Computer Science and Engineering Discipline
Khulna University

Web Programming project proposal

Team members:	
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Proposed Project Title:
Development of an online judge.

Introduction:
The purpose of this project is to develop a simple online judge that allows users to log in, access a problem set, and submit their solutions. The platform will facilitate coding practice and problem-solving for users, encouraging them to improve their programming skills. As the project matures, we will add more features and functionalities to enhance the user experience.

Objectives:
1. Develop a user-friendly online judge that offers a smooth and intuitive interface for users to interact with the platform.
2. Implement user authentication and account management to ensure secure access to the problem set and submissions.
3. Create a problem repository that allows administrators to add, edit, and manage problem statements and test cases.
4. Design a submission system that can compile and execute user-submitted code against the predefined test cases.
5. Provide feedback to users on their submissions, indicating whether their solutions are correct or not.

Features:
1. **User Authentication and Account Management:**
   - User registration and login with email.
   - User profiles with options to view and update personal information.
2. **Problem Set:**
   - Display a list of available problems for users to choose from.
   - Show detailed problem descriptions, including input/output format and constraints.
3. **Submission:**
   - Allow users to submit their code solutions for specific problems.
   - Compile and execute the submitted code against test cases.
   - Provide immediate feedback on the outcome of the submission (Accepted, Wrong Answer, Runtime Error, etc.).
   - Show detailed verdict information and test case results.

Tools & Technologies:

1. **Front-end:**
   - HTML, CSS, and JavaScript for the user interface.
   - React as front-end framework for efficient development and improved user experience.
2. **Back-end:**
   - PHP with Laravel for handling the logic and database interactions.
   - MySQL database management system for storing user data and problem information.

Project Timeline:

1. **Project Planning and Design: 2 weeks**
   - Define the scope, objectives, and requirements of the project.
   - Design the user interface.
2. **Front-end Development: 3 weeks**
   - Develop the front-end components and user interface.
   - Implement user authentication and account management features.
3. **Back-end Development: 3 weeks**
   - Set up the back-end infrastructure with the chosen technology.
   - Create the problem repository and submission handling system.
4. **Integration and Testing: 1 week**
   - Integrate the front-end and back-end components.
   - Conduct extensive testing to identify and fix bugs.
5. **Deployment and Launch: 1 week**
   - Deploy the application to a web server or hosting platform.
   - Launch the online judge for public access.

Conclusion:

The development of this simple online judge will provide users with a platform to practice coding and problem-solving skills. As we add more features and expand the platform, we anticipate attracting a broader user base and fostering a supportive coding community. With careful planning and dedicated efforts from the team, we aim to deliver a successful and efficient online judge that meets our users' needs.