Software Requirements Specifications

Student Activity Website
Version V2

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March 23, 20

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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.