CodeIt

Java-Microproject

Online code compiler

(web based platform)

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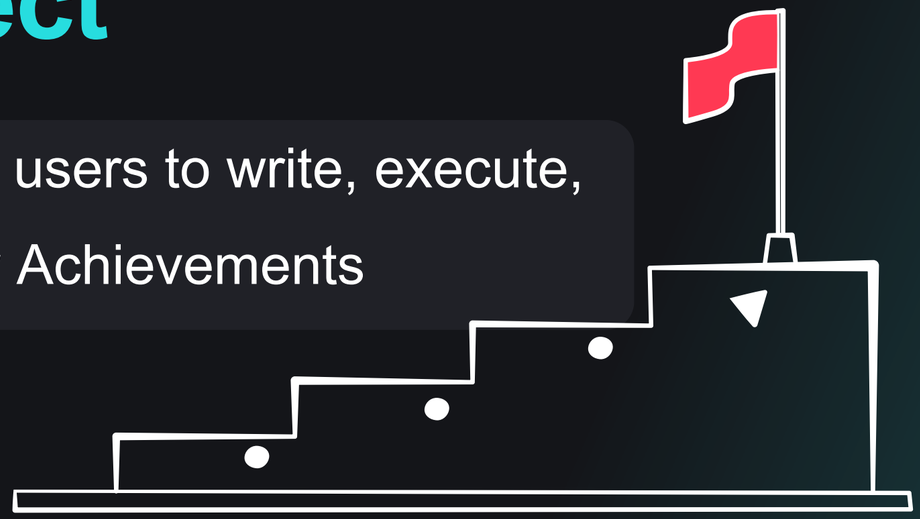
Overview of the project



Project Goal: To create a web-based Python compiler that allows users to write, execute, and view output of Python code in real-time from any device.Key Achievements

Tech Stack: Backend developed using Spring Boot with REST APIs, and data is stored in MongoDB for persistence.

Execution Engine: Integrated with Judge0 API (or your own logic – tell me what you used) to safely compile and execute Python code in a sandboxed environment.

Relevance to Real World Problems

No heavy IDE or Setup effort is required

One step closer to cloud based IDE -

Coding on the Go

our platform enables coding and execution from any device, anywhere.

Education & Learning

Students can test and learn without any technical hurdles or system requirements.

Objectives of the project

✅ **Enable Online Python Code Execution:**

✅ **Provide a Beginner-Friendly Environment:**

✅ **Implement User Authentication**

✅ **Integrate a Secure Code Execution Engine:**

Problem Statement

Beginners, students, and developers often face barriers when trying to run Python code —such as the need to install local environments, configure IDE’s, or manage dependencies. These challenges slow down learning, quick prototyping, and accessible coding, especially on limited or shared devices.
There is a need for a lightweight, browser-based Python compiler that enables secure, real-time code execution with zero setup—accessible anytime, anywhere.

Target Users

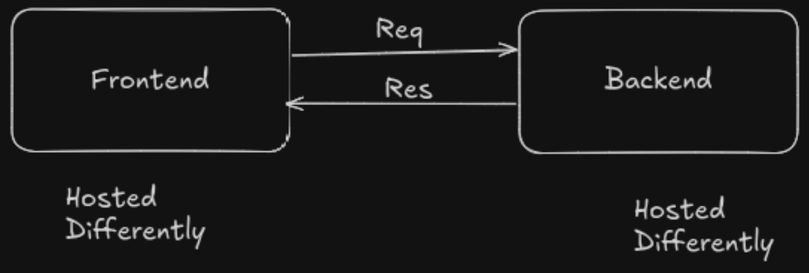
- 👨‍🎓 Students & Beginners
- 👨‍🏫 Educators & Trainers
- 👨‍💻 Developers & Programmers

Domain

- EdTech (Educational Technology)
- Online Coding Tools / Cloud IDEs
- Developer Productivity Tools

Architechture

1.



