-ready for future scalability.

#### ***Operational Feasibility:***

* Simple UI ensures *ease of use* for job seekers and HR professionals.
* Can be integrated into *corporate training programs*.

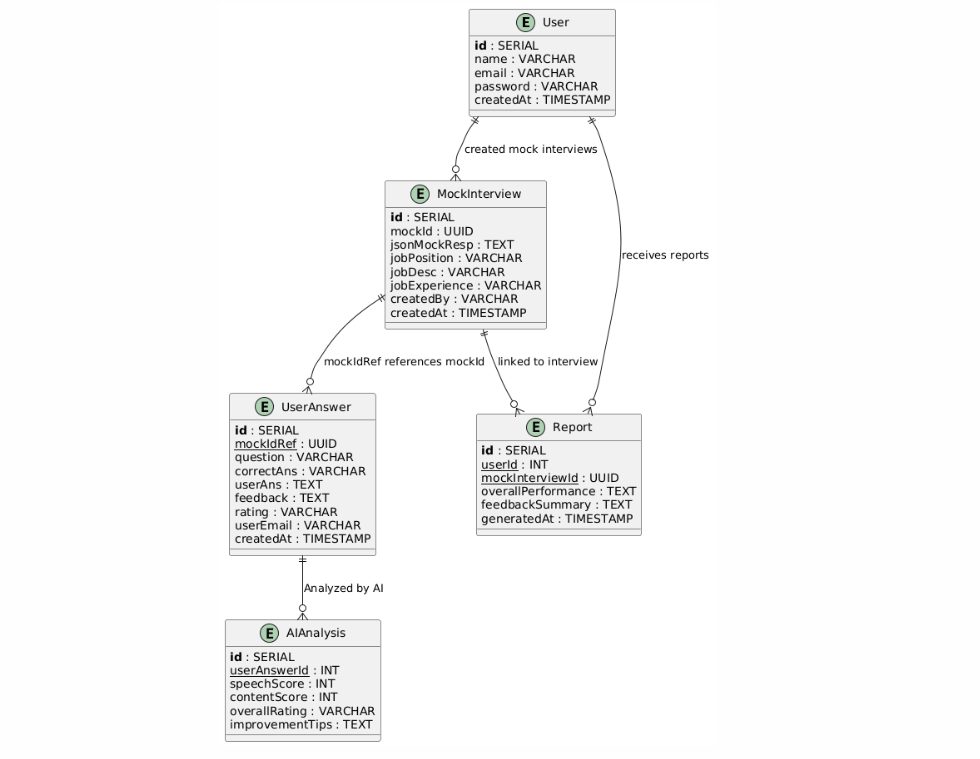
#### ***Economic Feasibility:***

* Open-source technologies minimize development costs.
* Cloud hosting keeps infrastructure costs low.

## **3. SYSTEM ANALYSIS & DESIGN**

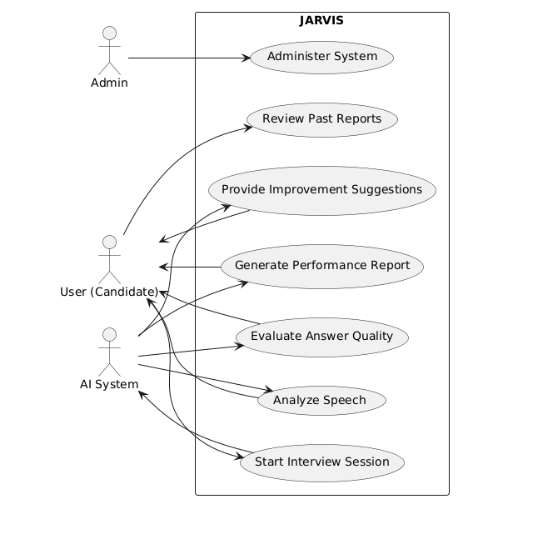
### **3.1 *Entity Relationship Diagram (ERD)***

* Users, Interview Questions, Responses, Evaluations are the key entities.



