SLOTracker 1.2 Project Design

Version 1.2

Designed By:

The Fall Class of 22022
CSCI 36

Summary

This document gives a detail description of the files that make up the SLO Tracker project and the requirements the project is based on.

Student Learning Outcomes:

The SLO Tracker is a class project, this design satisfies the following Student learning outcomes:

Analyze and determine requirements for a software system to solve a specific problem.

Produce a detailed design for a software system that meets a specific set of requirements.

Write software documentation that is clear, concise, and consistent with industry standards.

Table of Contents

Introduction

The SLO Tracker Project is a two-part website and web scraper program developed by students as a class project. The web scrapper searches through the Butte.edu website and collects information. The website will display that information for the convenience of any end users. The SLO Tracker design is made up of multiple files of code that uses a combination of JavaScript, HTML, CSS and EJS. The following pages will detail the design of the SLO Tracker project with explanations charts and diagrams followed by the requirements.

The files

The files that make the SLO Tracker project are can be summarized as follows:

Database - The files in the database folder contains two files database.js and sequlize.js tighter these files set up and fill the database.

Documentation - The Documentation folder contains file contains read me files, (SRS)Requirements, flow charts and other document for the project.

Node Modules -This folder contains all the packages listed as dependencies in the package files.

packages - The project contains package files that are important parts to the foundation of the project. The files package are lock.json, clos.json package.json the contain the libraries/dependencies that the project will use.

Public- The public folder has the files and code to create and style the discussion form page of the website along with style and image files.

Routes -Routes is folder in the project that contain four files departments.js prorams.js, form.js and index.js. These files contain the code that will handle requests from the browser/client to deliver and display the webpages.

Models – The models folder contains multiple files with code that will organize and arrange the data into models. When data is pulled from the Butte college website it is stored in the database using these models.

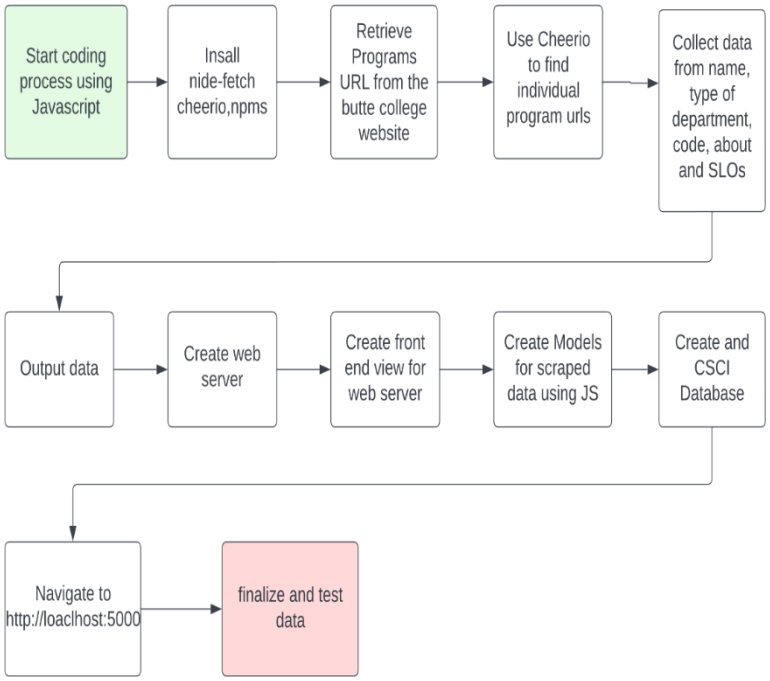
Utilities – helper files for the fetching and parsing functions used by the scrapper and other supporting files.

Views - The views folder contains multiple files of code that make up the design/view of the website.

Scraper – The scraper.js file is the heart of the program because it pulls the information that will flow to other parts of the program. The scraper will be discussed in detail in the next section.

The scrapper

The project contains a file called scraper.ejs. The scrapper file is the heart of the project it contains the code that makes the scrapper work. The scrapper satisfies requirements two and three.



