**Software Requirements Specification**

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CST499: Capstone for Computer Software Technology (CSF2535A)

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Software Requirements Specification

for

Student and Class Registration Tool

Version 1.0 approved

Prepared by Jonah Hannett

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Revision History

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| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
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# Introduction

## Purpose

The purpose of this document is to outline the requirements for the new class registration portal. The portal will be utilized by students and staff to register new students and schedule classes throughout the school year, ensuring classes are available and not overscheduled.

## Document Conventions

<Describe any standards or typographical conventions that were followed when writing this SRS, such as fonts or highlighting that have special significance. For example, state whether priorities for higher-level requirements are assumed to be inherited by detailed requirements, or whether every requirement statement is to have its own priority.>

## Intended Audience and Reading Suggestions

This document is intended for developers. Focus on the features section after gathering general information from the purpose, project scope, and the overall description section.

## Project Scope

The software to be built will be used to schedule all classes moving forward and help store student information for recordkeeping. This will make it easier for students to schedule classes throughout the school year and avoid overscheduling classes.

## References

<List any other documents or Web addresses to which this SRS refers. These may include user interface style guides, contracts, standards, system requirements specifications, use case documents, or a vision and scope document. Provide enough information so that the reader could access a copy of each reference, including title, author, version number, date, and source or location.>

# Overall Description

## Product Perspective

This is a brand-new self-contained product which is mainly used to make the scheduling process easier for students. This should allow easier scheduling for students and potential expansion by the school for administrative uses.

## Product Features

The features of this product allow for new/existing users to register for, or cancel existing registration to, classes during the school year. To allow for this there is a new (unique) user registration along with a 24/7 portal existing users can access. Classes can be scheduled during spring, summer, and fall. When classes are full, users can place themselves on a waiting list and will be registered if someone drops out.

## User Classes and Characteristics

Students and staff/ administrators will be the users of this system. Students will be the largest group using the software as there are more students than staff and administrators combined. They will be accessing the tools leading up to every semester, sometimes days before they begin using it to schedule classes. School administrative staff will be able to use the tool to verify students identity and class schedule and will be able to make certain changes to user profiles students cannot, such as adding/changing majors.

## Operating Environment

The software will exist on a website and work on any web browser. It will be accessible by PC or Mac computer with limited mobile functionality.

## Design and Implementation Constraints

Once the product has been developed, the school will take over the maintenance duties to ensure the tool runs smoothly after acceptance. Tools may need to be made available to add/change classes made available during the semester such as classes offered and updates to class sizes.

## User Documentation

<List the user documentation components (such as user manuals, on-line help, and tutorials) that will be delivered along with the software. Identify any known user documentation delivery formats or standards.>

## Assumptions and Dependencies

There is the potential that the customer would like to communicate to users through email or phone, but this would require implementation of third-party tools such as email integration or a telephony tool. This could benefit eventual 2-factor for security purposes, but this is currently not a specified requirement.

# System Features

## User Registration

3.1.1 Description and Priority

This high priority feature provides the ability to register a new account and create a profile. Includes generation of a unique ID and allows users to set their own high security password. Should confirm user ID is unique and not currently in use.

3.1.2 Stimulus/Response Sequences

Users will access the login website and click the new user registration link. They will be sent to a login page that asks for their name, phone number, email, and preferred username. Once they save, they should be able to log in at the login page next time they access it.

3.1.3 Functional Requirements

REQ-1: The system should recognize when a user has selected a username which was already registered and requires a change before registration is successful.

REQ-2: Phone number or email should be required, and the system should throw an error if at least one is not provided.

## User Profile

3.2.1 Description and Priority

This high priority feature holds registered user’s information including name, email, username, and major when assigned. Users should be able to access this page once they log in, and change some items like phone number and email address, but only administrators can change the major.

3.2.2 Stimulus/Response Sequences

Once users log in, they should be able to click the profile button to access the user profile. If they want to change information they will click edit, then save once the information has been adjusted.

3.2.3 Functional Requirements

REQ-1: If users want to change information, they should be able to click the edit button.

REQ-2: Once any editing has been completed, the save button should update the information in the database.

## User Login

3.3.1 Description and Priority

Yet another high priority feature is the login page with links to register a new user, reset password, and log into the portal.

