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LEARNING PLATFORM - SHALLWECODE

Dhanavijayan M *[1], Dhanaushkumar M *[2], Dharaneesh SN *[3]

[*1] Sri Shakthi Institute Of Engineering & Technology, (Anna University Affiliated), Coimbatore, Tamil Nadu, India
[*2] Sri Shakthi Institute Of Engineering & Technology, (Anna University Affiliated), Coimbatore, Tamil Nadu, India
[*3] Sri Shakthi Institute Of Engineering & Technology, (Anna University Affiliated), Coimbatore, Tamil Nadu, India

ABSTRACT :

ShallWeCode is a web-based coding education platform that enables users to learn and practice programming interactively. It supports Python, Java, and C languages with an in-browser compiler. The platform features a secure login system and stores user data, courses, and videos using MongoDB. Users can access structured courses and coding exercises in one unified space. Designed with Django, it provides a smooth and responsive user experience. ShallWeCode bridges the gap between theoretical learning and real-time coding practice.

INTRODUCTION

ShallWeCode is an innovative online platform built to simplify programming education for beginners and enthusiasts. It combines interactive learning with real-time code execution in Python, Java, and C. The platform features a user-friendly login system, and all user data, including courses and videos, are managed using MongoDB. Built with Django, it ensures secure and scalable performance. Users can learn at their own pace through structured content and practical exercises. ShallWeCode is designed to make coding education accessible, engaging, and effective.

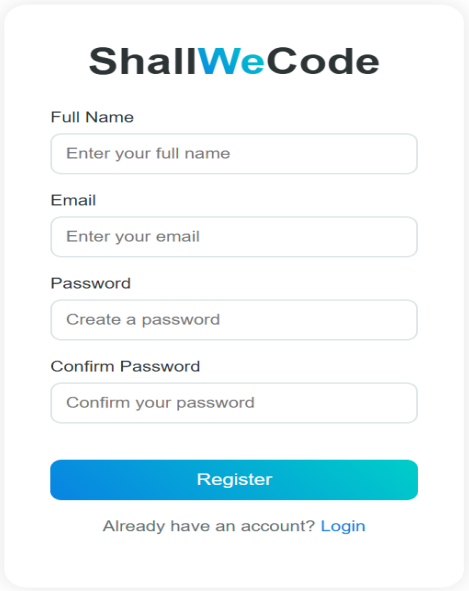
METHODOLOGY

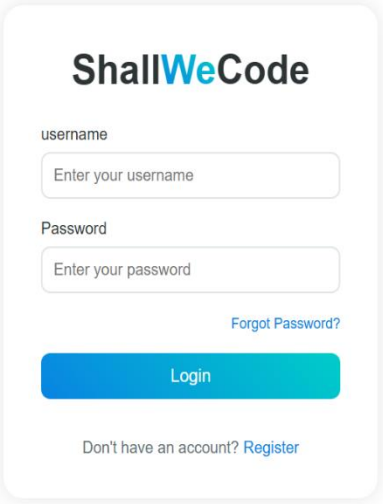
1. 1. Frontend Development: The user interface is built using HTML, CSS, and JavaScript for responsiveness and ease of navigation.
2. Backend Framework: Django is used to handle authentication, session management, and API routing.
3. Database Integration: MongoDB is used to store user credentials, courses, files, and video metadata securely.
4. 4. Compiler Integration: Online compilers for Python, Java, and C are integrated to execute code directly in the browser.
5. Course Management: Courses are structured with text, code examples, and video tutorials for step-by-step learning.
6. Testing & Deployment: The platform is tested for usability and performance, then deployed for public access via a web server.