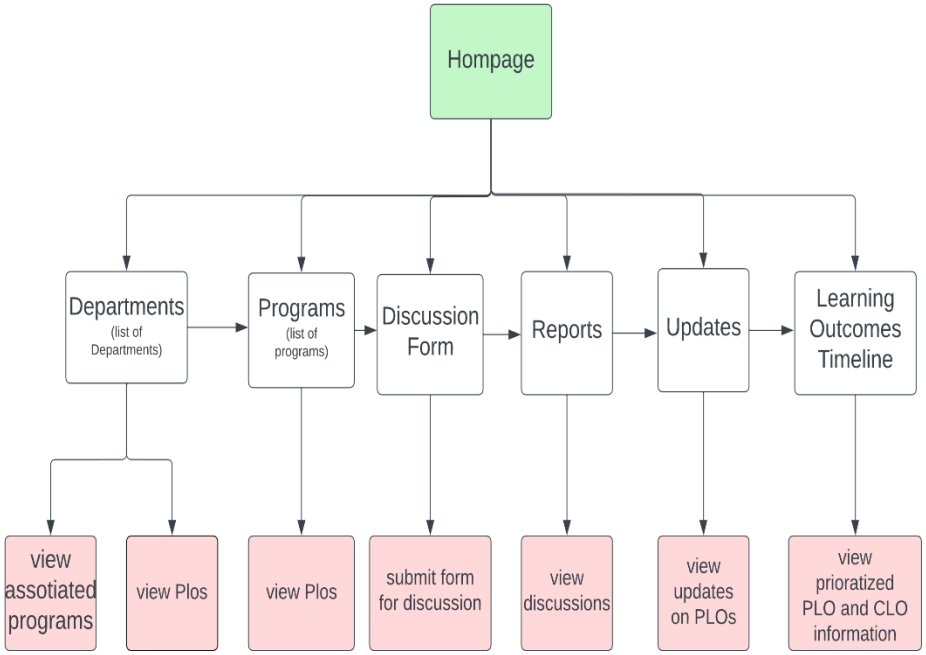
The Scraper flow Chart

To the right is a chart of how the scraper program flows. The program begins with JavaScript installing the libraries/dependencies listed in the package files and contained in the Node module files. The scraper will use the installed fetch and cheerio libraries to fetch the butte.edu web page. The scraper will then search the page and collect program names, departments, types, codes, and links for each program. Next the scraper will then use the programs links to do a second fetch and collect data on the for the SLOs. The program then flows into the sequence of steps that will format and output the data. The Server file uses the JavaScript library express to create the server and handle the routes. The routes are the pages the website will flow into. The models files then create the arranges and organize the information to be displayed on the website. There are error catching and check statements thought the code that will finalize the data.

The Website

Once the data is gathered collected and organized by the scrapper and framed into models, the website will display the data using bootstrap JavaScript and CSS.

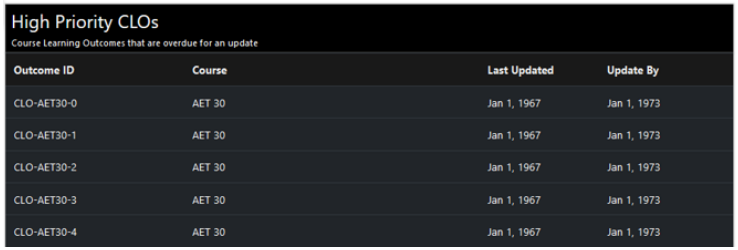
The Website Flow Chart



This chart shows how the website flows. The website starts with the home page. The home page is that start of the website and gives a brief description of the website. from which users can access the other pages via the navigation bar. The department page will list each department with the name being a clickable link. The link will connect the user to a page that displays a list of programs associated the clicked/chosen department. From this page the user can click a program to view PLOs the programs page is a list of programs offered at Butte college arranged in alphabetical order. On this page the user can click a program to view information about it and PLOs. The Discussion page contains a form that users can fill out with information on which PLOS and or CLOS have recently been Assessed. The reports page will display information on PLOs that have recently been assessed. Lastly the learning outcomes page will display PLOs and CLOs based on their level of priority.

