CS 699-2024-1

Software Lab

HW 10: Web Framework

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I have developed a simple Flask based web application. Basically, it is a Math Game website. It facilitates users to play a math-based game while tracking their progress and scores. Built using Flask, a lightweight Python web framework, this application features user authentication, score tracking, and an interactive gaming experience.

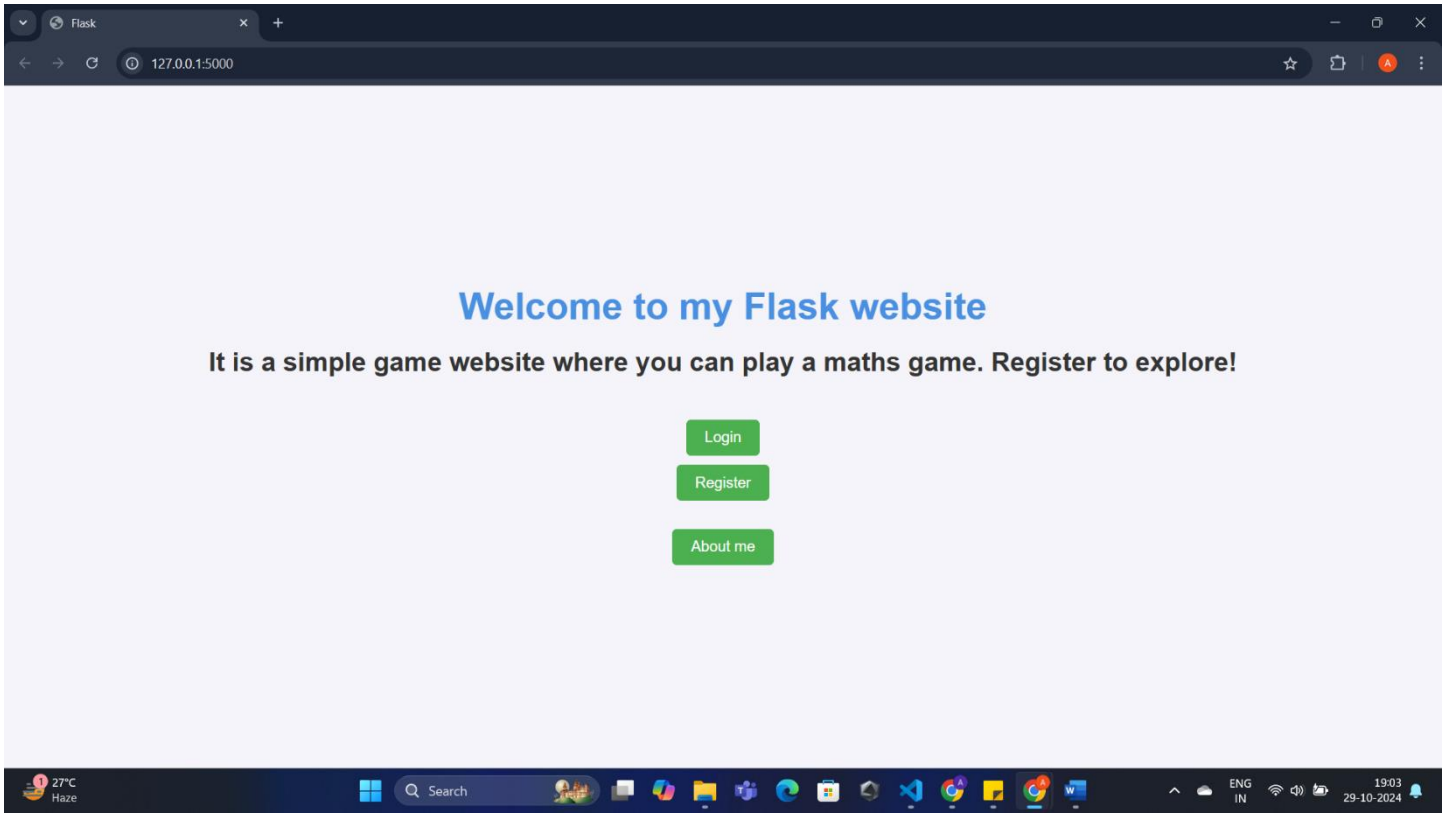
Key Features:

