Software Requirements

Specifications

Student Activity Website

Version V2

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**1 Introduction**

**1.1 Purpose**

This project seeks to enhance the student experience by developing a centralized online portal. This comprehensive website will empower students to manage their accounts, locate classmates and faculty, and search for essential resources such as textbooks and potential roommates. The platform will further promote convenience by facilitating online purchases of meal plans and bus tickets. Additionally, the website will serve as a central hub for campus activities and elections, keeping students informed and engaged. By consolidating these functionalities, this project aims to streamline everyday tasks for students and foster a more connected campus community.

**1.2 Scope**

This project is focused on the development of a dynamic online platform specifically designed to cater to the needs and activities of students. The website will offer a comprehensive suite of functionalities aimed at streamlining various aspects of student life.

Inclusions:

* Account Management: Students can establish accounts, log in, and update their personal information.
* People Search: The website facilitates searching for other students and faculty members based on department, name, or a combination of these criteria.
* Textbook Management: Students can search for textbooks by title, author, or ISBN. The system will display availability in the school library or recommend bookstores for purchase.
* Roommate Finder: This feature assists students in finding potential roommates by matching preferences such as move-in date, gender, and budget.
* Online Purchases: The platform facilitates convenient online purchases of meal plans and bus tickets using credit cards. Students can also manage their purchase history.
* Event Exploration: The website serves as a central hub for students to discover upcoming sports activities, parties, and student union elections. They can view schedules, select events of interest, and potentially register for participation.
* Student Union Election (Mock): The website will include a mock student union election poll to demonstrate its functionality in handling voting and displaying results through a bar chart.

Exclusions:

* Integration with external systems for textbook purchase beyond bookstore recommendations.
* Real financial transactions for meal plans and bus tickets.
* Functionality for registering or managing actual participation in events (beyond displaying information and potentially selecting events).

**1.3 Definitions, Acronyms, and Abbreviations**

1. req - requirement
2. sec - section
3. ref - reference

**1.4 References**

1. "IEEE Guide for Software Requirements Specifications," in IEEE Std 830-1984 , vol., no., pp.1-26, 10 Feb. 1984, doi: 10.1109/IEEESTD.1984.119205. keywords: {Software engineering;System analysis and design;software;requirements;specifications},
2. Alshazly, A. A., Elfatatry, A. M., & Abougabal, M. S. (2014). Detecting defects in software requirements specification. *Alexandria Engineering Journal*, *53*(3), 513-527.
3. Fabbrini, F., Fusani, M., Gnesi, S., & Lami, G. (2000, May). Quality evaluation of software requirement specifications. In *Proceedings of the software and internet quality week 2000 conference* (pp. 1-18).
4. European Union. (n.d.). GDPR information portal. GDPR.eu: <https://gdpr.eu/>
5. International Association of Privacy Professionals (IAPP). (n.d.). IAPP GDPR information portal. <https://iapp.org/>
6. Federal Trade Commission (FTC). (2023, January 19). Complying with COPPA <https://www.ftc.gov/business-guidance/resources/complying-coppa-frequently-asked-questions>

**1.5 Overview**

This SRS details a Student Activity Website. Students can manage accounts, search for people, find textbooks, and purchase items like meal plans and bus tickets. It also helps find roommates and explore events.

**2 Overall Description**

**2.1 Product Perspective**

This Student Activity Website is a web application designed for students at a university or college. It aims to serve as a central hub for various student needs and activities.

**2.2 Product Functions**

**2.2.1 Student Management:**

* + Account Management: This includes student registration, login, and information update.
  + People Search: This function allows searching for other students and faculty by department or name, facilitating communication and collaboration.

**2.2.2 Resource Management:**

* + Textbook Management: Students can search for textbooks by title, author, or ISBN. The system displays library availability or suggests bookstores for purchase.
  + Roommate Finder: This functionality helps students find compatible roommates based on preferences like move-in date, gender, and budget.

**2.2.3 Event Management:**

* + Online Purchases: Students can purchase meal plans and bus tickets conveniently using credit cards.
  + Event Exploration: This section acts as a central hub for discovering upcoming campus events like sports activities, parties, and even a mock student union election (poll).

**2.3 User Characteristics**

The users of the Student Activity Website encompass a diverse group primarily consisting of students within an educational institution. Below are the general characteristics of the intended users:

Educational Level: The primary users are expected to be students enrolled in the educational institution, ranging from undergraduate to graduate level. Therefore, the educational level of the users typically spans from high school graduates to those pursuing advanced degrees.

Experience: Users are assumed to possess basic experience in navigating web-based platforms and interacting with online services. As students within an educational environment, they are likely to have previous experience with digital tools and online platforms, albeit varying levels of proficiency.

