CSU Community Sponsors

Software Requirements Specification

Version 1.0

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# **1. Introduction**

This Software Requirement Specification (SRS) document will serve as a foundational overview. The aim is to provide a comprehensive understanding of the document’s contents as well as outline of the functional and nonfunctional requirements needed for the system to be completed. A well provided list of viable constraints can also be found through this document. With this provided, the aim is to design a system that can delegate and foster impactful academic relationships between Clayton State University and its sponsors.

## **1.1 Purpose**

This Document aims to define the requirements and constraints for the development of the community sponsors system that will allow for interaction between sponsors, Clayton State Faculty, students, and sponsors. This document will act as a guide for the software development team to clarify the specific features and functionalities required for the complete system.

## **1.2 Scope**

(1) Software product(s) to be produced by name;

* Collaborative project management system
* Communication coupling system
* Account management system
* mentor assignment
* student application
* team formation
* time tracking
* project deliverable submission

(2) Explanation of software product(s)

* *Collaborative project management system*: from initialization to delivery the system should be able to manage the complete process from students-end, sponsor-end, and mentor-end.
* *Communication coupling system*: The program should be able to have open communication messaging system between the teams and sponsors, as well as a constraint that does not allow for student and sponsor to direct message
* Account management system: account holders should be able to view and update their information
* *Mentor assignment:* Students under a certain major will be assigned to mentors that handle certain fields. Those mentors then push field related projects to their students.
* *Student application*: students should be able to apply for projects that have been pushed to their feed. Based on major relation, skill relation, education-level, etc
* Team formation: Mentors should approve of student applicants and form teams, it is possible for multiple teams to work on one project if more than one field is required
* Time tracking: Students can log their hours of amount of time spent on projects- to be monitored by mentors
* *Project deliverable submission:* Final product from the team should be able to be submitted for review by mentor and delivered to sponsor

(3) Application of the software being specified:

The application of the software is dedicated to establishing a structured framework for industry-academic partnerships, promoting efficient project initiation, management, and completion.

## **1.3 Definitions, Acronyms, and Abbreviations**

*SRS-* Software Requirement Specification

MTTRS- Mean Time to Restore the System

PC- Portable Computer

LCP- Largest Contentful Paint

FID- First Input Delay

FCP- First Contentful Paint

TTFB- Time to First Byte

Etc- etcetera

CSU- Clayton State University

## **1.4 References**

No further references were made through this document. All information provided are from the development team.

## **1.5 Overview**

This SRS document encapsulates the essential requirements for the project management system, in vision with these specifications in mind. This document will serve as a vital reference for the developmental process to be used by the software engineering team. Listed with use cases, requirements, and constraints of the program as follows.

# **2. General Description**

## **2.1 Product Perspective**

This product exists to facilitate the collaboration of CSU students and community sponsors. The system will allow community sponsors to submit a request for a team of students to work on a project. These requests will be reviewed by a mentor before the project is assigned to both the mentor and a team of students to undertake the project. Moreover, project deliverables will also be submitted through the system. The large majority of the system’s functionality will be similar to websites like Indeed.com or Laker Career Zone, (or any job search system) where sponsors will post listings and students will have the opportunity to apply.

## **2.2 Product Functions**

* User Management:
  + Allow users to create accounts and log in.
  + Enable users to edit their account details.
* Project Management:
  + Facilitate sponsors to submit projects to the system.
  + Provide mentors with the ability to approve/reject projects submitted by sponsors.
  + Allow users involved in a project to view project details and track progress.
  + Enable mentors to assign teams as required by the project.
  + Allow mentors to approve/reject final project submissions by students before delivery to sponsors.
* Application Management:
  + Enable mentors to see student applications and approve/reject applicants.
  + Allow students to apply to projects.
  + Provide students with the ability to view their application status.
* Time Tracking:
  + Allow students to log working hours.
* Project Search and Viewing:
  + Enable users to perform search/filter searches for projects.
  + Allow users to view project details.

## **2.3 User Characteristics**

* Students: The majority of users of this system will fall under this category. Students’ main purpose will be to view project postings, apply, and submit work to the project’s designated page.
* Mentors: The mentors will be the users who will require the majority of the functionalities. They serve as mediators between students and sponsors on any given project.
* Sponsors: Sponsors’ primary need will be to post project listings, track project progress, and receive deliverables for the project when it is completed.