3.3.2 Stimulus/Response Sequences

Users will go to the website link and will have the option to enter their credentials. If they match, they will be logged into the system. If you click the registration link, users will be sent to the registration feature. If users click the forgot password link, they will be sent to reset their password.

3.3.3 Functional Requirements

REQ-1: Login should confirm username and password match before logging them in.

REQ-2: Password reset link should require email or phone confirmation along with username to reset password.

## Class Registration/Cancellation

3.4.1 Description and Priority

High priority feature because it is one of the core purposes of the software. Once a user has been registered in the system, they should be able to apply for classes or cancel them if necessary.

3.4.2 Stimulus/Response Sequences

Once a user is logged in, they should be able to access the available class list for the semester through a link. They can then select a class and click register to assign it to their user profile.

3.4.3 Functional Requirements

REQ-1: The system should apply the class to the user profile once the class has been selected.

REQ-2: If the class is full, it should place the user on a waiting list.

## Waiting List

3.5.1 Description and Priority

Medium priority feature because an alternative is to remove the class from registration when full. Preferred option would be to let people place themselves on a waiting list if the class is full as there is usually going to be a few users that cancel before the class begins.

3.5.2 Stimulus/Response Sequences

After the user has requested the class, if they see that the class is full they can ask to join the waitlist in a first come first served style.

3.5.3 Functional Requirements

REQ-1: Need a first in first out list to create a queue which automatically moves a user up the list if someone cancels.

# External Interface Requirements

## User Interfaces

<Describe the logical characteristics of each interface between the software product and the users. This may include sample screen images, any GUI standards or product family style guides that are to be followed, screen layout constraints, standard buttons and functions (e.g., help) that will appear on every screen, keyboard shortcuts, error message display standards, and so on. Define the software components for which a user interface is needed. Details of the user interface design should be documented in a separate user interface specification.>

## Hardware Interfaces

<Describe the logical and physical characteristics of each interface between the software product and the hardware components of the system. This may include the supported device types, the nature of the data and control interactions between the software and the hardware, and communication protocols to be used.>

## Software Interfaces

<Describe the connections between this product and other specific software components (name and version), including databases, operating systems, tools, libraries, and integrated commercial components. Identify the data items or messages coming into the system and going out and describe the purpose of each. Describe the services needed and the nature of communications. Refer to documents that describe detailed application programming interface protocols. Identify data that will be shared across software components. If the data sharing mechanism must be implemented in a specific way (for example, use of a global data area in a multitasking operating system), specify this as an implementation constraint.>

## Communications Interfaces

The communication interfaces will be through a web browser which will require secure HTTPS communication standard.

# Other Nonfunctional Requirements

## Performance Requirements

The website should load within 3 seconds of entering the link. Once a user has input their username and password, the page should redirect them to the home page within 3 seconds. User profile changes should be saved to the database within 5 seconds.

## Safety Requirements

All form inputs should be sanitized to prevent SQL injection attacks.

## Security Requirements

When users want to reset their password, they will need to enter an additional form of verification such as their email or phone number to confirm they are the user. 2-factor can be added once there are resources available to implement it, but initial builds may not include it.

## Software Quality Attributes

Important quality attributes for the customer will be maintainability, ease of use, reusability, and correctness. The customer will be maintaining the tool upon acceptance, users will need to quickly understand how to use the tool to schedule classes, the tool will be reused every semester/year and the data needs to be correct so there is no student mix-up.

# Other Requirements

<Define any other requirements not covered elsewhere in the SRS. This might include database requirements, internationalization requirements, legal requirements, reuse objectives for the project, and so on. Add any new sections that are pertinent to the project.>

Appendix A: Glossary

<Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.>

Appendix B: Analysis Models

<Optionally, include any pertinent analysis models, such as data flow diagrams, class diagrams, state-transition diagrams, or entity-relationship diagrams.>

Appendix C: Issues List

< This is a dynamic list of the open requirements issues that remain to be resolved, including TBDs, pending decisions, information that is needed, conflicts awaiting resolution, and the like.>

**References**

The Business Analysis Doctor- IIBA Certification. (2023, May 17). *Software Requirement Specification (SRS) Tutorial and EXAMPLE | Functional Requirement Document*. YouTube. https://www.youtube.com/watch?v=M5DY3eTyhUA

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