CSIT
COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

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Enlightening Wisdom

MINOR PROJECT
PRESENTATION

Title:

Student Centric Online Code Compiler

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TABLE OF CONTENT-

ABSTRACT

Empowering education through innovation,

our "**Student-Centric Online Code Compiler**" revolutionizes coding in educational institutions.

With multi-language support, real-time code saving, and a secure, centralized platform, it simplifies and enhances learning experiences, and ensures data integrity.

Explore the future of coding education with us.

PROBLEM DOMAIN

Often, educational institutions face the issue of providing multiple Labs and compilers for many programming languages.
With "**Student-Centric Online Code Compiler**," this concern is mitigated as users can access a ***centralized*** platform that supports numerous programming languages, such as C, C++, Java, C#, JavaScript, Python, HTML&CSS and more.

Current Challenges in College Labs:

- Many Labs, Different computers, different compilers.
- Performance Issues: Slow performance and unreliable systems.
- Frequent Crashes: Interruptions and data loss.
- Data Corruption: Risk of losing valuable work.

LITERATURE SURVEY

- **Objective:** Understand challenges in the current college coding environment.

- **Current System Issues:**
  - Diverse compilers on different computers.
  - Slow, unreliable performance.
  - Frequent crashes and data loss.

- **Feedback:**
  - Students frustrated with inconsistent access and data loss.
  - Educators struggle with monitoring and reliability.

- **Key Takeaway**: Existing system poses significant challenges for both students and educators.

SOLUTION DOMAIN

Our platform, the "**Student-Centric Online Code Compiler**," addresses these challenges by offering a *centralized*, *user-friendly*, and *dependable* coding environment tailored to college Departmental needs.

Features offered by our Platform:

- **Centralized Platform:** Local Network Hosted Platform (available offline).
- **Multi-Language Support:** Access to a wide range of programming languages.(C, C++, Java, C#, Js, Py, HTML&CSS ...)
- **Real-Time Code Saving:** Continue where you left, *in any Lab*.
- **Interactive Console:** Easy input and output handling.
- **Monitoring System:** *Educators can track progress and guide students.*
- **Strong Assessments:** Educators can host Tests completely ***Offline*.**

TECHNOLOGIES USED:

Frontend Technologies: HTML, CSS, JavaScript, React, ChakraUI.

Backend Technologies: Node.js, Express.

Compilation: Native Compiler for Language with process ids.

Databases: MySQL(user mgmt) & MongoDB (code mgmt).

Hosting: NGINX & Local network for easy college-wide access.

Authentication: OAuth / Google Workspace Login.

and More...

APPLICATION DOMAIN

1. **Educational Institutions and College Labs:**
   - Centralized coding environment for students and teachers.
   - Benefits: Streamlined assignments, access to various languages, and improved data security.
2. **Online Coding Courses and Bootcamps:**
   - Integrated coding platform for remote learners.
   - Benefits: Real-time saving, multi-language support, and progress monitoring.
3. **Hackathons and Coding Competitions:**
   - Consistent coding environments for hackathons and competitions.
   - Benefits: Real-time analysis and secure competition submissions.
4. **Corporate Training Programs:**
   - Coding platform for employee training.
   - Benefits: Customizable assignments and progress tracking.
5. **Open Source Coding Communities:**
   - Collaborative coding environment for open-source projects.
   - Benefits: Multi-language support and version control integration.

THANK YOU

https://github.com/ashutosh7i/**Student-Centric_Online_Code_Compiler**