- **User Authentication**: Users can register, log in, and log out securely. The application utilizes **Flask-Login** for managing user sessions.
- **Dashboard**: Each authenticated user has access to a personalized dashboard displaying their highest score.
- **Math Game**: The core of the application is an interactive math game where users answer randomly generated math sums within a set time limit. The game includes a countdown timer and updates users on their scores in real-time.
- **Score Management**: Users' scores are stored in an **SQLite database**, allowing for the persistent tracking of their highest scores. The application compares new scores with previous ones and updates the database accordingly.

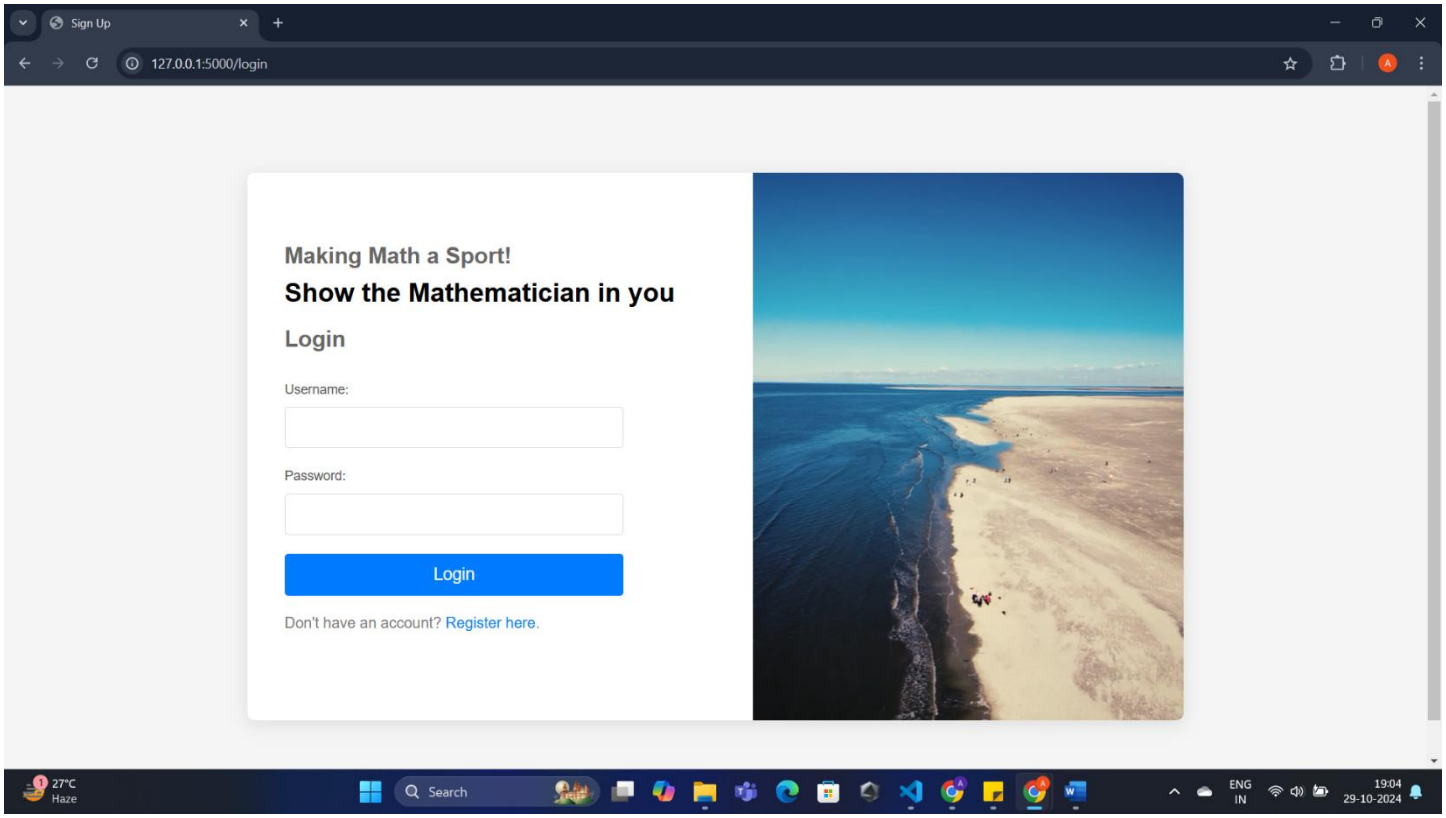
Technologies Used:

- **Backend**: Flask, Flask-SQLAlchemy, Flask-Login
- **Frontend**: HTML, CSS, JavaScript
- **Database**: SQLite for user data and score management

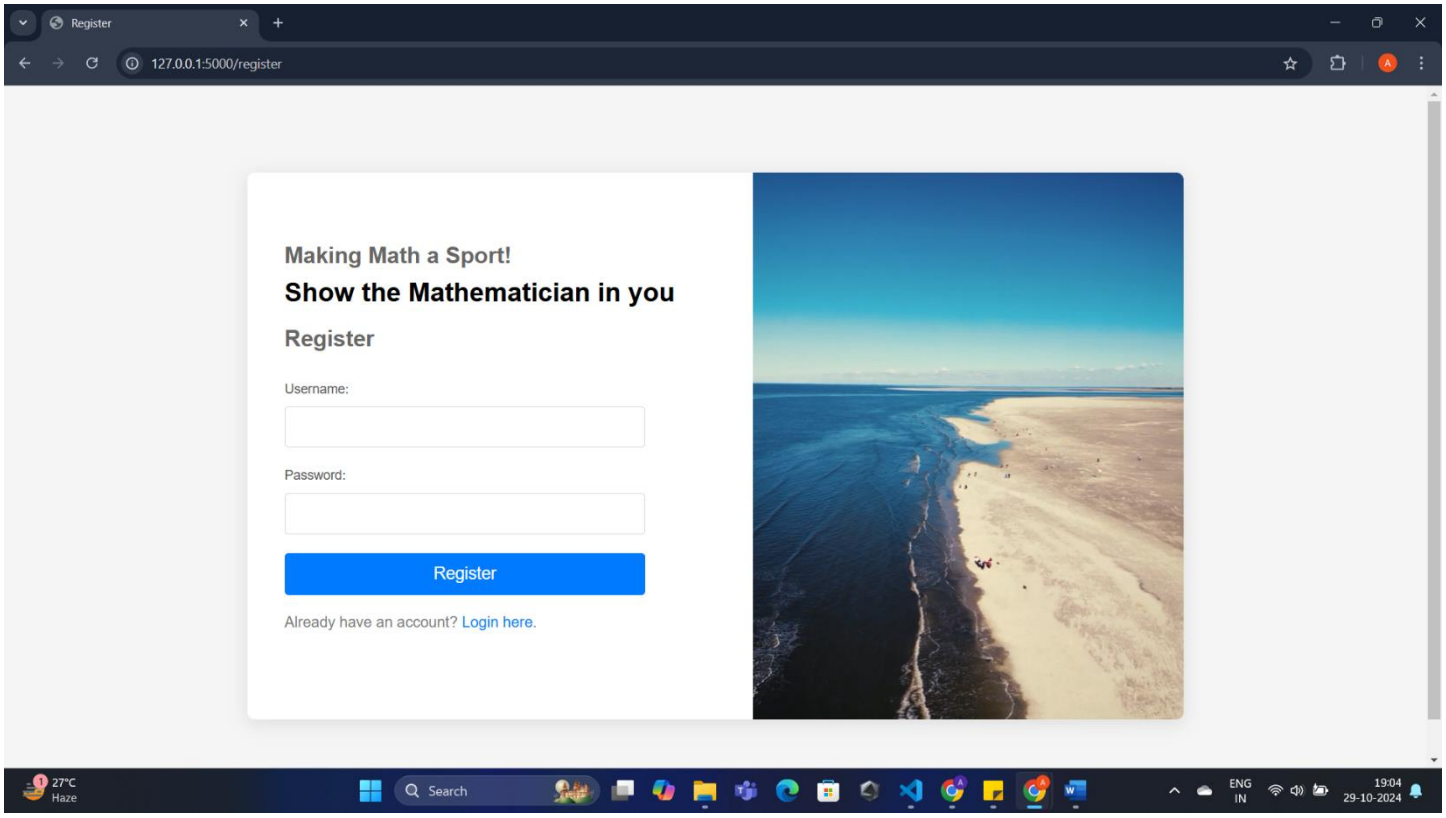
Screenshots:



