Online Code Editor with Live Preview

1. Introduction

1.1 Purpose

The purpose of the project is to provide a collaborative and real-time coding environment for users. The project aims to offer a platform where developers, coding enthusiasts, and students can write, edit, and execute code seamlessly.

1.2 Scope

The Code Editor will include features such as code editing, user registration, live preview, theme Customization, project Management and version Control, dashboard Overview.

1.3 Definitions, Acronyms, and Abbreviations

SRS: Software Requirements Specification
UI: User Interface
API: Application Programming Interface

2. Overall Description

2.1 Product Perspective

The Online Code Editor with Live Preview project positions itself as a collaborative coding platform, seamlessly integrating with the web development ecosystem. Leveraging the CodeMirror library, it offers an intuitive and responsive user experience, fostering learning, experimentation, and real-time collaboration. The project aims to contribute to the web developer community by providing a dynamic and supportive coding environment.

2.2 Product Features

- Code Editing
- Live Preview
- Collaborative Coding
- Theme Customization
- Project Management
- Dashboard Overview

2.3 User Classes and Characteristics

Developers : Actively engage in coding, collaborative projects, and use advanced code editing features

Students : Utilize the platform for educational purposes, experimenting with code, and collaborating on assignments.

Code Reviewers : Utilize collaboration and version control features for code review sessions.

Educators and Instructors : Leverage the platform for teaching coding concepts, conducting collaborative coding sessions, and assessing student work .

3. Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

- Intuitive and Responsive: Ensuring a user-friendly experience.
- Accessible Across Devices: Fully responsive across various devices and screen sizes.
- Menu-Based Navigation: Users can navigate through the website using an intuitive menu-based navigation system.

3.1.2 Hardware Interfaces

The system shall be hosted on dedicated servers with the following minimum specifications:

Processor: Intel i5 or Amd Ryzen 5 Equivalent
RAM: 16 GB DDR4
Storage: 512 GB SSD
Network Interface: Gigabit Ethernet

The servers must be capable of supporting the required software stack, including the web server, database server, and application runtime environment.

The system shall be accessible from client devices, including desktop computers, laptops, tablets, and smart phones.

3.1.3 Software Interfaces

The system utilizes JavaScript CodeMirror library . The application shall be accessible via standard web browsers such as Google Chrome, Mozilla Firefox, and Safari.

3.2 Functional Requirements

3.2.1 Code Editor Management:

Creating New Code Snippets:

Users shall create new code snippets, specifying language, title, and collaborators .

Editing Code Snippets:

Users shall be able to edit existing code snippets, modifying code content, title, and collaborators.

Deleting Code Snippets:

Users shall have the ability to delete their code snippets.

3.2.2 Collaboration Management :

Collaborative Coding:

Users can collaborate on the same code snippet.

Version Control:

The system shall automatically track code changes in collaborative projects.

3.3 Non-Functional Requirements

3.3.1 Performance:

Responsiveness:

The code editor shall respond to user interactions (e.g., typing, editing) in real-time.

Concurrent User Load:

The system shall handle a concurrent user load of up to 500 users without significant performance degradation.

3.3.2 Security:

Code Security:

Implement secure code storage and access controls to protect the integrity of users' code snippets.

HTTPS Encryption:

Utilize HTTPS encryption to ensure secure communication between the client and the server.