Project Number: 61

Project Title: What's On! Student Life Passport

Project Clients: Rushi Vyas

Project specializations: Software Development;Web Application Development;Computer Science and Algorithms;Artificial Intelligence (Machine/Deep Learning, NLP);Big data Analytics and Visualization;Internet of Things (IoTs);Human Computer Interaction (HCI);

Number of groups: 4 groups

Main contact: Rushi Vyas

Background:

The "What's On! Student Life Passport" initiative aims to enhance student engagement and participation in campus activities. Recognizing that active involvement in university events fosters a sense of community, personal development, and overall student satisfaction, this project seeks to create a platform that encourages and rewards students for their engagement. By providing a centralized system to track participation and offer incentives, the project aspires to make campus life more vibrant and inclusive.

Project Goals:

1. Develop a User-Friendly Platform: Create an intuitive digital application where students can easily discover, register for, and check into campus events and activities.

2. Implement a Reward System: Establish a points-based system that tracks student participation, allowing them to earn rewards or recognition for their involvement in various events.

3. Enhance Event Visibility: Provide a comprehensive calendar and notification system to inform students about upcoming events, workshops, and activities, thereby increasing awareness and attendance.

4. Foster Community Engagement: Encourage students to explore diverse campus offerings, connect with peers, and build a stronger sense of belonging within the university community.

5. Collect Participation Data: Gather insights on student engagement patterns to help university organizers tailor future events and initiatives to better meet student interests and needs.

Requirements and Scope:

Project Scope:

The "What's On! Student Life Passport" project aims to design, develop, and deploy a comprehensive digital platform to enhance student engagement in campus activities at UNSW Sydney. The scope includes:

1. Platform Development:

Event Discovery: Implement a user-friendly interface that allows students to browse, search, and filter upcoming campus events across various categories such as academic, social, cultural, and recreational activities.

Registration and Check-In: Develop functionalities enabling students to register for events and check in upon arrival, utilizing methods like QR codes or geolocation services.

2. Reward System Implementation:

Points Accumulation: Design a system where students earn points for attending events, with varying points based on event type, size, or significance.

Incentives and Recognition: Create a tiered rewards structure offering incentives such as merchandise, certificates, or exclusive opportunities, and provide recognition through leaderboards or digital badges.

3. AI-Driven Skill Extraction:

Event Description Analysis: Utilize Natural Language Processing (NLP) techniques to analyze event descriptions, objectives, and activities.

Skill Identification: Employ AI models trained to recognize and extract both soft skills (e.g., communication, teamwork) and hard skills (e.g., programming, data analysis) associated with each event.

Student Skill Profiles: Automatically update individual student profiles with the skills acquired through event participation, providing a detailed overview of their skill development journey.

4. Communication Features:

Notifications: Set up a notification system to remind students of upcoming events they've registered for and inform them of new or recommended activities.

Feedback Mechanism: Incorporate a feature allowing students to provide feedback on events, aiding organizers in future planning.

5. Data Management and Analytics:

Participation Tracking: Ensure secure storage and management of student participation data, adhering to privacy policies.

Analytical Reporting: Develop tools for generating reports on engagement metrics to assist university staff in assessing and enhancing student involvement strategies.

6. Administrative Interface:

Event Management: Provide a backend interface for event organizers to create, update, and manage event listings.

Reward Management: Allow administrators to define reward criteria, manage inventory, and oversee the distribution process.

Exclusions:

The project will not cover the development of a mobile application; the platform will be web-based only.

Integration with external social media platforms is beyond the current scope.

The project will not handle financial transactions or payment processing for event registrations.

Assumptions:

Students have access to devices capable of accessing the web-based platform.

Event organizers are willing to adopt and regularly update the platform with their event information.

Adequate support from university IT services will be available throughout the project duration.

Required Knowledge and skills:

1. Platform Development

Event Discovery

Feature: Provide a searchable and filterable event calendar.
Enable event registration and attendance tracking.
Implement a points-based reward system.
Offer rewards and recognition for participation.
Analyze event content to identify associated skills.
Classify and record skills linked to events.
Maintain individual skill development records.
Send reminders and updates about events.
Collect student feedback on events.
Securely store and manage attendance data.
Generate reports on engagement metrics.

Allow organizers to manage event listings.
Oversee the rewards system.

