# Project Plan

Student Multi-Tool

---

10.27.2021

**Team Marvel**
Albert Toscano
Audrey Brio
Bradley Nickle
Joseph Cutri
Michael Kriesel (Team Leader)

## Introduction

The purpose of this document is to outline a plan for our project. It will include when we plan to have certain parts of our product to be completed as well as the expected cost and sprint plan.

## Scope

As our product is meant to be a web application, we plan to develop it for Chrome with the latest version available in January 2022. We plan on supporting each version until the latest version of Chrome available in April 2022. We will be creating this application using American English and American currency for any and all things dealing with money. Since our focus is on campuses in California, we will be using the Pacific Time Zone for times and date purposes. If there are any students using the web application that are not located in the Pacific Time Zone, dates and times will still show up in the Pacific Time Zone. We will be using a 24 hour clock system. An internet connection is required for all interactions with the system.

## Disclaimer

Since we do not know much about our core features, we cannot fully plan for them, but we have taken them into consideration. As such, our schedule is likely to change after October 27, 2021.

## Deliverables

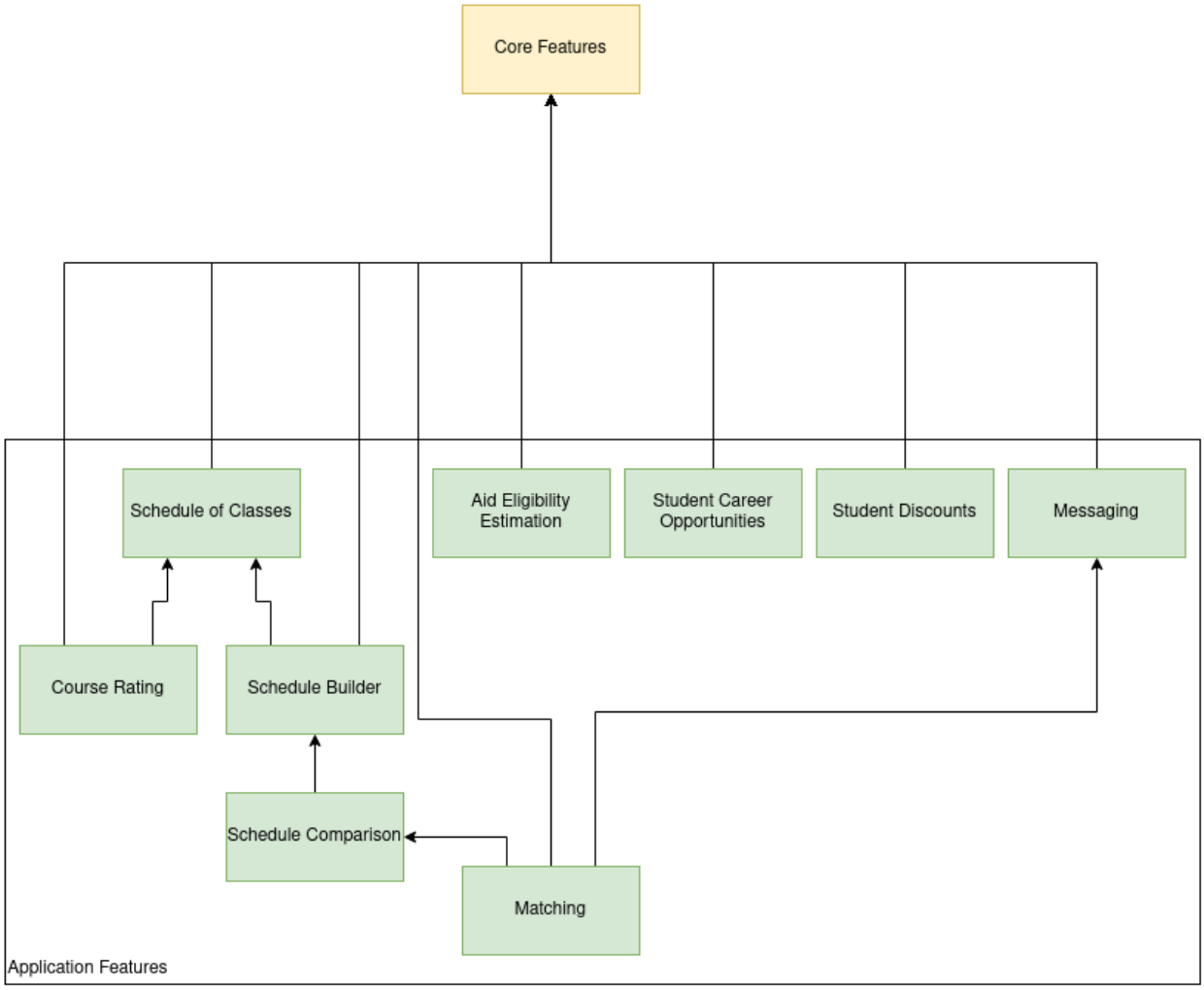
- Estimated Project Time - 1200 hours
    - Milestone 1 - Total Estimated Hours: 450 Hours
    - Milestone 2 - Total Estimated Hours: 575 Hours
    - Milestone 3 - Total Estimated Hours: 175 Hours
- Milestone One (completed by 3/5/2022)
    - Core Requirements
        - Network Communication -Total Estimated Hours: 50 Hours
        - Data Store Access - Total Estimated Hours: 50 Hours
        - Logging/Arching - Total Estimated Hours: 50 Hours
        - Registration - Total Estimated Hours: 33 Hours
        - Login - Total Estimated Hours: 33 Hours
        - Logout - Total Estimated Hours: 33 Hours
        - Error Handling - Total Estimated Hours: 50 Hours
        - User Access Control - Total Estimated Hours: 50 Hours
        - User Management - Total Estimated Hours: 50 Hours
        - Usage Analysis Dashboard - Total Estimated Hours: 50 Hours
- Milestone Two (completed by 4/27/2022)
    - Application Features
        - Schedule of Classes - Total Estimated Hours: 70 Hours
        - Messaging - Total Estimated Hours:  40 Hours
        - Student Discounts - Total Estimated Hours: 70 Hours
        - Schedule Builder - Total Estimated Hours: 70 Hours
        - Schedule Comparison - Total Estimated Hours: 40 Hours
        - Course Difficulty - Total Estimated Hours: 70 Hours
        - Matching - Total Estimated Hours:  75 Hours
        - Career Opportunities - Total Estimated Hours: 75 Hours
        - Aid Eligibility - Total Estimated Hours:  65 Hours
- Milestone Three (completed by 5/4/2022)
    - Testing
        - All system testing - Total Estimated Hours: 100 Hours
    - Deployment
        - Web server - Total Estimated Hours: 19 Hours
        - Database - Total Estimated Hours: 19 Hours
        - Security configuration - Total Estimated Hours: 19 Hours
        - Deploy - Total Estimated Hours: 18 Hours
- Deadline: Final Day possible to deploy 5/4/2022