The Website Screenshots

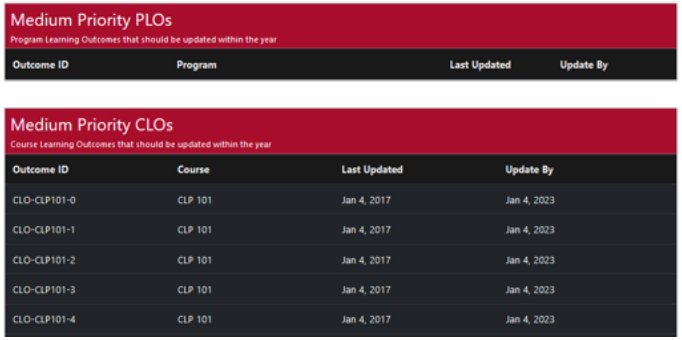
Requirement number ten is for the website to have a new front end. Below are screen shots that show the new front-end design and the requirements they satisfy. Requirement four is to make sure the website displays which PLOs will be evaluated with the semester and year. Requirement five is to display which PLOs need to be evaluated. Below are screen shots of the Learning Outcomes page that show requirements four and five have been satisfied. The Learning outcomes page works by first creating a route for the sever, then importing the tables in the database that store the information needed information. Then the information is formatted to be displayed using EJS.



High Priority CLOs

Course Learning Outcomes that are overdue for an update

Outcome ID	Course	Last Updated	Update By
CLO-AET30-0	AET 30	Jan 1, 1967	Jan 1, 1973
CLO-AET30-1	AET 30	Jan 1, 1967	Jan 1, 1973
CLO-AET30-2	AET 30	Jan 1, 1967	Jan 1, 1973
CLO-AET30-3	AET 30	Jan 1, 1967	Jan 1, 1973
CLO-AET30-4	AET 30	Jan 1, 1967	Jan 1, 1973



Medium Priority PLOs

Program Learning Outcomes that should be updated within the year

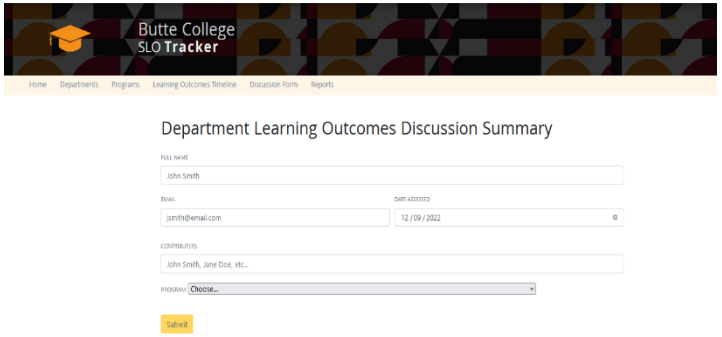
Outcome ID	Program	Last Updated	Update By