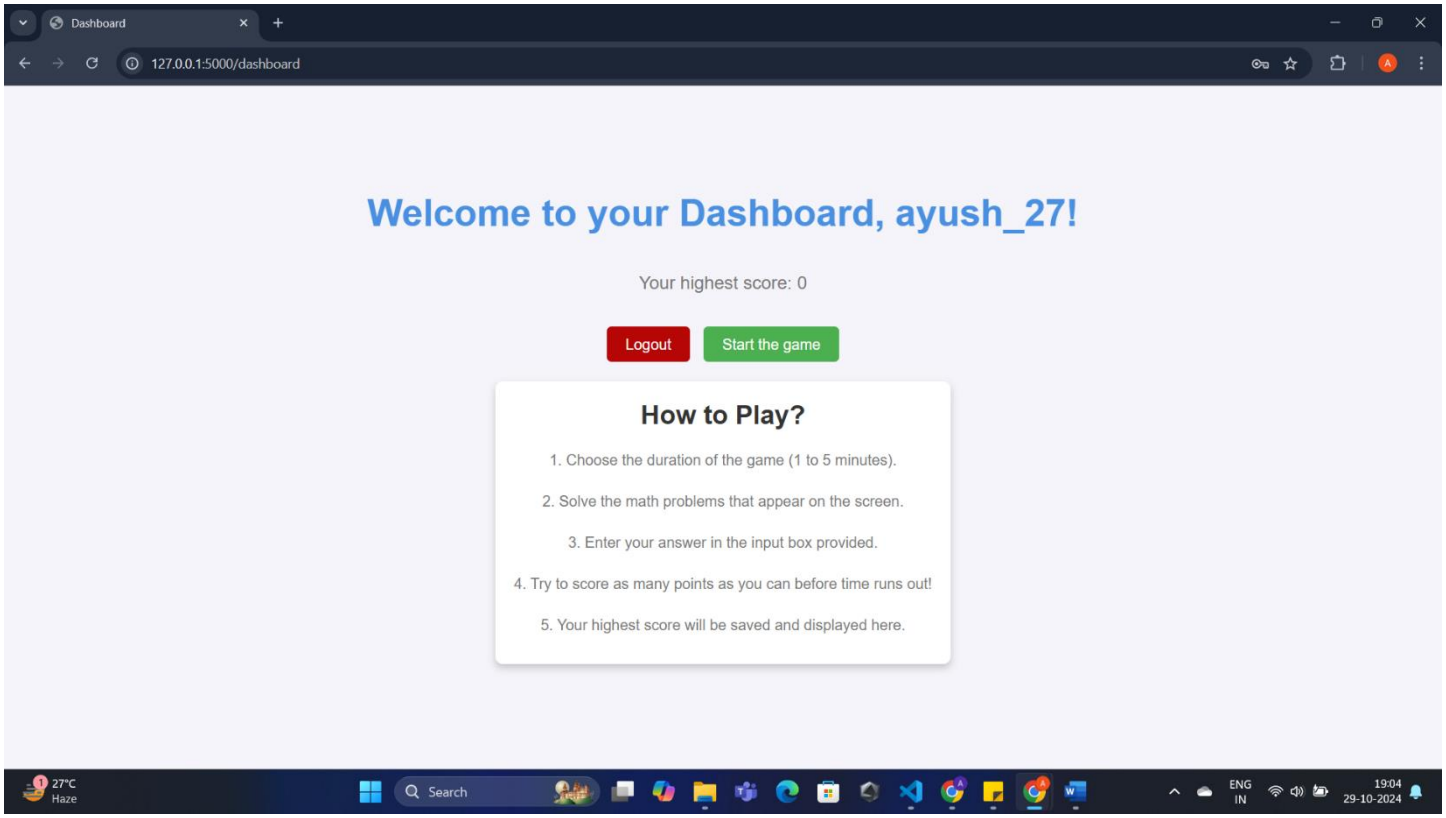
1. Welcome Page



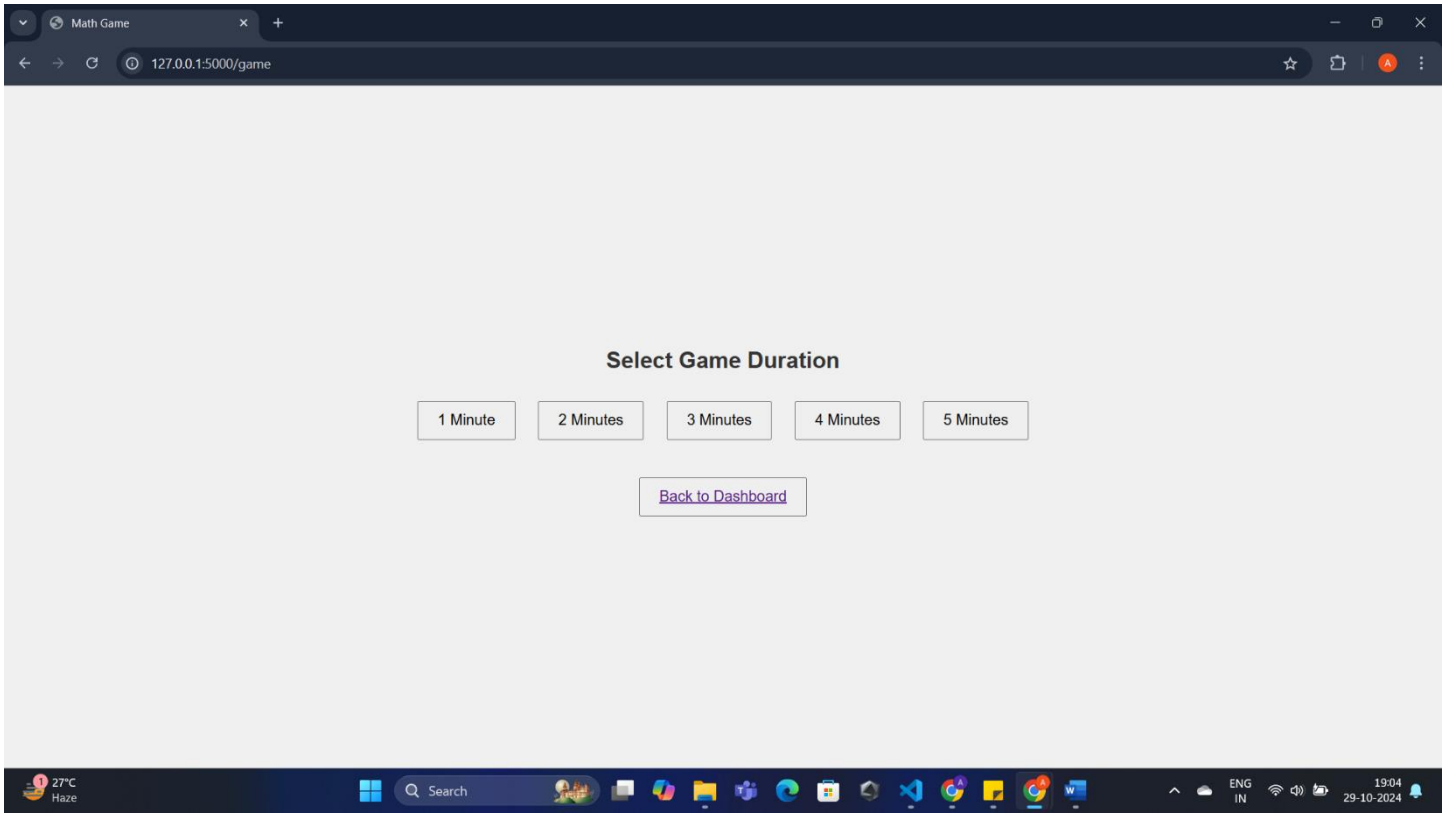
2. Login Page



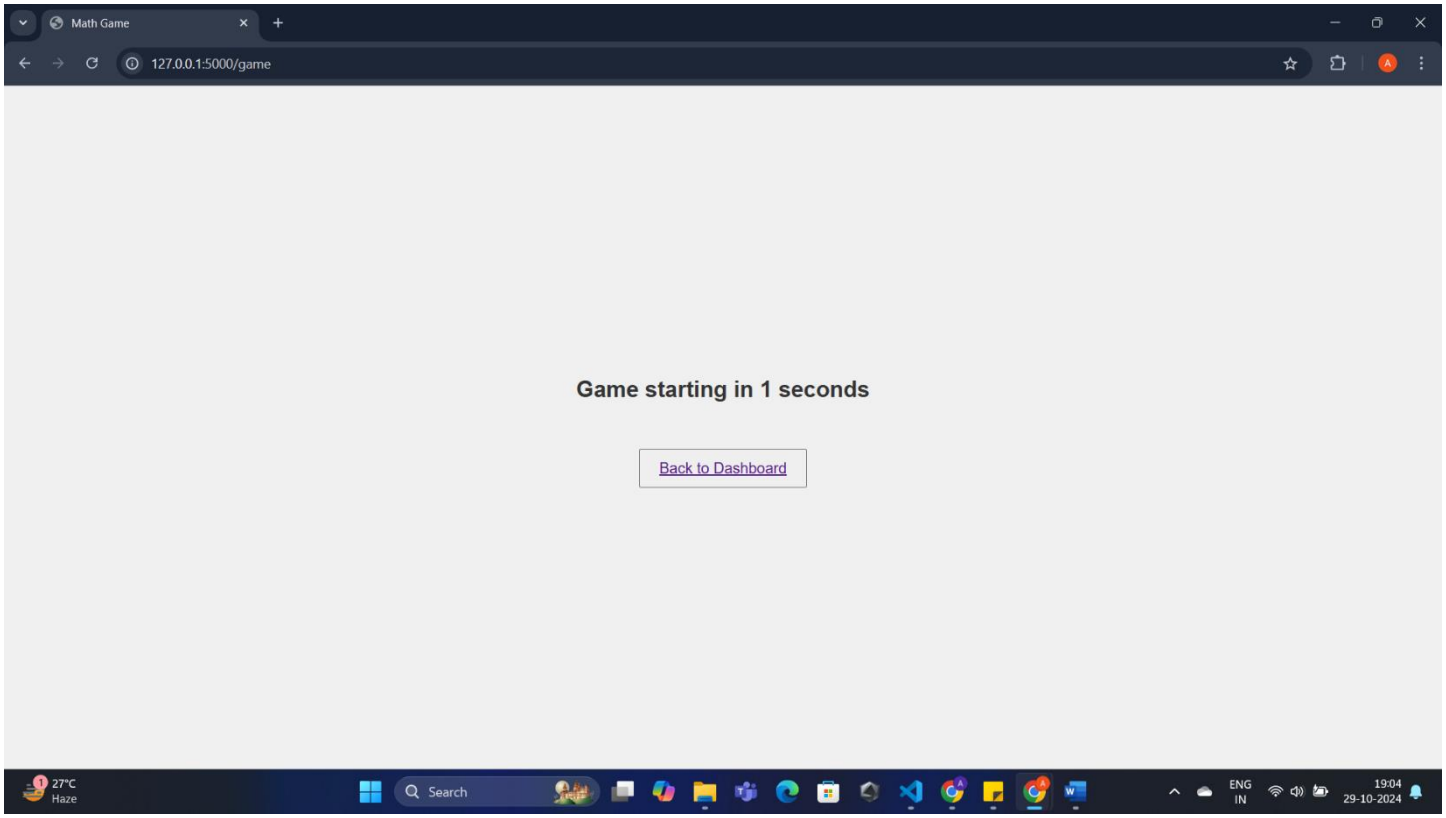
3. Register Page

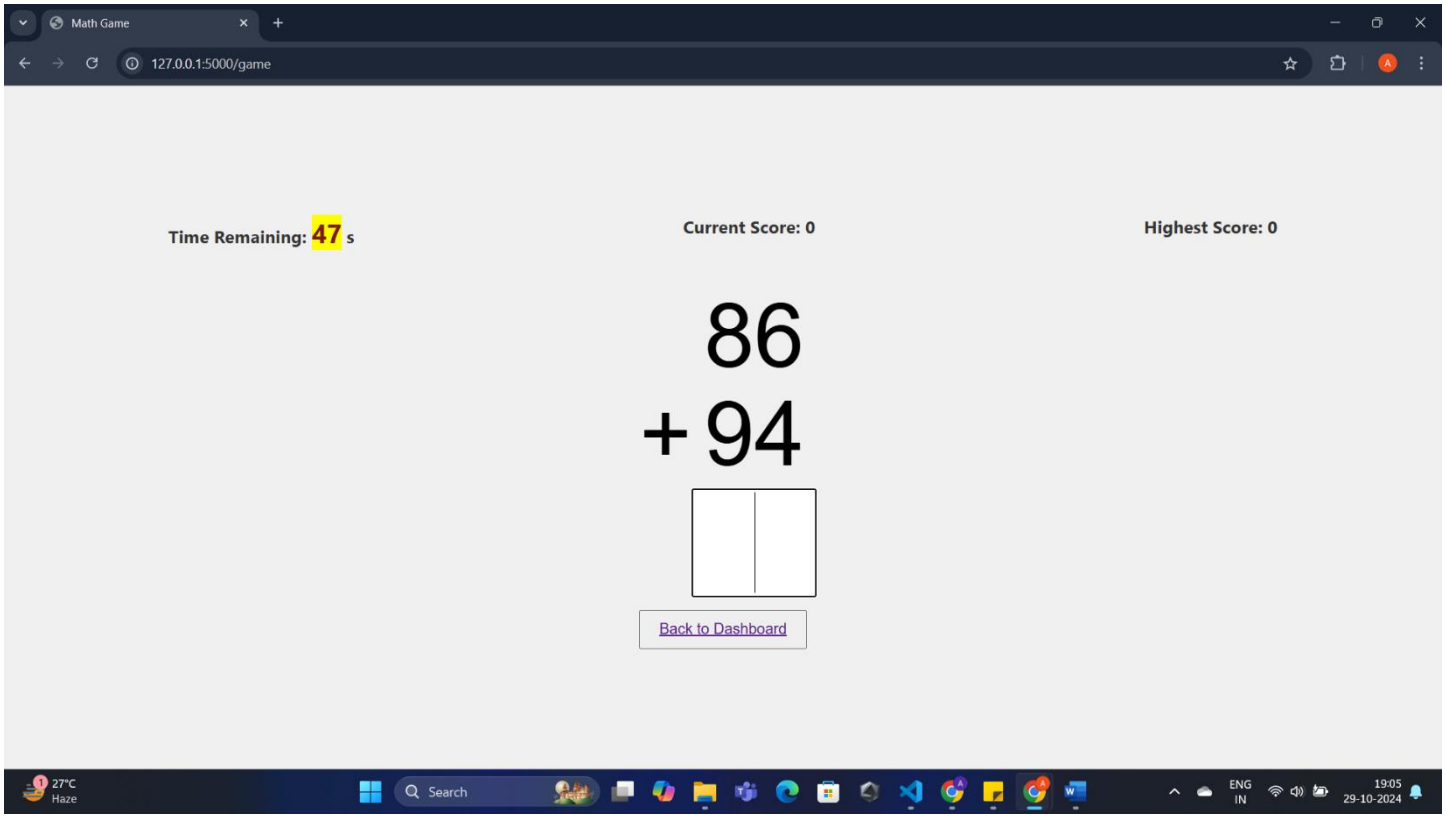


