Real Time Code Editor

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ABSTRACT: The Real-Time Code Editor is a web-based application which work as a collaborative code editor.it develop to enhance efficiency and teamwork in software development, by using this web platform we can write , edit , and execute source code in real time and it allows multiple users to share it online environment and also provide synchronization of code changes. It is used for team-based software development and coding interviews.

KEYWORDS:

Real-Time code Editor
Collaborative Programming
Real Time Collaboration
Live Code Synchronization
Code Sharing platform

INTRODUCTION

A collaborative tool to enhance team productivity in software development, enabling real-time editing and instant feedback.This project focus on building a web-platform that allow a multiple user to write and edit source code simultaneously. The system enables instant updates, live synchronization and integrated code execution.it aims to improve teamwork among developers by providing a shared coding environment with real time interaction and immediate feedback.

BACKGROUND

With the rapid growth of software development and remote working culture, collaborative tools have become an essential part of modern development environments .Traditionally ,programmers worked individually and shared code through email,USB drives or version control systems

PROBLEM STATEMENT

- Existing coding platforms do not provide proper real time collaboration and execution in a single environment. This creates difficulties in teamworks , causes version conflicts and reduce efficiency in collaborative programming.

PROPOSED SOLUTION

To overcome the limitations of traditional coding environment,this project proposes the development of a web-based Real-Time Code Editor that enables multiple users to collaborate simultaneously on a single coding platform. The system allows users to collaborate simultaneously on a single coding platform..The system allows users to create or join a shared coding session where changes made by one user are instantly reflected on the screen of all connected users.

METHODOLOGY

The development of the Real-Time Code Editor was carried out using a structured and systematic approach to ensure efficient collaboration and seamless Real-Time communication among multiple users. Real-Time Code Editor was developed using a client-server architecture to enable collaborative programming.Real-Time synchronization was implemented through event-based communication,allowing instant reflection of code changes among multiple users..the system was tested under multi-user conditions to ensure reliability and low latency.

RESOURCES USED

- Frontend (HTML, CSS, JavaScript)

- Backend (Node.js / Python)

- WebSockets / Firebase (for real-time updates)

CONCLUSION

The Real-Time Code Editor successfully demonstrates an efficient and collaborative platform for simultaneous code editing. The system overcomes the limitations of traditional development environments by enabling instant synchronization, multi-user access, and seamless communication. By implementing real-time data exchange and session-based collaboration, the platform improves teamwork, reduces version conflicts, and enhances overall productivity. The project highlights the importance of modern web technologies in supporting remote development and collaborative learning. Overall, the developed system provides a reliable, scalable, and user-friendly solution for real-time collaborative programming..

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