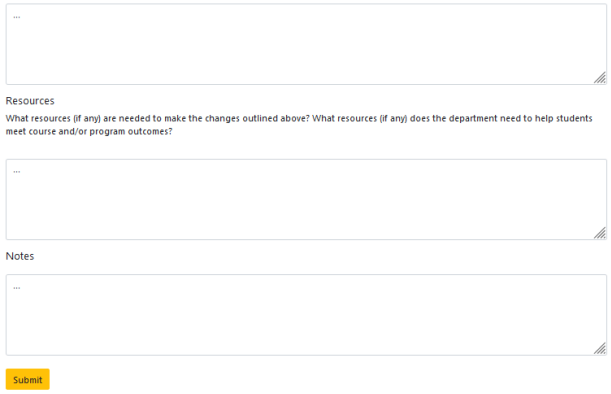
Medium Priority CLOs

Course Learning Outcomes that should be updated within the year

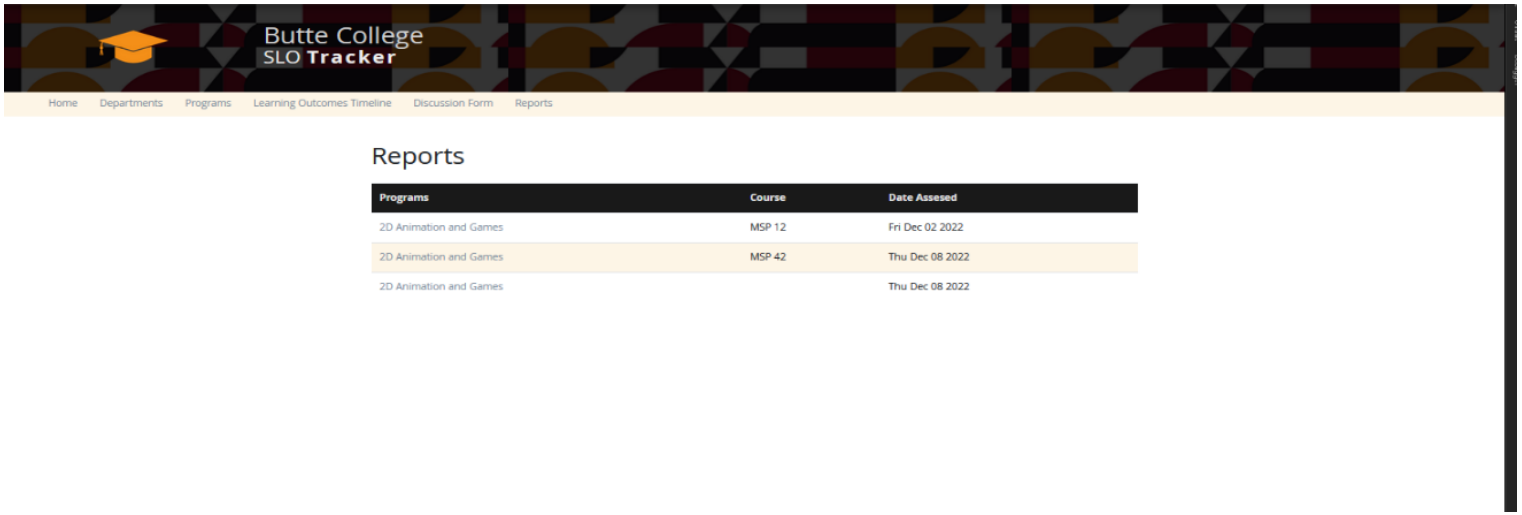
Outcome ID	Course	Last Updated	Update By
CLO-CLP101-0	CLP 101	Jan 4, 2017	Jan 4, 2023
CLO-CLP101-1	CLP 101	Jan 4, 2017	Jan 4, 2023
CLO-CLP101-2	CLP 101	Jan 4, 2017	Jan 4, 2023
CLO-CLP101-3	CLP 101	Jan 4, 2017	Jan 4, 2023
CLO-CLP101-4	CLP 101	Jan 4, 2017	Jan 4, 2023

Requirement number six is to recreate the form for tracking PLO discussions. Requirement number seven is to have revised what to do section of the discussion form page. Here are screen shots that show requirements six and seven have been completed. On the back end there is a file in the routes folder named form.js. This routes file imports the tables it needs from the database. Then goes through the tables, collects, and formats the information needed for the drop menus. Ejs is used for the other elements on the page.

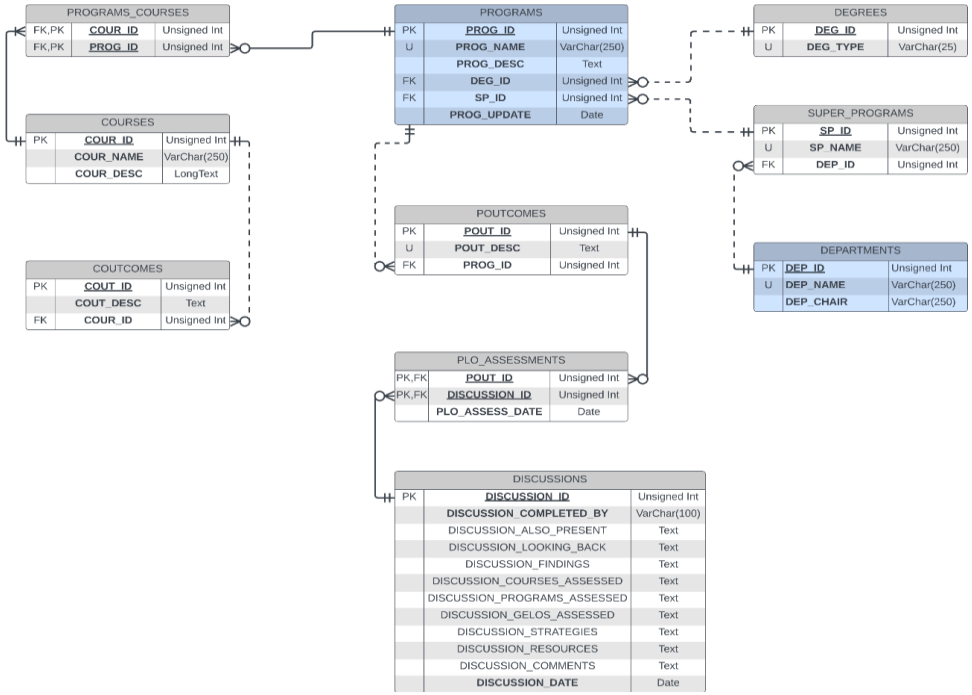




Requirement number seven is to report out PLO discussion information. Here is screen shot of the reports page wish displays information from the discussion form. The reports page uses a JavaScript function to import the assessments table, then uses ejs to format the display.