Technical Expertise: While a basic understanding of internet usage and computer literacy is assumed, the technical expertise of the users may vary widely. Some users may be proficient in utilizing various online services, while others may require more guidance and intuitive interfaces. Therefore, the website should aim to cater to users with varying levels of technical expertise, ensuring accessibility and ease of use for all.

**2.4 Constraints**

This section outlines various constraints and limitations that will impact the development process of the Student Activity Website:

2.4.1 Regulatory Policies:

The development of the website must adhere to relevant regulatory policies governing data privacy, security, and accessibility, such as GDPR (General Data Protection Regulation) or COPPA (Children's Online Privacy Protection Act), ensuring compliance with legal requirements and protecting user data.

2.4.2 Hardware Limitations:

Scalability: The website might not handle a large user base initially, potentially requiring performance optimization or server upgrades as the user population grows.

Secure online payment processing is crucial. The website should integrate with a reputable payment gateway that adheres to industry security standards.

2.4.3 Interfaces to Other Applications:

The website may require integration with existing applications or systems within the educational institution, such as student information systems or library databases. Compatibility and seamless interaction with these interfaces must be ensured during development.

2.4.4 Parallel Operation:

The website should support parallel operation to accommodate multiple users accessing the platform simultaneously without performance degradation. This includes efficient handling of database transactions and concurrent user sessions.

2.4.5 Audit Functions:

Incorporation of audit functions is essential for tracking user activities, system changes, and data modifications. This ensures accountability and facilitates troubleshooting and analysis of security incidents or compliance breaches.

2.4.6 Control Functions:

Control functions must be implemented to manage user access levels, permissions, and privileges within the system. This includes authentication mechanisms, role-based access control, and administrative controls for managing content and user accounts.

2.4.7 Higher-Order Language Requirements:

The development must be conducted using appropriate programming languages and frameworks capable of supporting the required functionality and scalability of the website. This may involve utilizing higher-order languages such as JavaScript, Python, or PHP, along with associated libraries and frameworks.

2.4.8 Signal Handshake Protocols:

Signal handshake protocols, such as XON-XOFF or ACK-NACK, may need to be implemented for reliable communication between client and server components, particularly in scenarios involving data transmission or real-time interactions.

2.4.9 Reliability Requirements:

For a trustworthy user experience, the Student Activity Website must prioritize reliability. This includes minimal downtime, accurate data management, smooth performance, user-friendly error handling, and a disaster recovery plan to ensure website and data stability.

2.4.10 Criticality of the Application:

Considering the criticality of the application in facilitating student activities and services, robustness and stability are paramount. Any system failures or disruptions could significantly impact student engagement and campus operations.

2.4.11 Safety and Security Considerations:

The Student Activity Website prioritizes user privacy by securing sensitive information. This includes login credentials, personal details (names, addresses, email), financial information (credit cards for purchases), and potentially activity preferences (roommate search, meal plans, events attended). Robust security measures are crucial to protect this data and ensure user trust.

**2.5 Assumptions and Dependencies**

The following factors can influence the requirements of the Student Activity Website:

* **External System Integration:** The website relies on integration with existing systems like the library database and university student database. Delays or limitations in access or functionality of these external systems can impact website functionalities. For example, if the library database integration encounters issues, the ability to display library availability for textbooks might be hindered.
* **Security Protocols:** The website's security measures depend heavily on the chosen payment gateway and its adherence to industry security standards. A reliable payment gateway ensures secure online transactions for purchases like meal plans and bus tickets.
* **User Device Compatibility:** While designed for accessibility across various devices (desktops, laptops, tablets, smartphones), limitations in browser capabilities or screen sizes on certain devices might necessitate adjustments to the user interface. The website might require testing and optimization for different screen sizes to ensure a consistent user experience across platforms.
* **User Adoption:** The success of the website relies on effective marketing and awareness campaigns within the university/college community. Without proper communication efforts, students might not be aware of the website's existence and its benefits, hindering user adoption.

**2.6 Apportioning of Requirements**

The below list of requirements may be delayed until future versions of the system.

* **Advanced People Search Options:** This could include searching by major or student year, allowing for more specific searches within the university community.
* **Textbook Price Comparison Tool:** An integrated tool could help students compare prices from different bookstores before purchasing textbooks.
* **Messaging System:** This would facilitate communication between users, allowing students to connect with each other directly through the platform.
* **Club Management Features:** Dedicated functionalities could be implemented for student clubs to manage their activities and connect with members.
* **Forum Discussions:** A forum section could be introduced for students to interact on various topics, fostering a sense of community online.
* **Enhanced Event Management System:** Future versions could include functionalities like RSVP functionality for events and calendar integration for better event organization.