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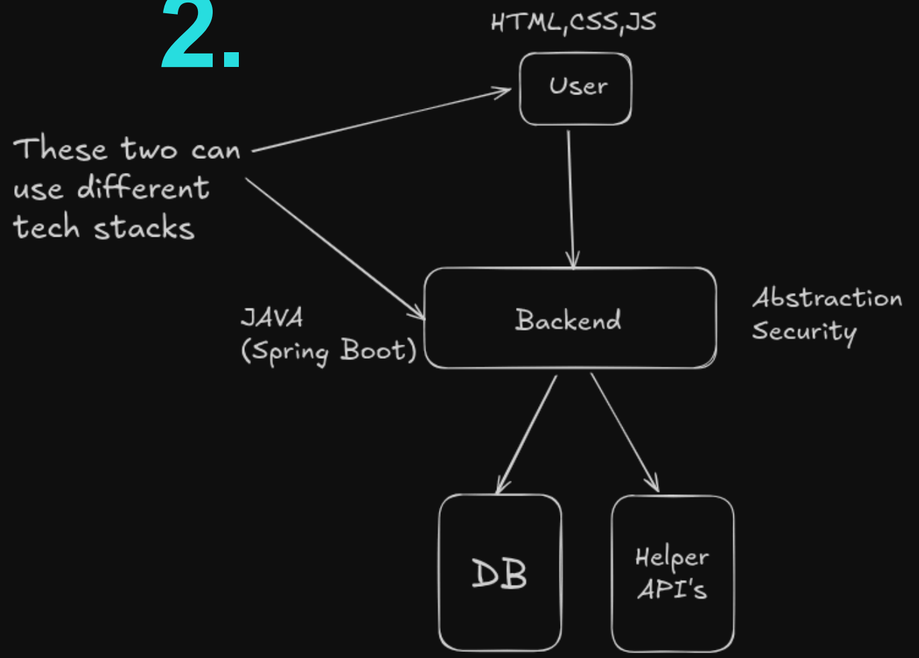

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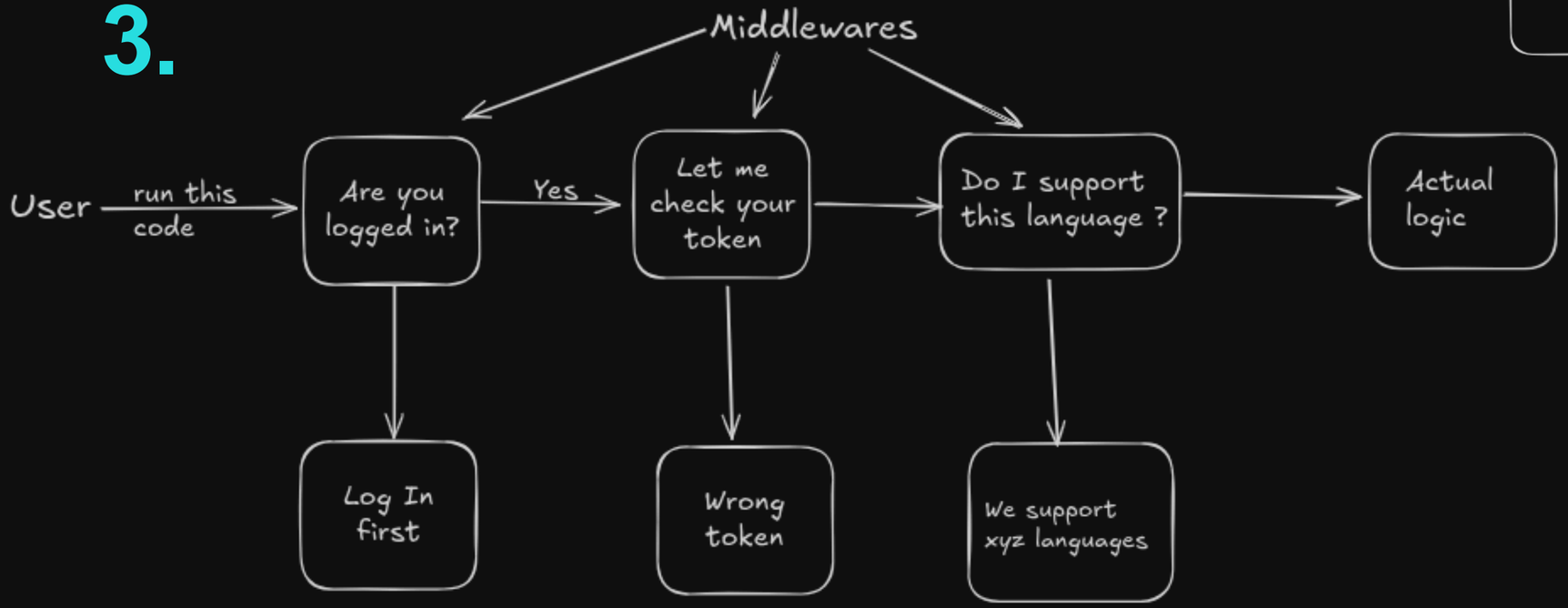