## **2.4 General Constraints**

Possible constraints for the design include the following:

* Implementation depends on the medium through which this system is designed.
* We also must consider the portability of the system (is it accessible through different devices, browsers, …, etc.)
* Memory: user account details, project postings, and a list of teams must be stored by the software.
* Maintainability: Someone must be in charge of maintaining the system (removing old job postings, old accounts, …, etc.)

## **2.5 Assumptions and Dependencies**

We assume that communication between mentors and sponsors will be done through the mentor’s official CSU email. Additionally, the login system will be based on the 2FA already in use by Clayton State for services like Outlook and D2L. Students will be put into contact with each other by the mentor.

# **3. Specific Requirements**

## **3.2 Functional Requirements**

This section describes specific features of the software.

Actor Goal Table

| Actor | Goal |
| --- | --- |
| Sponsor | Register |
|  | Login |
|  | Update Profile |
|  | Submit Project |
|  | View Project Status |
|  |  |
|  |  |
| Mentor | Register |
|  | Login |
|  | Update Profile |
|  | Review Project |
|  | Publish Project |
|  | Assign Project |
|  | Review Application |
|  | View Project |
|  | Review Work |
|  | Deliver Work |
|  | Select Team Leader |
|  |  |
| Student | Register |
|  | Login |
|  | Update Profile |
|  | Log Working Hours |
|  | View Open Project |
|  | Apply to Project |
|  | View Project |
|  | Submit Work |

### **3.2.1 <Register>**

3.2.1.1 Introduction

Feature that adds users to the system database upon meeting specific criteria. Upon completion of this feature, said user can then log into the system using their credentials.

3.2.1.2 Inputs

First Name - String: User’s first name.

Last Name - String: User’s last name.

Email - String: Mentors and Students of CSU will use their institution email.

Password - String: Desired password. See Section 3.5.4 for additional information on password requirements.

Retype Password - String: Argument verifies that the user correctly typed their desired password.

(Optional) Activation Code - String: Sequence of 8 digits given to Sponsors by institution to verify Sponsors creating accounts.

3.2.1.3 Processing

All processing is done by the system.

System will reject numbers and symbols within the entry fields of first name and last name.

System will reject a set of inputs if any one of them that is not the activation code is left blank. Additional prompt to the user will read as follows, “Missing information.”

Upon given a set of first name, last name, email, password, retype password, and optional activation code the system begins verifying the given inputs as follows:

1. Verify that the given email is linked to that of faculty, staff, or students of CSU. If not, prompt user “This email is not associated with CSU, please enter appropriate email.” and reject given inputs as a new entry in the system database.

Exception: If a sponsor creates an account they will not have an email associated with CSU;therefore, if email is determined as invalid but input for activation code is provided, proceed.

1. Check the database to see if the email entered is already linked to a profile within the database. If so, prompt “Account with this email already exists, Sign In” and reject the given inputs as a new entry in the database.
2. Verify that the password meets the requirements for the system. If not, prompt the user with the password requirements and reject the given inputs as a new entry in the database.
3. Verify that the password and retype password inputs are identical. If not, prompt the user with “Password and retype password did not match, try again.” and reject given inputs as a new entry in the database.
4. If an activation code is provided as an input, verify that the activation code is valid. If not, prompt user “Invalid Activation Code” and reject inputs as a new entry in the system database.

Once all inputs have been verified, the system stores given inputs in the system database and creates a profile for the user based on the information provided.

3.2.1.4 Outputs

First Name, Last Name, Email, and Password will be stored as output to be sent to a separate inclusive function <Create Profile> that creates a profile based on the information provided.

3.2.1.5 Error Handling

Error handling done by the system.

### **3.2.2 <Login>**

3.2.2.1 Introduction

Feature that allows users to access the system through their credentials.

3.2.2.2 Inputs

Email - String: email associated with an existing account within the system.

Password - String: password associated with the same account as the email within the system.

3.2.2.3 Processing

Mentors and Sponsors will have a separate Login page as their interface will contain different functionality to that of Students. System will verify credentials in relation to the login page being accessed, i.e. a valid student login will be rejected through the mentor and sponsor login page and vice versa.