The Database



Requirement number one is that the project scrapes data into a relational database. For the project we will use Sequilize to create a database. Sequelize is a library listed in the package files that simplifies the process of creating a database. The sequelize.js file contains code that imports the models and uses sequelize to set up a database and format it according to the models. This is an ERD of the how the database will hold the scraped information. The programs connected to the degrees and super programs table. The degrees are the achievements you will receive at the completion of the program. Super programs are the larger programs each degree is a part of. The super programs connect the programs table to the school's departments table. The programs table is connected to the Outcomes table which are the PLOs. The PLOS are linked to the PLO Assessment table and the discussion form. The programs are associated with program courses which connected the to the outcomes table which holds the SLOs This database is designed to for information to flow in and out of the SLO Scrapper project.

THE REQUIREMENTS

Web SLO Tracker 1.2

Software Requirements Specification

1.0 Introduction

Butte College has defined expectations for each course offered called Program Learning Outcomes (PLOs)and Student Learning Outcomes (SLOs). Details about these outcomes are displayed on the Butte College website. SLOScrapper1.0/1.1 were created to collect PLOs from the butte.edu websites and store them in a database because no such program existed. SLOScrapper1.0 was going to be a downloadable program but was discarded and replaced by SLOSCrapper1.1 which is designed to be a website. Since the creation of SLOscrapper1.1 Butte College has made alterations to its website and the information it contains which calls for an updated SLOScrapper. Therefore, this project will be the newest version of the SLOScrapper, version 1.2.

1.1 Purpose

SLOscrapper 1.2 is designed to be a web application that provides a one stop source for a collection of data gathered from the Butte College website. SLOScrapper1.2 is also a class project to meet the following Student Learning Outcomes:

- Work with a team to develop and deliver a software system that satisfies a specific set of requirements.
- Analyze and determine requirements for a software system to solve a specific problem.
- Produce a detailed design for a software system that meets a specific set of requirements.
- Measure and track progress of a software development project.
- Use a version control tool to manage a software project with multiple team members and multiple revisions.
- Write software documentation that is clear, concise, and consistent with industry standards.

1.2 Scope

The fall class of 2022 will design a web application project. The project will be developed using SLOScrapper 1.1 as the foundation. The project will allow users to view information about departments and programs at butte college. Users will be able to find out when a PLO was updated, needs to be updated and will be updated. We also want to allow forms to be submitted by faculty to when a PLO was updated, needs to be updated, or will be updated.

1.3 Definitions, Acronyms, and Abbreviations.

PLO - Program Learning Outcomes
SLO - Student Learning Outcome

Version 1.1 - SLOScrapper1.1 (The previous program) Version 1.2 - SLOScrapper1.2(The program currently being developed)

1.4 Document Conventions

This document has no unusual conventions.

1.5 Intended Audience & Reading Suggestions

This document is written and intended for product owner April Browne, each team member of the fall 2022 Class.

1.6 References

This Project references the overall project document: https://docs.google.com/document/d/1Hp_K6GOns13MKCO-4r8pBC7QjkZ7fIy9uiX1XjWn-m4/edit?usp=sharing and our group discord: https://discord.gg/8wuSaGPTYg

1.7 Overview

Section 2 will give on overview of the product and section 3 will go into specific details.

2.0 The Overall description

2.1 Product Perspective

SLOScrapper1.2 is a web application whose primary objective is to display specific information that is up to date and accurate for the convenience of end-users. SLOScrapper1.2 uses a web scraper program to collect information and store the information to be latter retrieved for viewing. SLOScrapper1.2 also uses a combination of web design languages to create and style the web application. SLOScrapper1.2 can be compared with any informational website.

2.1.1 User Interfaces

The user will interact with the web page via navigation bar and clickable links.

2.1.2 Hardware Interfaces

SLOScrapper1.2 will interact with hardware such as computer screens, keyboards, and mouses for browser-based scrolling.

