**SRS Document and GitHub**

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Software Requirements Specification

for

ABC University Student Enrollment Website

Version 1.1 approved

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Revision History

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| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
| Update1 | 1/21/22 | Updates to class descriptions and syntax | 1.1 |
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# Introduction

## Purpose

This document’s intended purpose is to gather the functional and non-functional software requirements of the student enrollment website. The functional requirements consist of the technical features and behaviors that will allow the website system to operate. The non-functional requirements are the non-mandatory functions and behaviors of the system that focus on efficiency over necessity (Functional vs. Nonfuntional Requirements (with Examples), n.d.). Details of the functional requirements include design layout, specific product search behaviors, payment integration, and security features. Non-functional requirements could potentially be large storage capacity for data retention and faster internet speeds.

## Document Conventions

Typographical conventions will include varying fonts for different aspects of the software and description styles. **Bold** fonts will refer to titles and components. Italicized fonts will refer to definitions or as emphasis to portions of code. Software code will be written in the Consolas font and will be denoted by backticks (`). All other portions of the documentation will be written in standard 12-point Times New Roman font.

## Intended Audience and Reading Suggestions

The target audiences are the software developers and stakeholders of the student enrollment website. Stakeholders are those individuals providing the detailed requirements of the system that will be affected by its behaviors (Cherednichenko, 2021). The developers include all individuals working on front-end and back-end software development. The developers will also take part in the documentation of all steps taken during the software build process.

## Product Scope

The general scope of the student enrollment website is to allow students to enroll in courses for their degree program. The website needs to be built in a manner that allows students to create their profile with a username and password, view courses for current and upcoming semesters, and allow them to add themselves to a course waiting list. Students will also be able to cancel their enrollment should they need to.

## References

Cherednichenko, S. (2021, November 5). *Stakeholders in the Software Development Process: Identifying and Distributing Responsibilities*. Mobindustry. https://medium.com/mobindustry/stakeholders-in-the-software-development-process-identifying-and-distributing-responsibilities-637a4b3c2672

Functional vs. Nonfunctional Requirements (With Examples). (n.d.). Indeed Career Guide.

https://www.indeed.com/career-advice/career-development/common-functional-and-non-functional-requirements

# Overall Description

## Product Perspective

This document is the first iteration of its kind. The software will involve connectivity to a primary web server that will handle user traffic and a database server that will contain all user information, course information, and registration data. Users will use common web browsers, such as Chrome, FireFox, or Edge browsers to interface with the website.

## Product Functions

The primary function requirements are as follows:

* New user account and profile creation capabilities.
* Each new user must have a unique ID associated with a password. No two users can have the same ID for registration.
* Key user information including name, phone, email, and any other information you may see necessary must be included.
* Logging in to the system at any time using the ID and the password created during the registration process must be accessible after registration.
* Courses running through Spring, Summer, Fall, and Winter semesters must be visible. Students must be able to see a list of the courses that will be offered during any semester since not all courses will be offered in every semester.
* All courses should have a max limit of enrollment participants that may be different depending on the course.
* If a course is full, a student can add themselves to a waiting list.
* Students must be able to cancel enrollment from any course that they are enrolled in. The system should inform the users on a course waiting list (if any) of enrolment availability and must be from first on the list to last.

## User Classes and Characteristics

Anticipated classes of the PHP code may include:

* dbConnect()-Class containing functions to connect to the MySQL database.
* studentRegister()-Class containing functions to allow students to register as a new user.
* studentLogin()-Class containing functions that pass user-submitted credentials to the database.
* courseRegister()-Class containing functions that registers a course for a student, deletes a course, and sets all the course data displaying it on the student page.

## Operating Environment

The operating environment is web-based and will connect to a MySQL database on a local server. The serve will likely be Linux based and the developer interface will be terminal based.

## Design and Implementation Constraints

The design constraints, declarations that constrain how the software system is built and deployed, must be considered throughout the software build lifecycle (Tsui, Karam, & Bernal, 2018). The specific constraints for this build are the PHP programming language, Chromium-based browsers, and the Linux operating system. However, users will be able to use the website on Windows and Mac operating systems with the proper browser. After the successful completion and deployment of the website, the developers will support the website for a duration of six months. Afterward, the university will need to maintain the web service.

## User Documentation

User documentation will consist of the basic functions of the website, how to register as a new user, how to log into the user page, and how to register or place a waiting list request for courses. Any documentation will be furnished upon request.

## Assumptions and Dependencies

The website will run 24 hours a day, seven days a week, and will require an “always-on” internet connection. The internet connection will require a static IP address that is assigned to a domain name. In the case the internet is disconnected, a cellular backup service will need to automatically trigger to reestablish connectivity to the site. The database and web servers, along with the internet devices will need to rely on a battery backup device in the event of a power outage.

# External Interface Requirements

## User Interfaces

The user interface will be strictly web-based and will require users to use an up-to-date web browser, such as Chrome, Firefox, Edge, Opera, or Safari. User operating systems can be Microsoft Windows 10 and above, Mac OS 10.13 “Mohave,” and Linux flavors that support Chromium-based browsers. The website will operate similarly to most guide user interfaces and allow mouse and keyboard navigation to links, buttons, and entry boxes.

## Hardware Interfaces

The hardware interfaces will be two Linux servers; one to run the website code base and the other to operate the MySQL database. All servers will be connected to a locally managed switch and assigned a static IP address. Each server will communicate with the other via TCP/IP protocol using its static IP address and a specifically assigned port. Firewalls will be set up on the server to secure the network and prevent hackers from accessing the servers and their data in the event of a system breach. To reach the servers remotely, a Virtual Private Network interface (VPN) will be set up within the internal network.

## Software Interfaces

The website server will utilize Apache server software to implement the web services. Web pages will be designed using HTML 5, CSS, and PHP code bases. The website will interface with the database server once the IP address is programmed. The database server will use MySQL database software to store user, staff, and course data. All software will be terminal based at the server level. Any remote work can use SSH methods to connect to the servers for modification and maintenance via the established VPN connection.

## Communications Interfaces

The University website will use the following requirements for communication:

* HTTPS communication standards for security and FTP for transferring files to and from the MySQL database.
* Internal email server client with the domain name “abcu.edu.”
* Internal chat and messaging client for communication between all users.
* Chromium-based web browsers.
* Encryption will use SHA256 to encrypt passwords sent to the database.
* Data transfer rates will be industry-standard 100base-T that will support up to 100 megabits per second.
* Synchronization between servers will be established by a heartbeat monitor between the two Linux servers.

**References**

Cherednichenko, S. (2021, November 5). *Stakeholders in the Software Development Process: Identifying and Distributing Responsibilities*. Mobindustry. https://medium.com/mobindustry/stakeholders-in-the-software-development-process-identifying-and-distributing-responsibilities-637a4b3c2672

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Tsui, F., Karam, O., & Bernal, B. (2018). Essentials of software engineering (4th ed.). Jones & Bartlett Learning.