### **3.2 *Use Case Diagram***

* *Actors*: User, Admin
* *Use Cases*: Start Interview, Analyze Response, Generate Report



### **3.3 *Database Design (Drizzle ORM)***

1. **MockInterview table**

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Description** |
| id | SERIAL | Primary key, unique identifier for each mock interview session. |
| mockId | UUID | Randomly generated unique identifier for a mock interview. |
| jsonMockResp | TEXT | Stores JSON responses related to the mock interview. |
| jobPosition | VARCHAR | The job position for which the mock interview is conducted. |
| jobDesc | VARCHAR | Description of the job role. |
| jobExperience | VARCHAR | Required experience level for the job position. |
| createdBy | VARCHAR | The user/admin who created the mock interview session. |
| createdAt | VARCHAR | Timestamp indicating when the interview session was created. |

1. **UserAnswer Table**

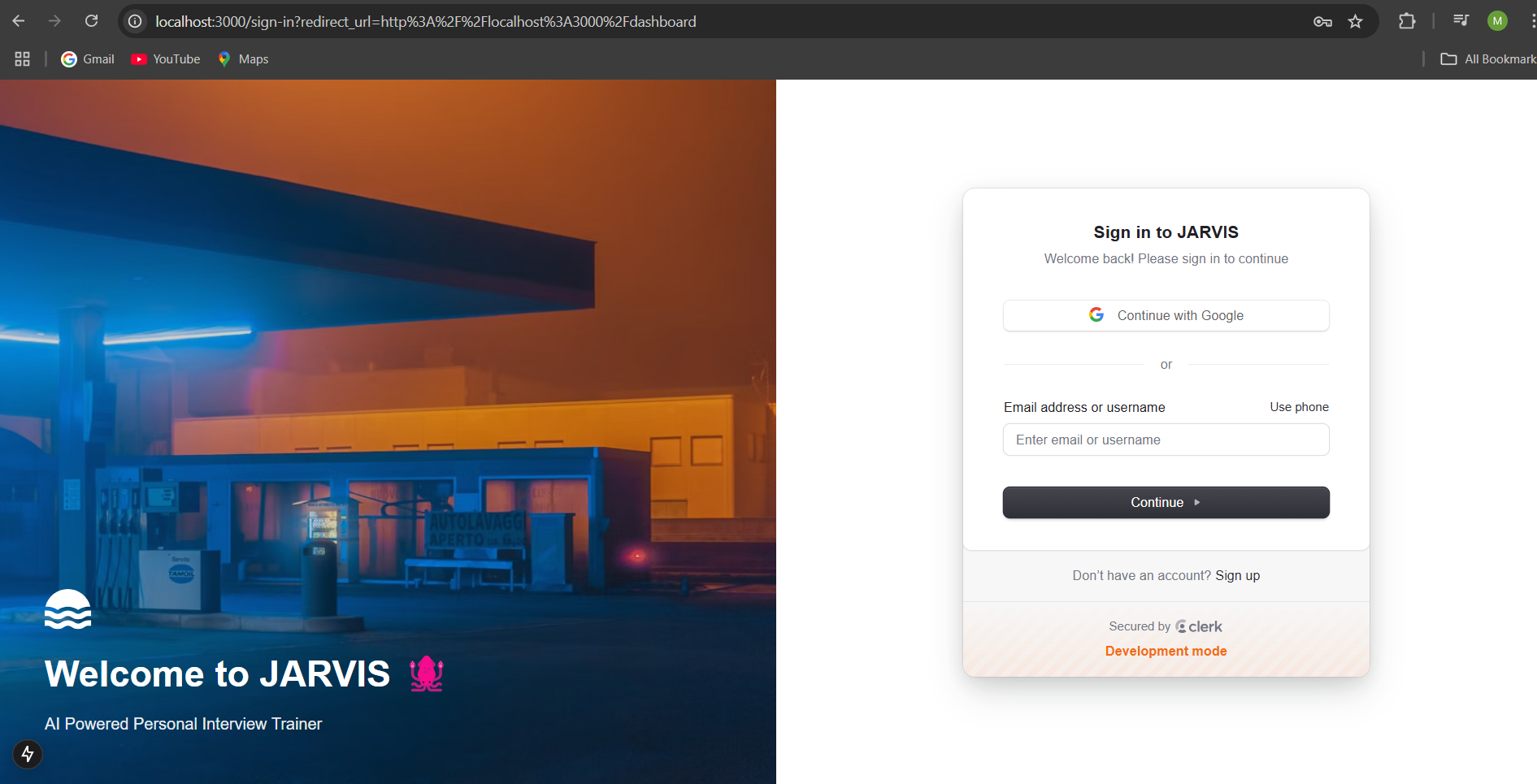
|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Description** |
| id | SERIAL | Primary key, unique identifier for each answer record. |
| mockIdRef | VARCHAR | Foreign key reference to mockId in MockInterview table. |
| question | VARCHAR | The question asked during the mock interview. |
| correctAns | VARCHAR | The correct answer for the question (if applicable). |
| userAns | TEXT | The user's response to the question. |
| feedback | TEXT | AI-generated feedback on the user's answer. |
| rating | VARCHAR | AI-assigned rating for the answer's quality. |
| userEmail | VARCHAR | Email of the user who provided the answer. |
| createdAt | VARCHAR | Timestamp indicating when the answer was recorded. |

