Software Requirements

Specifications

Student Activity Website

Version V2

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**1 Introduction**

**1.1 Purpose**

SRS is meant to clearly define what a software system needs to do and how it should work. It helps everyone involved in the project understand the goals and limits, ensures agreement between clients and developers, helps manage risks, guides design choices, aids testing, and serves as a reference for the entire project. Essentially, it ensures everyone knows what the software needs to accomplish, leading to a successful product [1].

**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.

1.2.1 Login

1.2.2 Register

1.2.3 People Searching

1.2.4 Textbook Searching

1.2.5 Purchasing Textbook

1.2.6 Roommate Finding

1.2.7 Meal Plan

1.2.8 Purchasing a bus ticket.

1.2.9 Sport Activities

1.2.10 Election

**1.3 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. 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).
3. European Union. (n.d.). GDPR information portal. GDPR.eu: <https://gdpr.eu/>
4. Federal Trade Commission (FTC). (2023, January 19). Complying with COPPA <https://www.ftc.gov/business-guidance/resources/complying-coppa-frequently-asked-questions>

**1.4 Overview**

This document is divided into three principal sections. Section 2 provides a comprehensive description of the system, encompassing both its software and hardware components. Section 3 enumerates the system's requirements, detailing both its functional capabilities and performance expectations. Section 4 elucidates the communication protocols and interfaces between the software and external systems or devices.

**2 Overall Description**

This section outlines the system's context, functionality, interactions, and constraints, providing a high-level view of the software.

**2.1 Product Perspective**

The Student Activity Website is an online platform that helps students manage their activities and needs. It works on all devices with internet access and connects to email and payment systems for easy use. Designed for simple navigation and secure use, it requires basic computing devices and adapts to achieve high-quality outcomes [2].

**2.2 Product Functions**

**2.2.1 Login**

**Description**: Students access the site's full suite of services by entering their username and password, marking the gateway to personalized content and services.

**Rationale**: Ensuring access is restricted to authorized individuals maintains the site's security and privacy, safeguarding user information and activities.

**2.2.2 Register**

**Description:** New users join the platform by submitting essential details like their name, address, and email, along with setting up their login credentials.

**Rationale:** Gathering key user information through registration is vital for creating a user-friendly environment that supports individualized communication and services**.**

**2.2.3 Update Information**

**Description**: Students can revise their profile details, including contact information and login credentials, once logged in.

**Rationale:** Allowing users to update their details ensures the platform remains current and accurate, reflecting any changes in their information.

**2.2.4 Username and Password Retrieval**

**Description:** A feature for users to recover their login details through their registered email, including an option for password reset for added security**.**

**Rationale:** Facilitating the recovery of login credentials improves user experience and security, ensuring easy access to accounts without administrative help**.**

**2.2.5 People Searching**

**Description**: This tool enables students to locate others within the university by searching by department or name, enhancing university-wide connectivity.

**Rationale:** Enabling users to find peers and faculty supports academic and social networking, making it easier to connect and collaborate.

**2.2.6 Textbook Searching**

**Description:** A function for students to find course textbooks by title, author, or ISBN, with information on library availability or bookstore purchase options.

**Rationale**: Streamlining the search and acquisition of textbooks is essential for academic support, making it easier for students to obtain necessary materials.

**2.2.7 Purchase Textbooks**

**Description:** Students can buy textbooks directly through the site with a credit card, view purchase history, and receive discounts on future purchases based on total spend.

**Rationale:** Simplifying textbook purchases online adds convenience and incentive for students to use the platform for their academic needs.

**2.2.8 Roommate Finding**

**Description:** By entering preferences like move-in date and budget, students can find potential roommates among the university community.

**Rationale:** A roommate matching feature improves the student living experience by facilitating compatible living arrangements.

**2.2.9 Meal Plan**

**Description**: Offers the option to buy meal plans online, with choices between monthly and semester-long plans, including details on purchases and discounts.

**Rationale:** Online meal plan purchases provide convenient access to campus dining, encouraging healthy eating and socializing.

**2.2.10 Purchase Bus Ticket**

**Description:** Students can buy bus tickets for different zones online, choosing to purchase multiple tickets or bus cards for future rides.

**Rationale:** Enhancing access to campus transportation through online ticket sales offers flexibility and convenience for commuting students.

**2.2.11 Sports Activities and Parties**

**Description:** A feature that lists upcoming sports events and parties, allowing students to select and track activities organized by month.

**Rationale:** Promoting involvement in extracurricular activities enriches the student experience, encouraging engagement and community building.

**2.2.12 Election**

**Description:** Hosts mock student union elections where users vote for candidates, with results stored and displayed in bar charts.

**Rationale:** Implementing a voting system for fictitious elections engages students in campus life and demonstrates the platform's interactive capabilities.