Tech Stacks

Backend

1.Java (Spring Boot)

Database

1.MongoDB
2.In memory

Dependancies

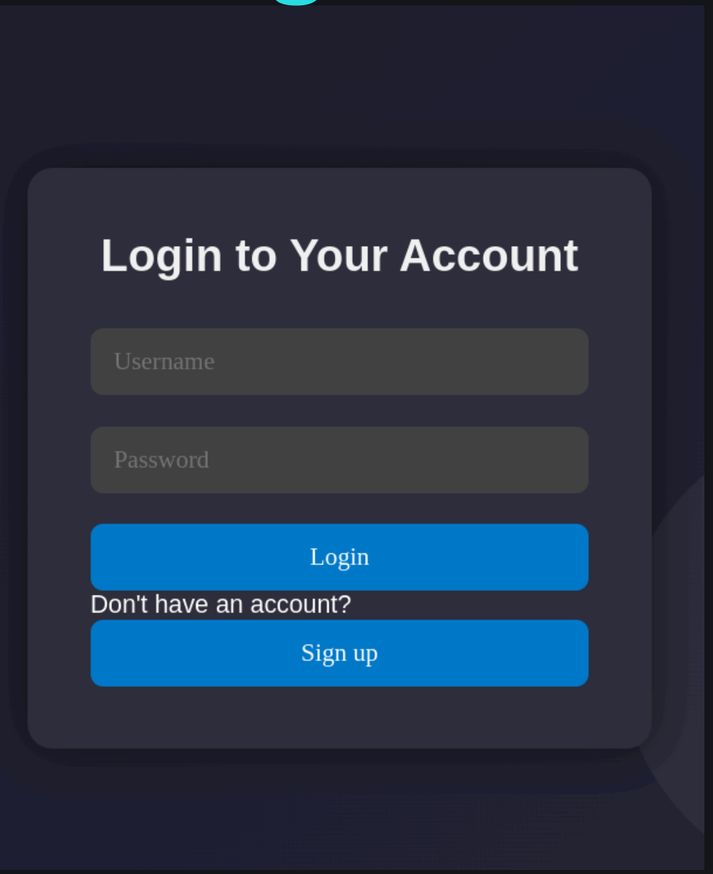
1.MongoDB Driver
2.Json web token

Frontend

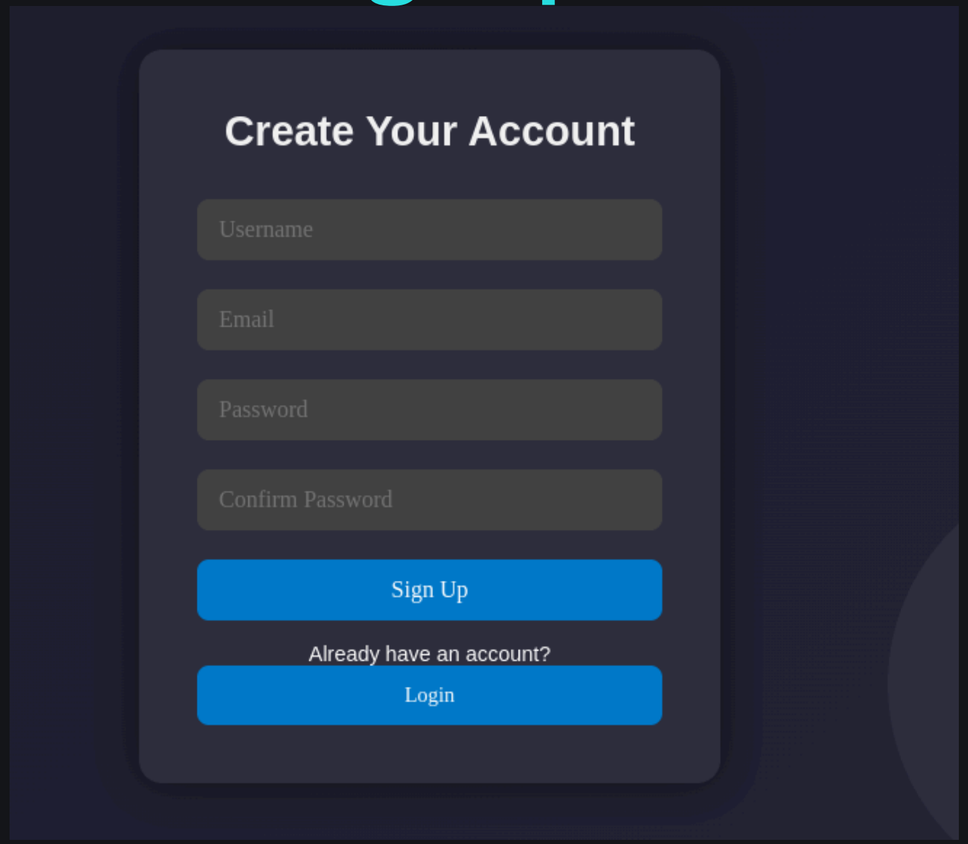
1.Hosting Platform -Vercel
2.Tech Stack-HTML,CSS,JS