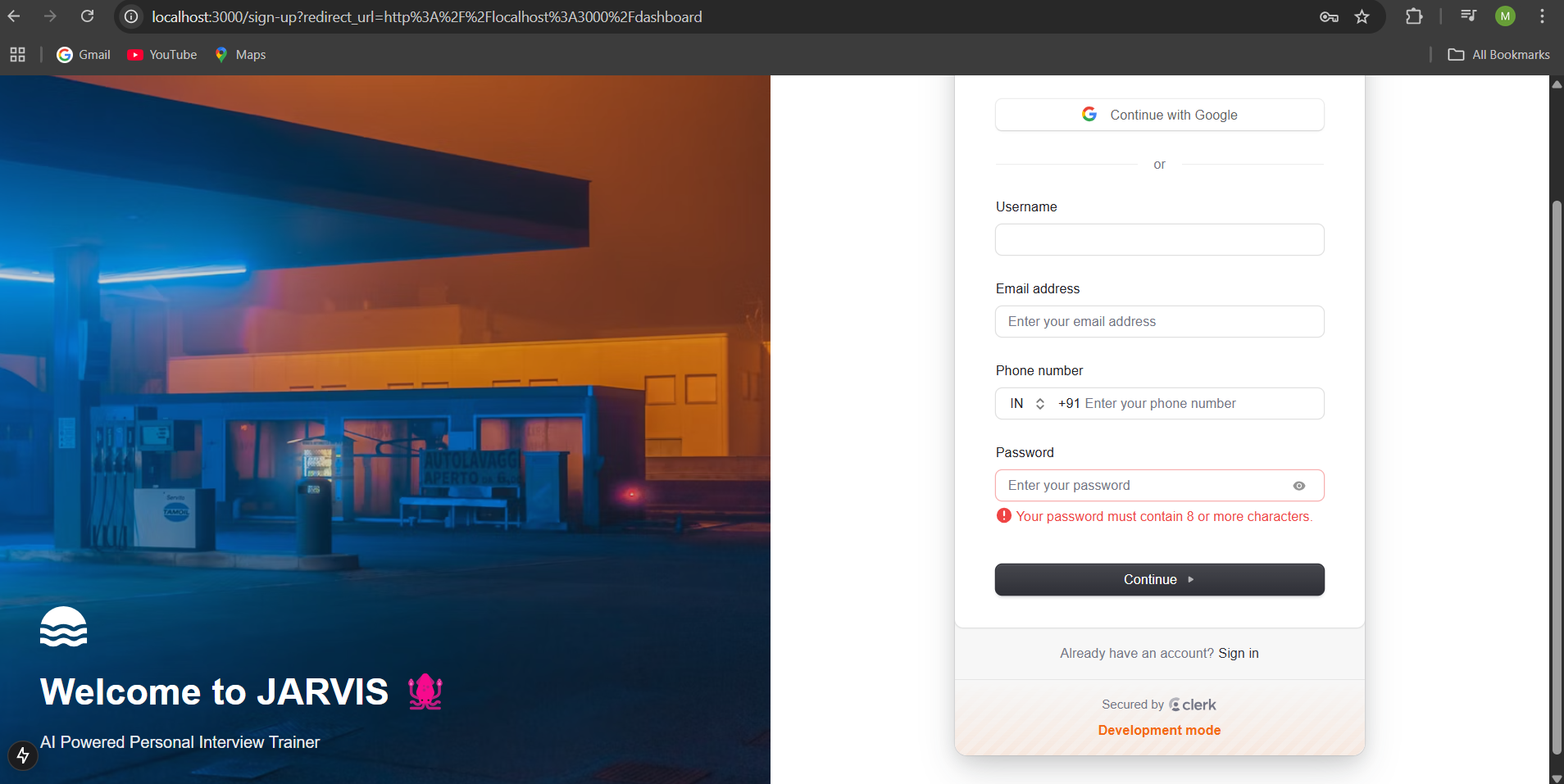
## **4. USER MANUAL**

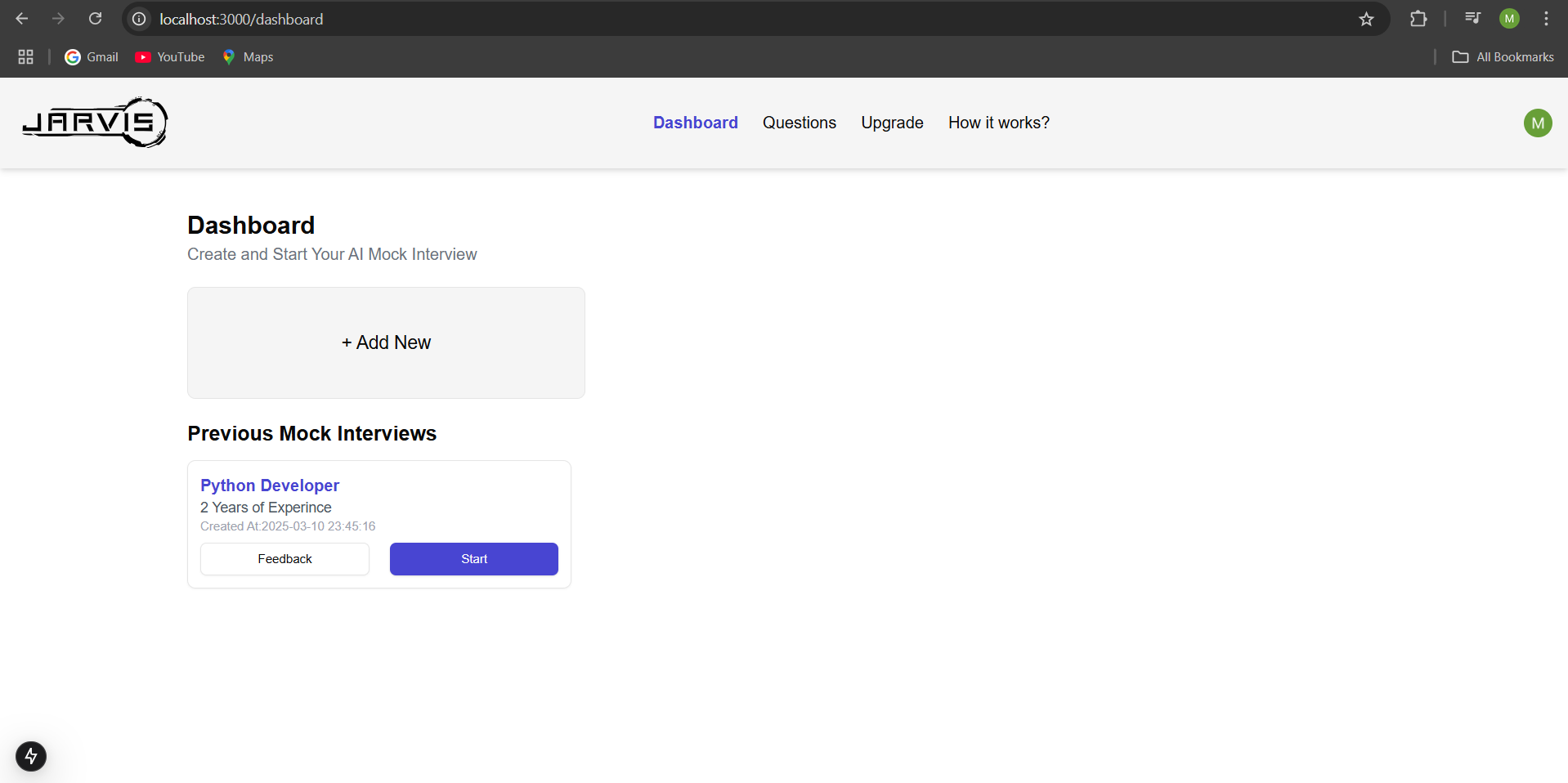
### **4.1 Operational