Basic Details of the Team and Problem Statement

Ministry/Organization Name/Student Innovation: RCCIIT

PS Code: SBHRCCIIT006

Problem Statement Title: Automatic optimize class routine generation

Team Name: Alt F4

Team Leader Name: Ranadeb Saha

Institute Code (AISHE): C-61540

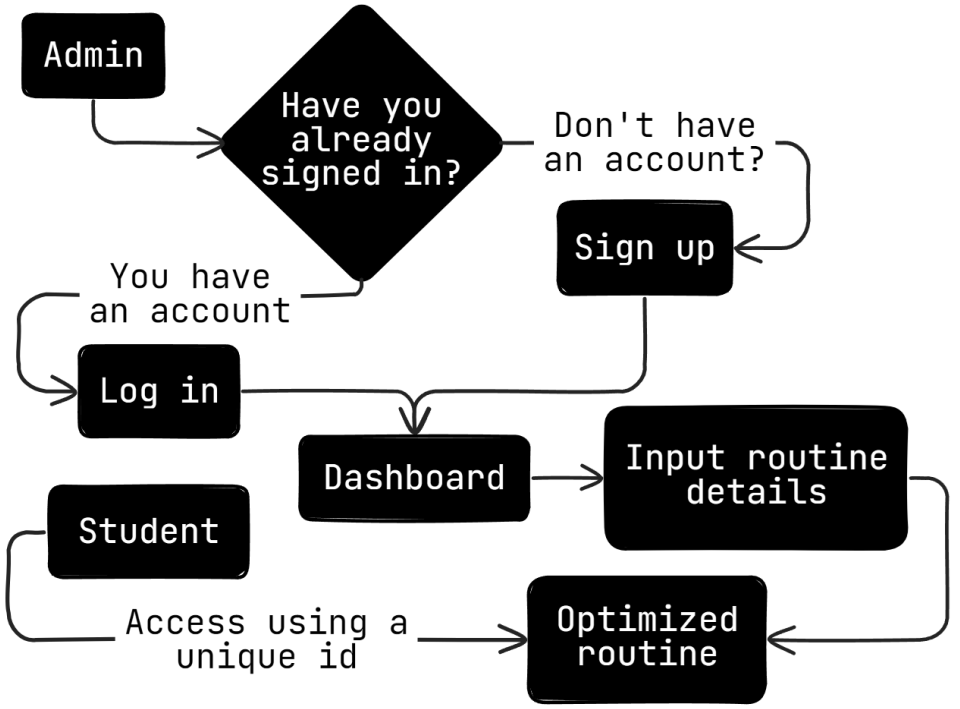
Institute Name: University Institute of Technology, The University of Burdwan

Theme Name: Smart Education

Idea/Approach Details

We're creating a web platform to automate optimized class schedules, considering constraints like faculty availability, class timings, periods, and designated breaks. The platform efficiently organizes these factors, streamlining the scheduling process for educational institutions.

- **Automated Scheduling:** Our platform will automatically generate class schedules for educational institutions, eliminating the need for manual intervention.
- **Optimization:** Our goal is to optimize schedules by considering various constraints and preferences, including faculty availability, class timings, and room allocation.
- **User-Friendly Interface:** Our platform will offer a user-friendly interface, allowing administrators to input constraints and preferences, review the generated schedule, and make adjustments as necessary.
- **Personalized Preferences:** The platform will enable all faculty members to input their preferences regarding class timing, room preferences, and breaks, allowing the system to tailor schedules to individual preferences where possible.
- **Real-Time Updates:** Our system provides real-time data updates, including changes in faculty availability or unexpected room closures. It generates alert messages for all connected devices. Students will access their schedules using a unique ID.



Our Technology stack here:

- **Frontend:**

  Languages: HTML, CSS, JavaScript

- **Backend:**

  Database: MySQL

  Framework: Laravel

Idea/Approach Details

Use Cases

- **Universities and Colleges:**

Scenario: Large institutions with multiple departments and campuses.
Benefits: Efficient allocation of resources, minimization of conflicts, and optimization of class schedules.

- **Schools:**

Scenario: Primary and secondary schools.
Benefits: Streamlining class schedules for teachers and students, ensuring balanced workloads for faculty, and accommodating extracurricular activities and events.

- **Online Learning Platforms:**

Scenario: Platforms offering online courses and virtual classrooms.
Benefits: Coordinating live sessions, assignments, and discussions to enhance the overall online learning experience.

- **Training Program Management:**

Scenario: Organizations offering training programs or professional development courses.
Benefits: Managing a diverse range of courses, workshops, and seminars efficiently using automatic scheduling.

- **Tutoring Centers:**

Scenario: Tutoring centers and academic support programs.
Benefits: Matching students with tutors based on availability and subject expertise, optimizing the tutoring experience.

- **Data Accuracy:**

Dependency: The accuracy and reliability of input data, including faculty availability, room allocations, and other constraints.
Showstopper: Inaccurate or incomplete data could lead to suboptimal schedules and negatively impact the effectiveness of the platform.

- **User Adoption:**

Dependency: The willingness of educational institutions, administrators, faculty, and students to adopt and actively use the platform.
Showstopper: If users do not embrace the platform, its effectiveness in optimizing schedules will be limited.

- **Integration with Existing Systems:**

Dependency: Integration with other systems used by educational institutions, such as student information systems or HR systems.
Showstopper: Inability to integrate with existing systems may hinder the seamless operation of the platform.

- **Algorithm Effectiveness:**

Dependency: The reliability and efficiency of the optimization algorithms used to generate schedules.
Showstopper: Poorly designed algorithms may result in schedules that do not meet the requirements or constraints effectively.

- **Scalability:**

Dependency: The platform's ability to scale with the growing number of users and increasing data complexity.
Showstopper: Inadequate scalability may lead to performance issues and hinder widespread adoption.

Team Member Details

Team Leader Name: **Ranadeb Saha**

Branch: BE Stream: IT Year: II

Team Member 1 Name: **Tuman Sutradhar**

Branch: BE Stream: IT Year: II

Team Member 2 Name: **Sharanya Chowdhury**

Branch: BE Stream: IT Year: II

Team Member 3 Name: **Soumyadeep Sarkar**

Branch: BE Stream: IT Year: II

Team Member 4 Name: **Sekh Yajuddin**

Branch: BE Stream: IT Year: II

Team Member 5 Name: **Sunita Saha**

Branch: BE Stream: IT Year: II

Team Mentor Name: **Mr. Arindam Chowdhury**

Category: Assistant Professor Expertise: AI/ML Domain Experience: 20+