Student login page will contain a link to the mentor and sponsor login and vice versa in the case of either being visited by mistake.

3.2.2.4 Outputs

None

3.2.2.5 Error Handling

Error Handling done by system.

### **3.2.3 <Update Profile>**

3.2.3.1 Introduction

This feature is made available to all actors within the design. Feature allows user to make changes to their profile and save such changes.

3.2.3.2 Inputs

Skills - String: Description of skills a user may have.

Experience - String: Record of past experience and role held within such experiences.

Resume - File: File containing individual’s resume.

3.2.3.3 Processing

Upon making changes to their profile, the user can then ask the system to save such changes by clicking the “Save” button. Changes are only saved if button is clicked.

3.2.3.4 Outputs

Display’s updated profile.

3.2.3.5 Error Handling

Error handling done by the system.

### **3.2.4 <Submit Project>**

3.2.4.1 Introduction

Feature limited to Sponsors. Feature creates and saves data of a project and makes it accessible by mentors for review.

3.2.4.2 Inputs

Project Title - String: title of project.

Project Type - String: Associated Department

Project Sponsor Company - String: Company associated with project.

Project Contact - String: Contact information of Sponsor

Academic Year - String: academic year required for project.

Skills Requested - String: skills requested for project.

Disciplines and Number of Student Requested - String: description of quality and quantity of students to compose a team.

Project Deliverables Required - String: explanation of desired format for receiving work.

3.2.4.3 Processing

System records all input data and creates new projects with an association to sponsor. Once a project is created, the system makes the project accessible to Mentors for review.

3.2.4.4 Outputs

Project that is viewable to Mentor.

Project status created for Sponsors to view.

3.2.4.5 Error Handling

Error Handling done by system.

### **3.2.5 <View Project Status>**

3.2.5.1 Introduction

Feature limited to Sponsors. Upon submitting a project for review, this feature allows Sponsors to receive updates on the project.

### 

3.2.5.2 Inputs

Project

### 

3.2.5.3 Processing

System display’s project information: Mentor, Mentor Contact, Project Status (Approved, Declined, Under Review).

Once a project is accepted or declined the system will update the page accordingly.

3.2.5.4 Outputs

Page containing information of project.

### 

3.2.5.5 Error Handling

Error handling done by system.

### **3.2.6 <Review Project>**

3.2.6.1 Introduction

Feature allows mentors to review the information provided by sponsors on a project and determine if said project is acceptable.

### 

3.2.6.2 Inputs

Project outline as presented by Sponsor.

### 

3.2.6.3 Processing

Project data manipulated to be easy to understand by the user.

Mentors may choose to accept or decline a project. System responds accordingly to each scenario.

### 

3.2.6.4 Outputs

Display of project information as outlined by sponsor. Allow users to determine whether a project is acceptable or not.

### 

3.2.6.5 Error Handling

Error handling done by system.

### 

### **3.2.7 <Publish Project>**

3.2.7.1 Introduction

Feature is limited only to Mentors. Allows projects to be viewed and applied to by Students.

3.2.7.2 Inputs

Project

3.2.7.3 Processing

System places the project and its data into the Open Projects List making it viewable by all students.

System also creates a repository for applications to the project.

3.2.7.4 Outputs

None

3.2.7.5 Error Handling

Error Handling done by system.

### **3.2.9 <Assign Project>**

3.2.9.1 Introduction

Feature limited to only Mentors. Allow mentors to accept students onto a project.

3.2.9.2 Inputs

Student

3.2.9.3 Processing

System adds student to Team associated with project.

System creates repository for files associated with project.

System grants student access to view project functionality for said project.

3.2.9.4 Outputs

None

3.2.9.5 Error Handling

Error Handling done by system.

### **3.2.10 <Review Application>**

3.2.10.1 Introduction

Feature limited to Mentor. Allows mentor to accept or decline student application to work on a project.

### 

3.2.10.2 Inputs

Student Application

### 

3.2.10.3 Processing

System presents student application data in an organized manner for user.

Mentor has ability to accept or decline an application. System will respond accordingly.

### 

3.2.10.4 Outputs

Student added to team associated with project.

### 

3.2.10.5 Error Handling

Error Handling done by system.