Instructions**

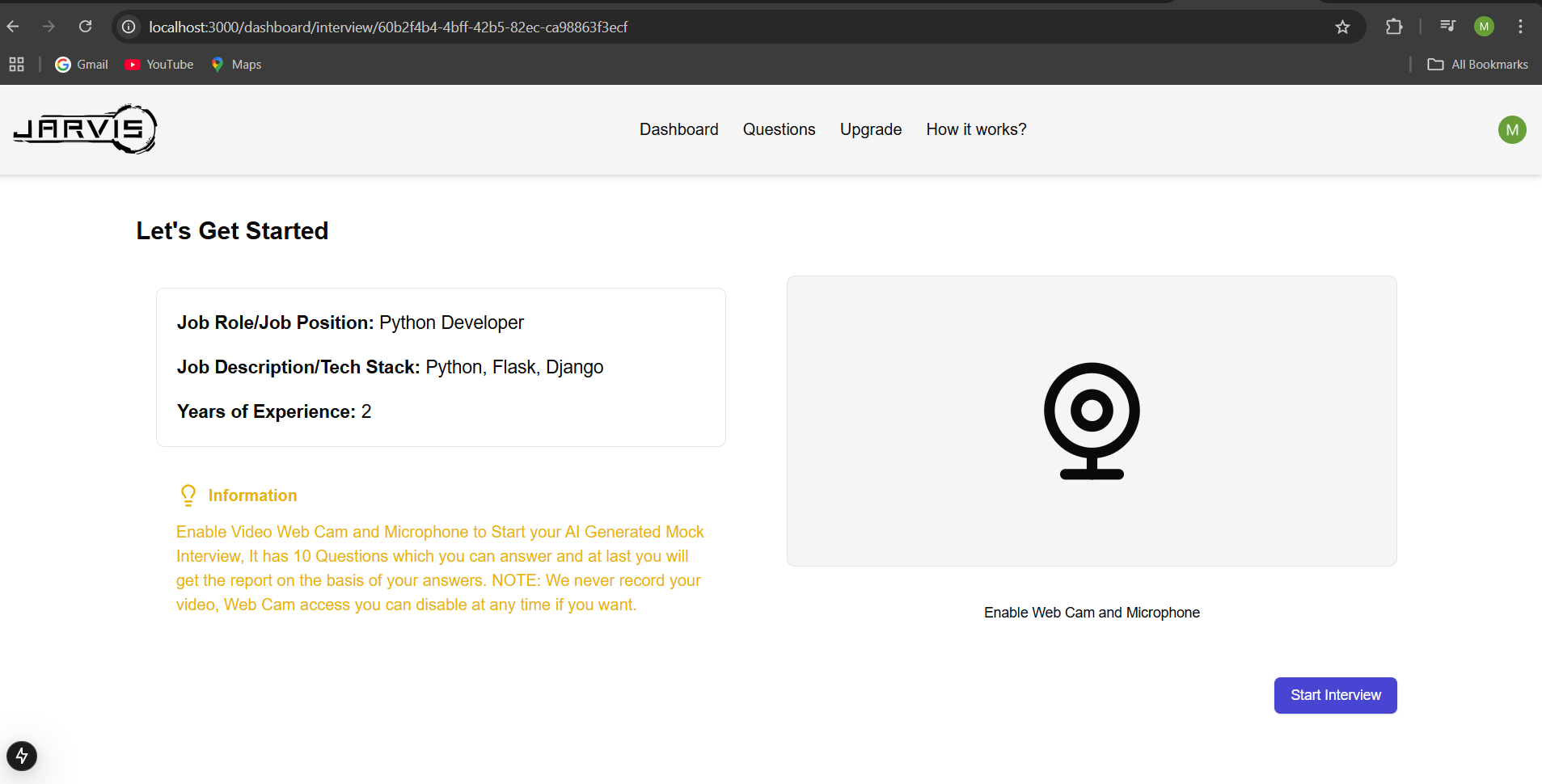
1. *Login* to the system.
2. Select *“Start Interview”*.
3. Answer AI-generated questions.
4. Receive *instant feedback* on speech clarity & expressions.
5. View *detailed performance reports*.