# Schedule

| TASK TITLE | LEAD | Sprint 1 | Sprint 2 | Sprint 3 | Sprint 4 | Sprint 5 | Sprint 6 | Sprint 7 | Sprint 8 |
|---|---|---|---|---|---|---|---|---|---|
| | | 1/25 - 2/5 | 2/8 - 2/19 | 2/22 - 3/5 | 3/8 - 3/19 | 3/22 - 4/2 | 4/5 - 4/16 | 4/19 - 4/27 | 4/30 - 5/4 |
| **Core Features** | | | | | | | | | |
| Network Communication | Michael | | | | | | | | |
| Data Store Access | Joseph | | | | | | | | |
| Logging/Archiving | Albert | | | | | | | | |
| Registration | Albert | | | | | | | | |
| Login | Audrey | | | | | | | | |
| Logout | Brad | | | | | | | | |
| Error Handling | Joseph | | | | | | | | |
| User Management | Audrey | | | | | | | | |
| User Access Control | Michael | | | | | | | | |
| Usage Analysis Dashboard | Brad | | | | | | | | |
| **Unique Features** | | | | | | | | | |
| Schedule of Classes | Michael | | | | | | | | |
| Messaging | Audrey | | | | | | | | |
| Student Discounts | Albert | | | | | | | | |
| Schedule Builder | Brad | | | | | | | | |
| Schedule Comparison | Brad | | | | | | | | |
| Course Reviews | Michael | | | | | | | | |
| Matching | Audrey | | | | | | | | |
| Career Opportunities | Albert | | | | | | | | |
| Aid Egilibility | Joseph | | | | | | | | |