**3.2.11 <View Project>**

3.2.11.1 Introduction

Feature limited to Mentors and Sponsors. Displays information of a project to users. Makes submitted files accessible to all students in a team.

3.2.11.2 Inputs

Project

3.2.11.3 Processing

System retrieves project data and displays data in a clear format for the user to understand.

System also makes any files associated with the project accessible and downloadable for user.

3.2.11.4 Outputs

Display of project data.

Files associated with project.

3.2.11.5 Error Handling

Error handling done by system.

### **3.2.12 <Review Work>**

3.2.13.1 Introduction

Feature limited to Mentor. Mentor granted access to view work submitted by team leader.

Mentor has option to deliver work to sponsor or provide feedback for improvement.

### 

3.2.12.2 Inputs

Team repository associated with project.

### 

3.2.12.3 Processing

System allows files uploaded to project repository to be downloadable for Mentors.

### 

3.2.12.4 Outputs

File provided by team leader.

### 

3.2.12.5 Error Handling

Error handling done by system,

### **3.2.13 <Deliver Work>**

3.2.13.1 Introduction

Feature is limited to Mentors. Mentors release work to Sponsors to view.

### 

3.2.13.2 Inputs

Project

### 

3.2.13.3 Processing

System sends email notification to Sponsor associated with project.

System updates status of project for Sponsor to view.

System allows work file to be accessible to Sponsor through associated project.

### 

3.2.13.4 Outputs

File output to Project view of Sponsor.

### 

3.2.13.5 Error Handling

Error handling done by system

**3.2.14 <Select Team Leader>**

3.2.14.1 Introduction

Feature limited to Mentor. Mentor can select desired team leader.

### 

3.2.14.2 Inputs

Student

### 

3.2.14.3 Processing

Selected student is granted access by system to be able to submit work.

System uploads file into repository associated with project.

### 

3.2.14.4 Outputs

File made available to all students within the same team, working on the same project.

### 

3.2.14.5 Error Handling

Error handling done by system,

### **3.2.15 <Log Working Hours>**

3.2.15.1 Introduction

Feature limited to students. Feature allows students to log and track their working hours by project.

### 

3.2.15.2 Inputs

Project

Clock in - Date/Time: time at which student began working on a project.

Clock out - Date/Time: time at which student stopped working.

### 

3.2.15.3 Processing

System displays work log for project.

System calculates time worked on project given input.

System displays total hours worked across all projects.

### 

3.2.15.4 Outputs

Total time spent working.

### 

3.2.15.5 Error Handling

Error handling done by system.

### **3.2.16 <View Open Projects>**

3.2.16.1 Introduction

Feature limited to Students. Students can view and apply to and open projects. Students can also filter list based on specific attributes of a project.

3.2.16.2 Inputs

Open Projects list

3.2.16.3 Processing

System presents a list of open projects in an orderly manner.

System responds to filters.

3.2.16.4 Outputs

List of projects.

3.2.16.5 Error Handling

Error handling done by system.

**3.2.7 <Submit Project>**

3.2.7.1 Introduction

Feature limited to Sponsors. Feature creates and saves data of a project and makes it accessible by mentors for review.

3.2.7.2 Inputs

Project Title - String: title of project.

Project Type - String: Associated Department

Project Sponsor Company - String: Company associated with project.

Project Contact - String: Contact information of Sponsor

Academic Year - String: academic year required for project.

Skills Requested - String: skills requested for project.

Disciplines and Number of Student Requested - String: description of quality and quantity of students to compose a team.

Project Deliverables Required - String: explanation of desired format for receiving work.

3.2.7.3 Processing

System records all input data and creates new projects with an association to sponsor. Once a project is created, the system makes the project accessible to Mentors for review.

3.2.7.4 Outputs

Project that is viewable to Mentor.

Project status created for Sponsors to view.

3.2.7.5 Error Handling

Error Handling done by system.

### **3.2.17 <Apply to Project>**

3.2.17.1 Introduction

Feature is limited to students. Allow students to apply to a specific project.

### 

3.2.17.2 Inputs

Project

### 

3.2.17.3 Processing

System submits Student Profile as well as Student resume for mentor to review.

### 

3.2.17.4 Outputs

Student Profile and Student Resume File.