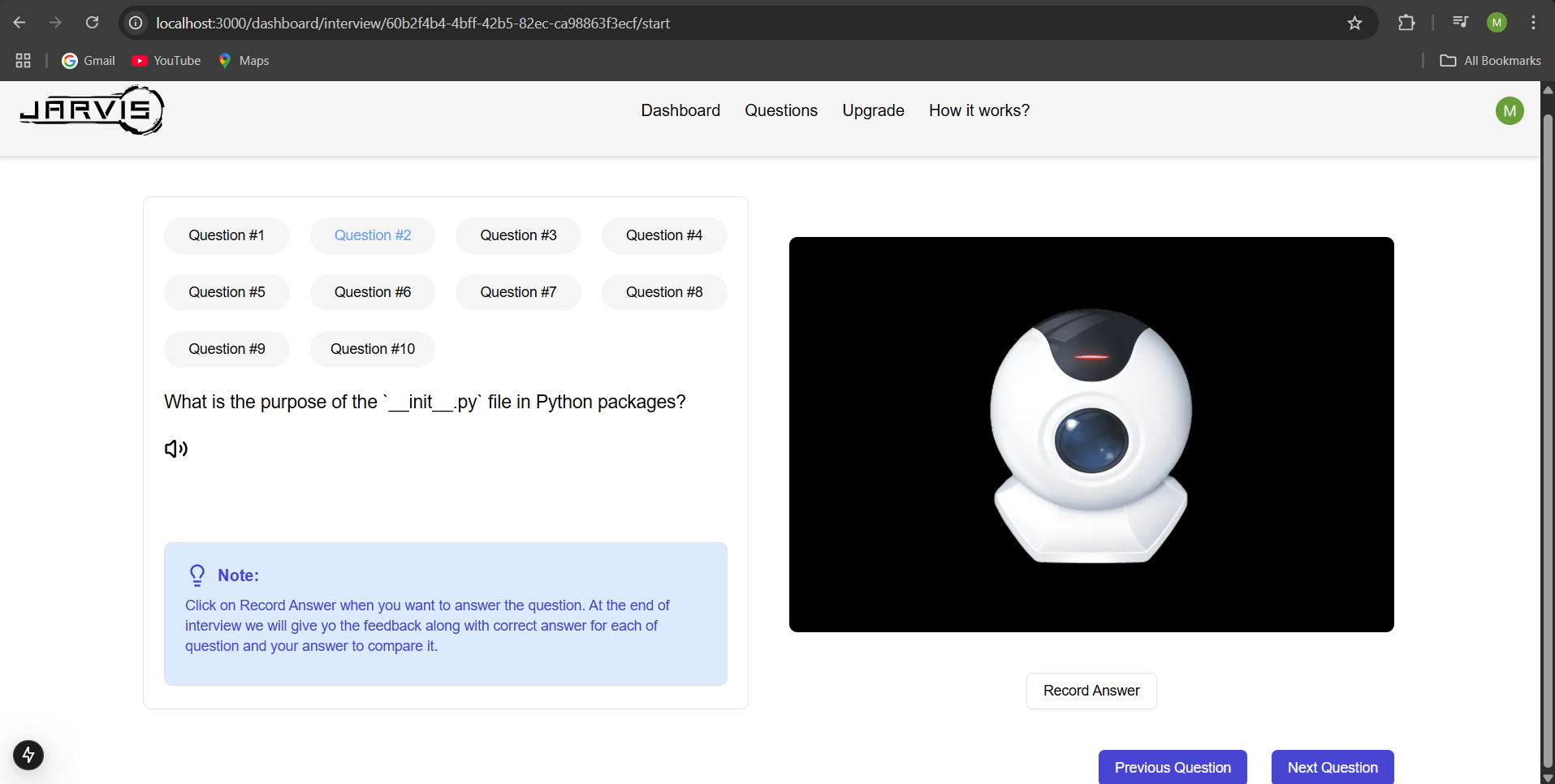
**4.2 Input/Output Screens**

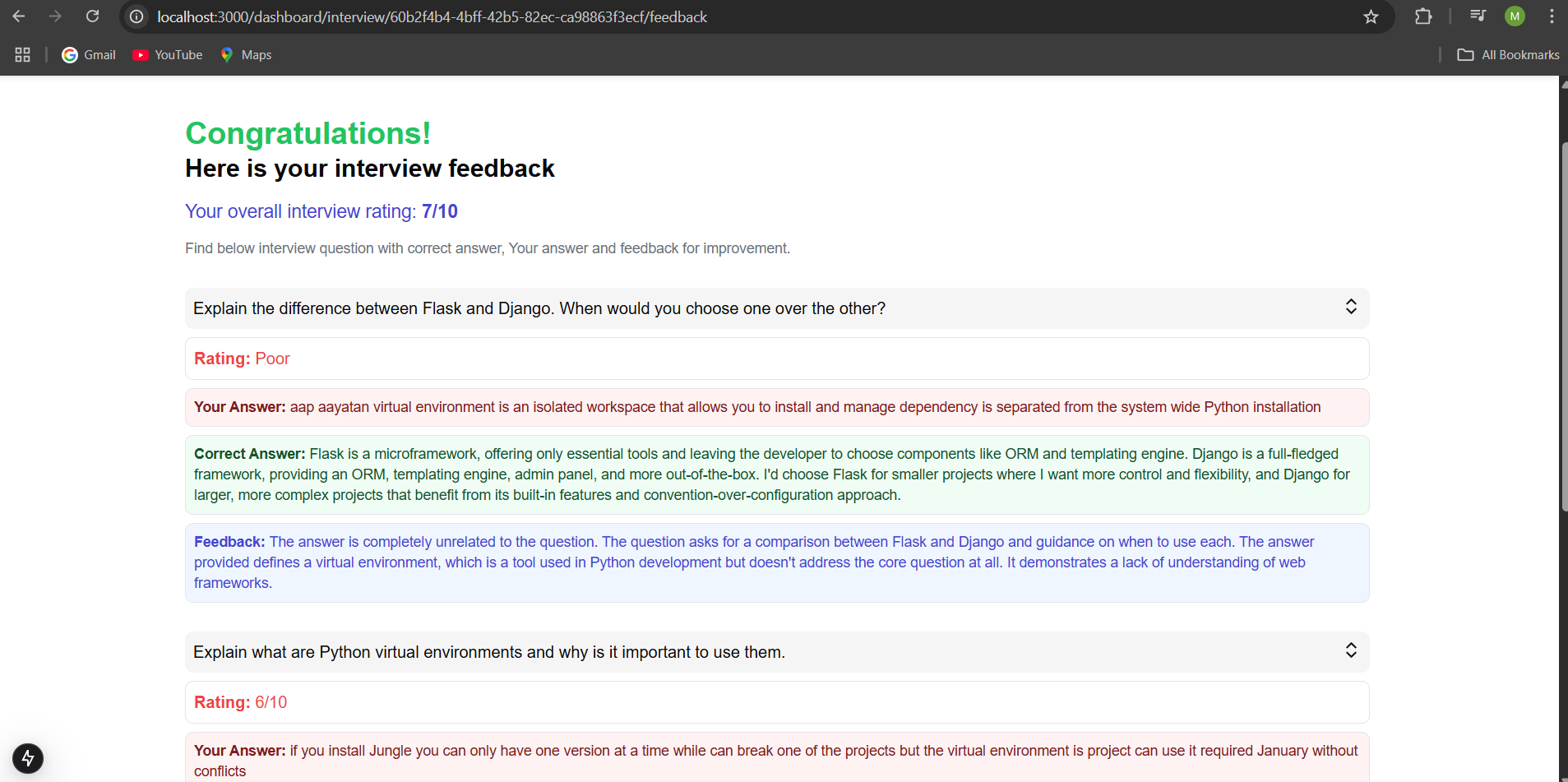


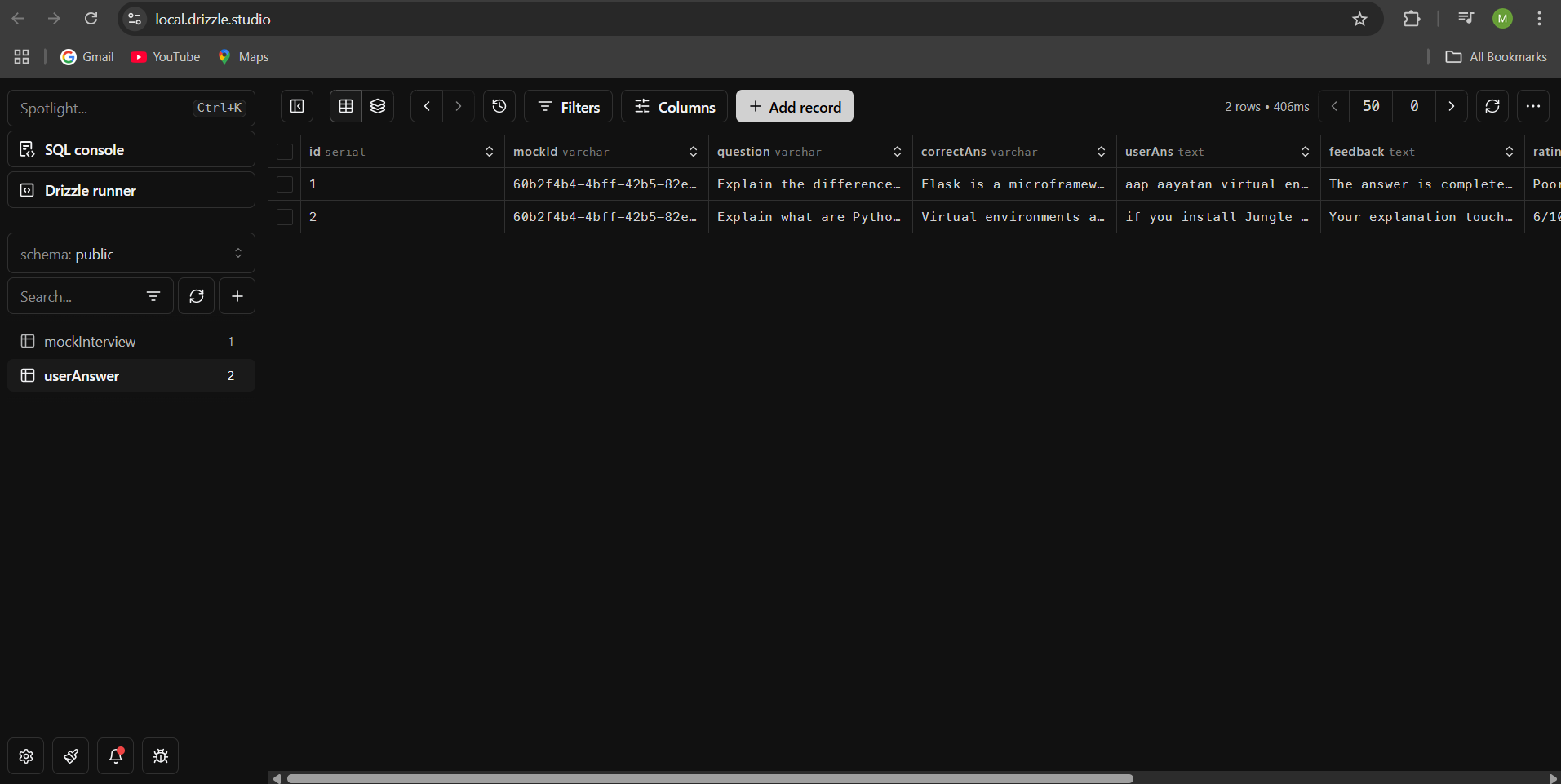












**4.3 Reports**

JARVIS provides detailed interview analysis reports that help users understand their strengths and weaknesses. These reports are generated based on AI analysis of the user's speech, facial expressions, and response quality.

* **Parts of Report**

1. Answer Quality Report - Analyzes the depth, relevance, and structure of responses.
2. Overall Performance Report - Provides a summary score and suggestions for improvement.
3. Detailed feedback and improvement suggestions
4. Actionable tips for enhancing interview performance

**5. SYSTEM LIMITATIONS**

Despite the robust AI-powered capabilities of JARVIS, certain limitations exist:

**5.1 Limited Support for Non-English Languages**

Currently, JARVIS primarily supports English-language interviews. While multilingual support is planned, accuracy for other languages is still limited.

**5.2 Internet Dependency**

JARVIS requires an active internet connection for real-time AI processing and report generation. Users with poor network connectivity may experience delays**.**

## **6. FUTURE ENHANCEMENTS**

* *Real-time job recommendations based on performance*.
* *Integration with LinkedIn for skill endorsement*.
* *Multi-language support for non-English speakers*.

## **7. CONCLUSION**

*JARVIS* provides a *next-gen AI-driven interview coaching experience*, helping users improve communication skills and interview readiness.

## **8. BIBLIOGRAPHY**

* NextJs Documentation
* Gemini API for Answer Evaluation
* IEEE Standards for Software Development