4. Dashboard

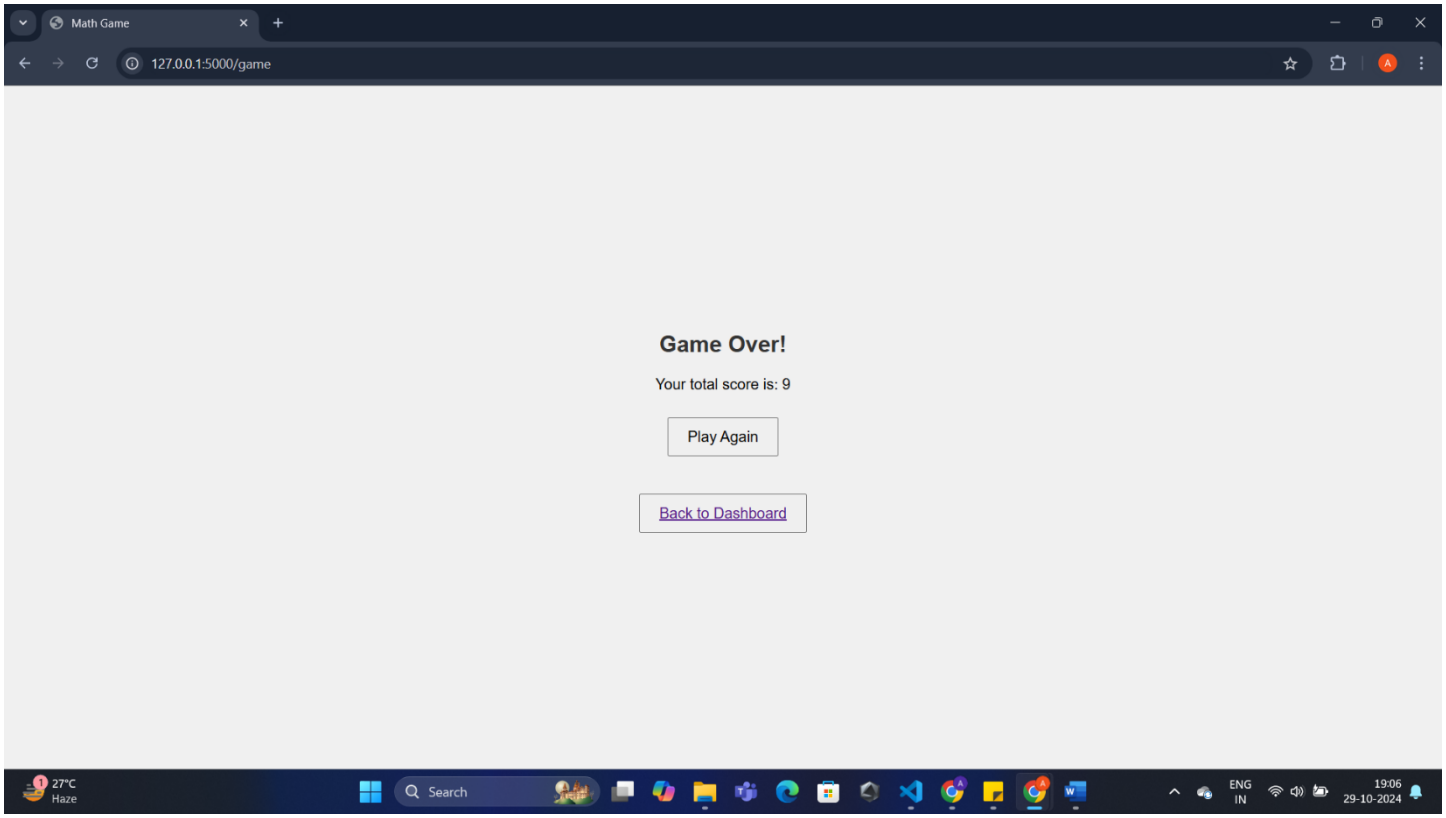


5. Game Duration Selection





6. Actual Game Page



7. Game Over Page

After the game is over, if the current score of the user is more than his highest score (which is stored in the SQLite Database) , then his highest score is updated in the SQLite Database.

SQLite Database looks like as below:

id	username	password	score
1	ayush_27	qwerty	18
2	24m0767	12345	4
3	ayushpratap	qazwsx	

How to install and run the application:

You need 2 basic things to be installed in your system to run this application:

1. **Flask**: Install it using the command - pip install Flask
2. **SQLAlchemy**: Install it using the command - pip install SQLAlchemy

Now run the Python application **app.py**

This should start the application on a particular port.

Explore it!