Implementation

login



signup



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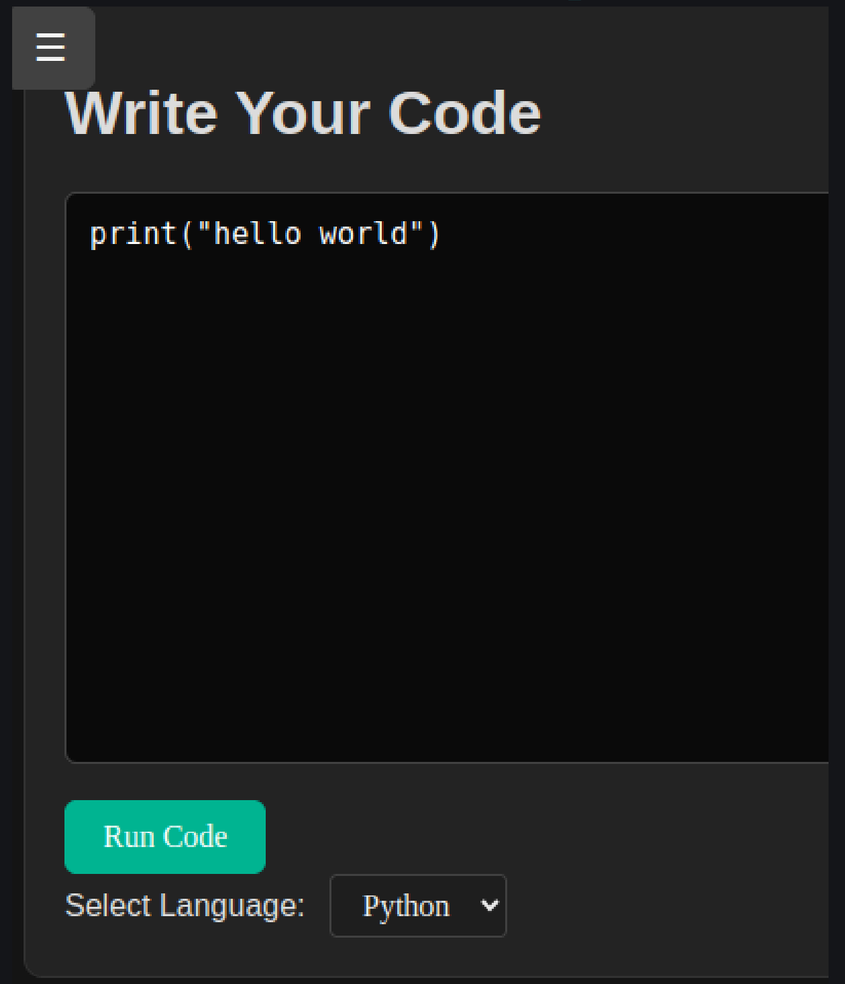

Challenges & Learnings

- Code Execution Environment Integration
- Temporary Code History Storage
- Handling Authentication
- Frontend and Backend Communication

Conclusion and Future Scope

Summary of completed features

- Online Python Code Editor
- Judge0 API Integration
- User Authentication
- Temporary Code History
- Frontend Hosted on Vercel
- Real-time Output Display

Future Scope

- Syntax Highlighting & Code Editor Upgrade
- Collaborative Coding (Pair Mode)
- Code Sharing & Snippet Links

Thank you