### 

3.2.17.5 Error Handling

Error handling done by system.

### **3.2.18 <Submit Work>**

3.2.18.1 Introduction

Feature is limited to team leader of a project. Allow team leader to submit work completed by team for mentor to review.

### 

3.2.18.2 Inputs

Work File

### 

3.2.18.3 Processing

System rejects request from those who are not team leaders.

System accepts requests from team leaders, files submitted are stored by the system within the project and accessible when the project is viewed.

### 

3.2.18.4 Outputs

File download link added to Project view.

### 

3.2.18.5 Error Handling

Error handling done by system.

## **3.3 Use Cases**

*Use Case design provided through Visual Paradigm. See attached file.*

## **3.5 Non-Functional Requirements**

Non-functional requirements may exist for the following attributes. Often these requirements must be achieved at a system-wide level rather than at a unit level. State the requirements in the following sections in measurable terms (e.g., 95% of transactions shall be processed in less than a second, system downtime may not exceed 1 minute per day, > 30 day MTBF value, etc).

### **3.5.1 Performance**

* Support 10,000 users at once, this should account for all CSU students, CSU staff, and sponsors, without a drop in delay.
* The system’s home page, including text and images, will load in less than 2 seconds on mobile phones and less than 1 second on laptops or PCs.
* Largest Contentful Paint (LCP) is a metric for measuring perceived load speed as it marks the point when the page’s main content has loaded. LCP for the system should equal an average of 2 seconds on laptops and on mobile phones.
* First Input Delay (FID) measures the time it takes from when a user first interacts with anything on their interface to the time when the system is able to begin processing event handlers in response to the user’s interaction. FID for the system should equal an average of 4ms on laptops and 16ms on mobile phones
* First Contentful Paint (FCP) measures the time from when a user first navigates to the home screen of a system to when any part of the page’s content shows on the screen. A fast FCP allows users to see that the system is doing its function. FCP for the system should equal an average of 1.4 seconds on laptops and mobile phones.
* Time to First Byte (TTFB) is a metric for measuring time between the request for a resource and when the first byte of a response begins to arrive. Therefore, it helps identify when a server is too slow to respond to requests. An optimal TTFB time for our system would be on average 0.3 seconds or less on laptops and 0.5 seconds on mobile phones.

### **3.5.2 Reliability**

* The system should perform for all users 99% of time every 3 months during business hours.
* The system should perform consistently across laptops and mobile phones with a reliability rate of 99%.
* Project description pages should be able to load 99.9% of the time for students to always have access to different published projects.

### **3.5.3 Availability**

* The system should be available to all users 99% of the time for 3 months.
* Home page should be available to users 99% of the time every month.
* Sponsors, mentors, and students must have a login by inputting username and password. The user’s password must change every 3 months to protect from attackers and keep the system running safely and smoothly.

### **3.5.4 Security**

* System requires sponsors, CSU staff, and CSU students to create accounts with a valid email (school email for staff and students), phone number, username, and password
* All users must create strong passwords: at least 12 characters long, including 1 special character, 1 uppercase letter, and 1 number.
* There will be 2-factor authentication every 2 weeks after creating an account. The 2-factor authentication includes texting the user’s phone number a 6 digit verification code.
* If a user enters the wrong password too many times (6 times), they will be locked out from trying again for 30 minutes. If the user forgot their password there will be an option that will allow the user to provide their email and they will be emailed a link to restore and create a new password.

### **3.5.5 Maintainability**

* Often measured with Mean Time to Restore the System (MTTRS) metric. MTTRS for our system following a failure must be less than 1 hour.
* The system will have 99% maintainability for 1 hour meaning that if the system fails then there will be a 99% chance that it can be fixed within 1 hour.

### **3.5.6 Portability**

* The system should provide a consistent user experience across mobile and computer devices with quick response times and adapting to different screen sizes and resolution.
* The system may run on various operating systems such as Windows, macOS, and Linux without any change in behavior and performance.
* The site must be fully functional across all major web browsers such as Chrome, Safari, Edge, and Firefox with consistent performance and screen layout.

### **3.5.7 Culture**

* Website’s colors should follow the color scheme of Clayton State University, orange, blue, and white.

# **5. UI Design**

#### *UI Design provided through Visual Paradigm. See attached file.*

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