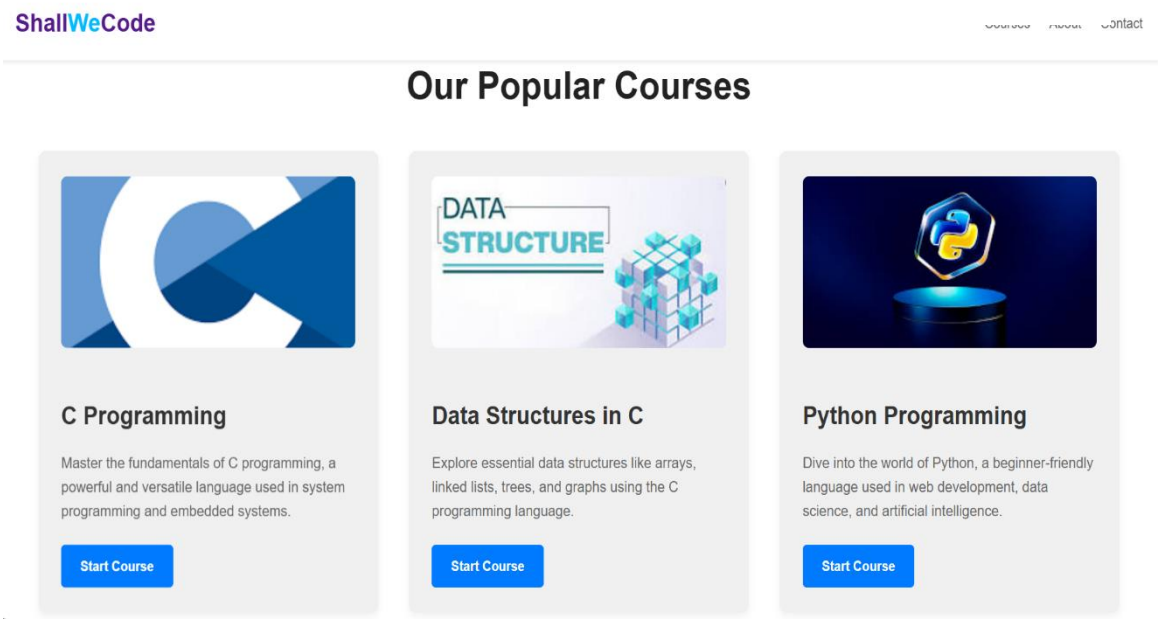
MODELING AND ANALYSIS

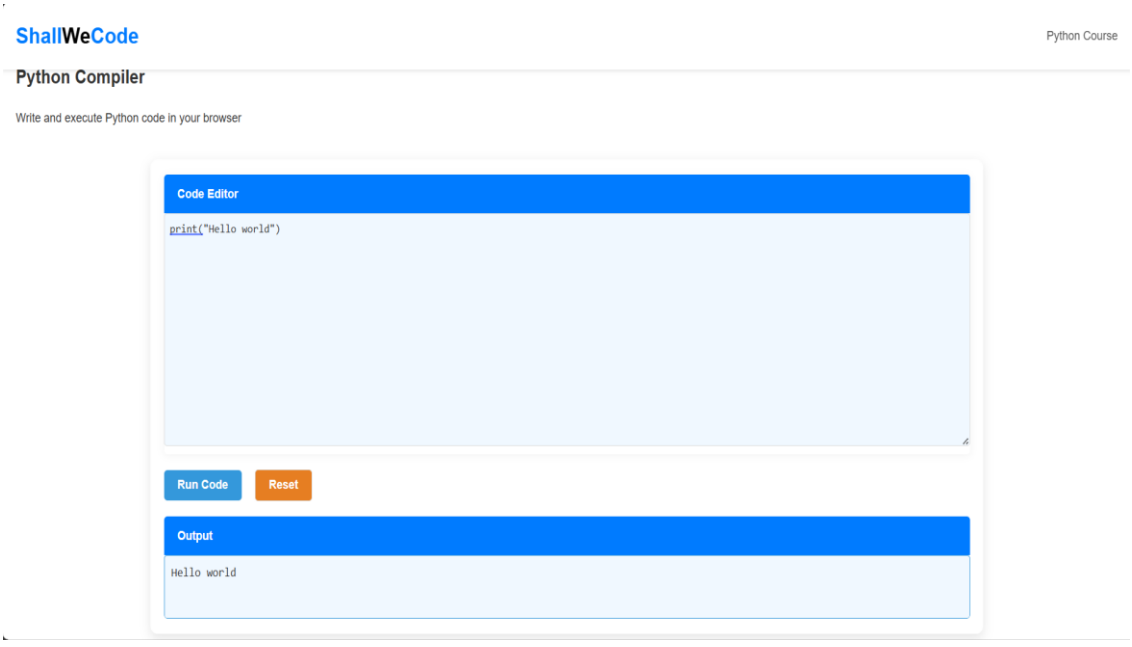
1. **User Data Modeling**: MongoDB is used to model user profiles, course progress, and uploaded files using JSON-like documents for flexible schema design.
2. **Course Structure Modeling**: Each course is stored with metadata, content, video links, and coding tasks, allowing dynamic rendering on the frontend.
3. **Code Execution Analysis**: User-submitted code is sent to a backend compiler API, and outputs or errors are captured for display and logging.
4. **Progress Tracking**: The system analyzes user interactions to track course completion, time spent, and activity history for personalized feedback.
5. **Performance Metrics**: Backend logs and database queries are monitored to analyze server load, response times, and usage trends.
6. **Future Enhancements**: Plans include integrating ML-based recommendation systems to suggest relevant courses based on user behavior.

RESULTS AND SCREENSHOTS:









CONCLUSION

The SHALLWECODE platform is a step forward in making programming education more accessible, engaging, and practical for beginners. By eliminating the need for complex software installations and providing a browser-based coding environment, the platform allows learners to focus on what truly matters—understanding programming concepts and building real skills. With support for Python, Java, and C, users can explore foundational languages that serve as a gateway to various domains in software development and computer science.

The integration of video lessons, written tutorials, and quizzes ensures a blended learning experience that caters to different learning styles. A secure backend built using Django and MongoDB supports user management, course progress tracking, and storage of code and multimedia content. In future developments, the platform aims to include advanced features such as gamification, performance analytics, and collaborative coding.

SHALLWECODE is not just a tool—it is a learning environment built to empower students, self-learners, and educators alike. It combines simplicity with functionality to offer a modern solution to the traditional challenges of learning to code. With continuous updates and community involvement, SHALLWECODE has the potential to become a reliable educational companion for anyone on their programming journey.

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