Specification: Students can view events categorized by type (academic, social, cultural, recreational) and date. Filters for event type, date range, and keywords will be available.
Students can register for events and check in via QR codes or geolocation. The system records attendance and updates participation records.
Assign points to events based on criteria such as type, size, or significance. Points are automatically credited to students' profiles upon event check-in.
Develop a tiered rewards structure, including merchandise, certificates, or exclusive opportunities. Display leaderboards and digital badges to recognize active participants.
Utilize Natural Language Processing (NLP) to assess event descriptions and objectives, extracting keywords related to soft and hard skills.
Map extracted keywords to a predefined skills taxonomy, categorizing them into soft skills (e.g., communication, teamwork) and hard skills (e.g., programming, data analysis).
Automatically update students' profiles with skills acquired through event participation, providing a comprehensive view of their development.
Implement a system to notify students of upcoming events they've registered for and inform them of new or recommended activities based on their interests.
Provide a platform for students to rate and comment on events, offering insights for organizers to improve future activities.
Ensure compliance with data privacy policies in storing participation records, with access controls to protect student information.
Develop tools to analyze data on event attendance, participation trends, and skill development, aiding in strategic planning for student engagement.
Provide a backend interface for event organizers to create, update, and manage event details, including scheduling and capacity limits.
Enable administrators to define reward criteria, manage inventory, and monitor the distribution of incentives to students.

Registration and Check-In

2. Reward System Implementation

Points Accumulation

Incentives and Recognition

3. AI-Driven Skill Extraction

Event Description Analysis

Skill Identification

Student Skill Profiles

4. Communication Features

Notifications

Feedback Mechanism

5. Data Management and Analytics

Participation Tracking

Analytical Reporting

6. Administrative Interface

Event Management

Reward Management

Non-Functional Requirements

Performance

The system should handle concurrent access by up to 10,000 students without performance degradation.

Security

Implement authentication and authorization protocols to protect user data and ensure only authorized access to administrative features.

Usability

Design an intuitive user interface accessible across various devices and screen sizes, ensuring ease of navigation and interaction.

Scalability

Ensure the platform can scale to accommodate increasing numbers of users and events without compromising performance.

Compliance

Adhere to IT and data privacy policies, ensuring all data handling meets regulatory standards.

Expected outcomes/deliverables:

Upon successful completion of the project, the following outcomes and deliverables are anticipated:

1. Functional Web-Based Platform:

A fully operational web application that enables students to discover, register for, and check into campus events.

2. Source Code Repository:

Comprehensive and well-documented source code encompassing all components of the platform, including front-end, back-end, and database integrations.

Utilization of version control systems (e.g., Git) to manage code versions and facilitate collaboration.

3. Technical Documentation:

System Architecture Document: Detailed diagrams and explanations of the system's architecture, outlining components, interactions, and data flow.

API Documentation: Clear specifications of any Application Programming Interfaces (APIs) developed, including endpoints, request/response formats, and usage examples.

Database Schema: Comprehensive documentation of the database design, including entity-relationship diagrams and table structures.

4. User Documentation:

User Guide: A step-by-step manual guiding end-users through the platform's features and functionalities, enhanced with screenshots or illustrations for clarity.

Administrator Guide: Instructions tailored for system administrators and event organizers on managing events, users, and rewards within the platform.

5. AI Skill Extraction Module:

An integrated AI component that analyzes event descriptions to identify and categorize associated soft and hard skills, updating student profiles accordingly.

Documentation detailing the AI model's design, training process, and implementation specifics.

6. Testing Artifacts:

Test Plan: A comprehensive plan outlining the testing strategy, scope, objectives, resources, and schedule.

Test Cases: Detailed test scenarios covering various functionalities, including expected outcomes and execution steps.

Test Reports: Summaries of testing activities, results, identified defects, and their resolutions.

7. Project Management Documentation:

Project Plan: A document detailing the project's scope, objectives, timelines, milestones, and resource allocations.

Meeting Minutes: Records of discussions, decisions, and action items from project meetings.

Progress Reports: Regular updates tracking project status, accomplishments, challenges, and next steps.

8. Deployment Scripts and Instructions:

Automated scripts and detailed guidelines to facilitate the deployment of the platform in various environments (development, testing, production).

9. Final Presentation:

A comprehensive presentation summarizing the project's objectives, development process, challenges encountered, solutions implemented, and a live demonstration of the platform's capabilities.