**2.3 User Characteristics**

The Student Activity Website is aimed at a wide university audience, primarily students, but also including faculty, administrative staff, parents, and IT personnel.

**2.3.1 Students** The main users engage with the platform for a variety of functions, including buying textbooks, registering for meal plans, discovering events, and beyond.

**2.3.2 Faculty and Staff** access it for event information and administrative functions.

**2.3.3 Parents** might use the website to understand campus activities, possibly making payments or exploring services relevant to their children.

**2.3.4 IT and Maintenance** Personnel handle the technical aspects, ensuring the site runs smoothly for everyone.

**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) [3] or COPPA (Children's Online Privacy Protection Act) [4] , ensuring compliance with legal requirements and protecting user data.

**2.4.2 Hardware Limitations**

Scalability: The website might not initially handle a large user base, 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.

**2.4.5 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.

**2.4.6 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 potential 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**

2.5.1 Students have internet access to use the website’s features, like logging in, searching for textbooks, and buying meal plans.

2.5.2 Users will maintain the confidentiality of their login information. The system's security is partially dependent on users not sharing their passwords or other sensitive details.

2.5.3 Users have access to digital payment methods like credit or debit cards that are accepted by the site.

2.5.4 students give correct and up-to-date info when registering and updating their profiles. Incorrect details can lead to issues in user ID, communication, and service delivery.

**3 Specific Requirements**

**3.1 Functional Requirements**

3.1.1 **Registration**

|  |  |
| --- | --- |
| Description | Enabling new users to register for an account |
| Inputs | First name , last name , address, city , zip code, email, password , confirm password |
| Source | User input |
| Outputs | Confirmation of account creation |
| Destination | Output is displayed on the user interface |
| Requires | Validation of input and uniqueness of email address |
| Precondition | User does not have an existing account |
| Postcondition | User account is created allowing access to the system |
| Side Effects | None |

**3.1.2 Login**

|  |  |
| --- | --- |
| Description | System authenticates user by authorizing login with correct credentials. |
| Inputs | Username, password |
| Source | User input |
| Outputs | Authentication status (success/failure) |
| Destination | User interface (feedback to user) |
| Requires | User must have a previously registered account with a valid username/password combination |
| Precondition | User is on the login page and not logged in anywhere else |
| Postcondition | Upon successful login, the user is granted access to authorized features. Upon failed login, the user is presented with an error message. |
| Side Effects | May trigger security actions (lockout after multiple failed attempts). |

**3.1.3 People Searching**

|  |  |
| --- | --- |
| Description | User searches for people within the university system |
| Inputs | Search terms (department, first name, last name - may be partial inputs) |
| Source | User input |
| Outputs | List of matching results, including name, department, phone, and email |
| Destination | User interface (displayed on the search results page) |
| Requires | An existing database of students and faculty |
| Precondition | User logged in on the people search page |
| Postcondition | Search results are displayed. If no results, an appropriate message is displayed. |
| Side Effects | None |

**3.1.4 Textbook Search**

|  |  |
| --- | --- |
| Description | User search for a book |
| Inputs | Book Title |
| Source | User input |
| Outputs | Textbook location is displayed |
| Destination | Output is displayed on user screen |
| Requires | User is logged in and input has been validated |
| Precondition | User is logged in |
| Postcondition | Shows if a book is found |
| Side Effects | None |

**3.1.5 Meal plan Purchase**

|  |  |
| --- | --- |
| Description | Student purchase meal plans online |
| Inputs | Credit card information along with duration of the plan |
| Source | User input |
| Outputs | Meal plan successfully / unsuccessfully purchased |
| Destination | Output is displayed on user interface |
| Requires | User is logged in on meal plan page |
| Precondition | User not already enrolled for the same plan |
| Postcondition | Displaying if plan was purchased successfully |
| Side Effects | None |

**3.1.5 Election**

|  |  |
| --- | --- |
| Description | User participates in the election poll. |
| Inputs | User selection of a candidate |
| Source | User input from the election poll form |
| Outputs | Vote recorded. |
| Destination | Database storing poll results |
| Requires | The election poll to be active during a specified timeframe. |
| Precondition | User is logged in (possibly restrict one vote per user). |
| Postcondition | Vote is registered and counted towards the poll results. |
| Side Effects | May need mechanisms to prevent duplicate votes. |

**3.2 Qualitative Requirements (Non-Functional)**

**3.2.1 Usability:** The website must be easy to use for everyone, regardless of their tech skills. It should be simple, with everything easy to find and understand, and it must quickly tell users what went wrong if there's an error and how to fix it.

**3.2.2 Performance:** The site should load fast and give quick search results for activities, people, and textbooks. It's important that key features like logging in and searching work smoothly, even on different devices or slow internet.

**3.2.3 Security:** Keeping student information safe is crucial. This means using strong encryption and making sure user accounts are well protected with good passwords and security practices.