| TASK TITLE | LEAD | Sprint 1 | Sprint 2 | Sprint 3 | Sprint 4 | Sprint 5 | Sprint 6 | Sprint 7 | Sprint 8 |
|---|---|---|---|---|---|---|---|---|---|
| | | 1/25 - 2/5 | 2/8 - 2/19 | 2/22 - 3/5 | 3/8 - 3/19 | 3/22 - 4/2 | 4/5 - 4/16 | 4/19 - 4/27 | 4/30 - 5/4 |
| **Testing** | | | | | | | | | |
| Network Communication | Michael | | | | | | | | |
| Data Store Access | Joseph | | | | | | | | |
| Logging/Archiving | Albert | | | | | | | | |
| Registration | Albert | | | | | | | | |
| Login | Audrey | | | | | | | | |
| Logout | Brad | | | | | | | | |
| Error Handling | Joseph | | | | | | | | |
| User Management | Audrey | | | | | | | | |
| User Access Control | Michael | | | | | | | | |
| Usage Analysis Dashboard | Brad | | | | | | | | |
| Schedule of Classes | Michael | | | | | | | | |
| Schedule Builder | Audrey | | | | | | | | |
| Course Reviews | Albert | | | | | | | | |
| Schedule Comparison | Brad | | | | | | | | |
| Messaging | Brad | | | | | | | | |
| Matching | Michael | | | | | | | | |
| Student Discounts | Audrey | | | | | | | | |
| Career Opportunities | Albert | | | | | | | | |
| Aid Egilibility | Joseph | | | | | | | | |
| **Deployment** | | | | | | | | | |
| Set up Web Server | Michael | | | | | | | | |
| Set up DataBase | Audrey | | | | | | | | |
| Security Configuration | Albert | | | | | | | | |
| Deployment | Brad | | | | | | | | |

## Schedule Justification/Order of Feature Development




We have decided to develop our features in a particular order, using feature dependencies as our main justification for that order. To plan our development schedule, we have taken the following into consideration:

- If any of our core features are not completed on time, it will set us back on the application features, as the application features depend on the core features.
- In general, if any of the application features that have dependencies are not completed on time, it will set us back in developing those features that require it to be done. Specifically:
    - If we do not complete the schedule of classes on time, we will be behind schedule on completing the schedule builder, schedule comparison, and matching features.
    - If we do not complete messaging and schedule comparison on time, we will be behind schedule on completing the matching feature.

- The following features have no other features as dependencies, and are therefore less critical to our schedule:
    - Course Rating
    - Matching
    - Aid Eligibility Estimation
    - Career Opportunities
    - Student Discounts

While we would like to have dedicated sprints for testing and deployment, we expect that we will likely have features that are still in development and testing during sprints 7 and 8.

## Risk Identification & Mitigation

In this section we describe the initial risks of taking on this project. We have grouped our risks into categories: technical support, cost, and schedule. For each category, risks are ordered in terms of severity from highest to lowest. Severity uses a scale from 0 to 1, in which 1 is considered our most urgent risk(s), and 0 is not considered a risk at all.

Support Risks

1. RSU01: Access to scholarship and grant data
    a. Severity: 1
    b. Details: We need a way to access scholarship and grant data to fully implement the Aid Eligibility Estimation feature. Ideally, we would get this from a single source, but this may not be possible.
    c. Affected features
        i. Aid Eligibility Estimation
    d. Mitigation Strategy
        i. We are currently in communication with CSULB enrollment services regarding this data.
        ii. In the case we do not get direct access to the scholarship and grant data, we will develop a backup plan that involves using multiple smaller data sources and combining them here in a presentable way
2. RSU02: Access to career opportunities data
    a. Severity: 1
    b. Details: We need a way to access career opportunity data to fully implement the Career Opportunities feature. Ideally, we would get this from a single source, but this may not be possible.
    c. Affected features
        i. Career Opportunities
    d. Mitigation Strategy
        i. We are currently in communication with the CSULB career center regarding this data.
        ii. In the case we do not get direct access to career opportunity data, we will develop a backup plan that would involve potential employers posting career opportunities onto our service directly
3. RSU03: Access to schedule of classes data
    a. Severity: 1
    b. Details: We need a way to obtain the schedule of classes for a given school, which would make the Schedule Builder and Course Reviews simpler to use.