2.1.3 Software Interfaces

We will be using these libraries:

1. Cheerio

a. To scrape the butte college pages

2. Node.js

. To have an actively running server

3. Ejs

. To create modular web pages

4. Sequelize

. To take our data and put into our database

We will use MySQL as our DBMS. We will also use a combination of JavaScript html and CSS.

2.1.4 Communications Interfaces

Version 1.2 requires an internet connection and relies on Node.js and HTTP for our rest API calls.

2.1.5 Memory Constraints

Version1.2 is web application that will require persistent memory.

2.2 Site Adaptation Requirements

Version 1.2 should be responsive to adapt to desktops, laptops, tablets, mobile and other similar devices. There are currently no other known adaptations needed to run version1.2.

2.3 Product Features

Version 1.2 is a class project that effectively does the following:

Meets Student Learning Objectives - The project is functional, and work is tracked and proven at the end of the semester. The project will use NodeJS and scraping libraries to retrieve data from butte.edu.

Implements new functionality - The project tracks department discussions around PLOs the project tracks when assessments of PLOs are planned the project tracks if they've been completed in that semester The project can generate reports of PLOs that are to be planned this semester

Database Implementation - The project implements a database to store scraped objects in. The project should also use the database to track the state of each PLO and SLO.

Implement CI/CD- Software can be set up for continuous integration using GitLab. The project can also be deployed to a server, but a significant amount of additional work is required to accomplish this.

2.4 User Characteristics

Instructors: This user class will most likely use this software infrequently, 2 to 5 times a year to check PLOs. They may use it to ensure that their classes are following the requirements. They may use it to ensure that their classes are following their program requirements.

Administrator: This user class will use the software more frequently.
They will use it when evaluating classes, programs, and institution. They will be able to use the software to ensure that all PLOs have been updated properly. They will be able to use it to see other faculties form submissions regarding updates.

2.5 Constraints

SLOScrapper version 1.2 is not a fully functional website until hosting is provided. Like 1.1, Version 1.2 is not designed to be added to the butte.edu website but designed as an external tool. Version 1.2 will be designed as a website using JSNode, JavaScript, HTML, CSS and any

other language deemed necessary by the fall 2022 Class. We do not have any CSS set up for mobile.

2.6 Assumptions and Dependencies

It is assumed that SLOScraper1.2 will one day become the foundation of SLOScraper1.3 therefore, Code is expected to be commented and made clear for other team members as well as future team members. Version 1.2 is completely dependent on The Butte College website http://butte.edu/academicprograms/.

3.0 Specific Requirements

Specific requirements:

1. Version 1.2 shall scrape PLO data from the butt.edu website and store it in a relational database.
2. Version 1.2 shall scrape SLO data from PDF's associated with the Butte College website.
3. Version 1.2 shall be able to update PLOs.
4. Version 1.2 shall display which PLOs will be evaluated with the semester and year.
5. Version 1.2 shall display which PLOs need to be evaluated.
6. Version 1.2 shall have a recreated form for tracking PLO discussions.
7. Version 1.2 should have a revised what to do section on the discussion page

8. Version 1.2 should have a new revised website front end design.

9. Version 1.2 should have a revised what to do section on the discussion page.

10. Version 1.2 should have handicap accessible features.

11. Other non-functional requirements.

3.1 External Interfaces

SLOScraper1.2 is designed as a web application capable of running in any browser including but not limited to Google Chrome, Microsoft Bing, Safari Apple, and Mozilla Firefox etc...

3.2 Performance Requirements

The application will perform according to standard NodeJS. The application must be able to fetch the data from the database. The application must also not contain logic errors or other issues that might impact performance.

3.3 Logical Database Requirements This section will be revised as needed.

3.4 Software System Attributes

This section will be revised as needed.

3.4.1 Security

This section will be revised as needed. Currently, we do not contain any personal information that would be harmful if leaked. All our information are things that could be made public. The worst thing is if the discussion posts were public, and the one who submitted the form didn't want that.

3.5.2 Maintainability

Version 1.2 will require the PLOs and SLOs to be updated. If the Butte College website changes, then version 1.2 will need to be updated again.

3.5.3 Availability

This section will be revised as needed.

3.5.4 Security

We currently do not have much security, so our product is very vulnerable.

4.0 Other Requirements

This section will be revised as needed.