Ideally, we would get this directly from the school, but this may not be possible.

c. Affected features
    i. Schedule of Classes
    ii. Schedule Builder
    iii. Course Reviews
d. Mitigation Strategy
    i. We are currently in communication with CSULB enrollment services regarding this data.
    ii. In case we do not get direct access to the data needed, we will develop a backup plan that uses web crawling
    iii. In case web crawling is not a viable option, we will develop a backup plan that uses web crawling

4. RSU04: Lack of experience with web development
    a. Severity: 0.75
    b. Details: Most of our team is relatively unfamiliar with HTML, CSS, Javascript, apache, and other topics in web development.
    c. Affected features
        i. All
    d. Mitigation Strategy
        i. We will have time to learn the basic syntax and functionalities of these languages from November 2021 until late January 2022
        ii. We all have a fundamental understanding of object-oriented programming, and will be able to translate these skills to other languages as we go

Schedule Risks

1. RSS01: Documentation and implementation of backup plans for some features
    a. Severity: 0.5
    b. Details: Since some of our features require getting data from external sources, we may need to spend time creating a backup plan for one or more of those features.
    c. Affected features
        i. Aid Eligibility Estimation
        ii. Career Options
        iii. Schedule of Classes
    d. Mitigation Strategy

        i. We are currently trying to get the data in a manageable way for each feature to ensure that we do not need to make backup plans
        ii. We have until late January to create and document our backup plans

Cost Risks

1. RSC01: AWS use fees
    a. Severity: 0.25
    b. Details: We consider the possibility of incurring AWS usage fees, whether expected or not, a risk. Since our estimated monthly cost is affordable for us for about 1 or 2 months, we do not consider this to be an urgent risk.
    c. Affected features
        i. All
    d. Mitigation Strategy
        i. We have agreed to split costs at least 3 ways, reducing the cost to any one person.

# Sprint Plan

| Sprint | Start Date | End Date | Deliverables | Assigned |
|---|---|---|---|---|
| Sprint 1 | 1/25/2022 | 2/5/2022 | Network Communication | Michael |
| | | | Data Store Access | Joseph |
| | | | Logging/Archiving | Albert |
| Sprint 2 | 2/8/2022 | 2/19/2022 | Registration | Albert |
| | | | Login | Audrey |
| | | | Logout | Brad |
| | | | Error Handling | Joseph |
| Sprint 3 | 2/22/2022 | 3/5/2022 | Usage Analysis Dashboard | Brad |
| | | | User Management | Audrey |
| | | | User Access Control | Michael |
| Sprint 4 | 3/8/2022 | 3/19/2022 | Schedule of Classes | Michael |
| | | | Messaging | Audrey |
| | | | Student Discounts | Albert |
| Sprint 5 | 3/22/2022 | 4/2/2022 | Schedule Builder | Brad |
| | | | Schedule Comparison | Brad |
| | | | Course Reviews | Michael |
| Sprint 6 | 4/5/2022 | 4/16/2022 | Matching | Audrey |
| | | | Career Opportunities | Albert |
| Sprint 7 | 4/19/2022 | 4/27/2022 | Aid Eligibility | Joseph |
| | | | System Testing | Audrey |
| Sprint 8 | 4/30/2022 | 5/4/2022 | Deployment | Brad |

Things we expect to be true of every sprint:

- Each Monday, before the start of the sprint on Tuesday, is the day of our sprint planning
- Retrospectives will be on the Sunday before the start of the next sprint on Tuesday
- We will continue to meet four times a week on Monday, Wednesday, Friday, and Sunday.
    - Days will be adjusted as needed
    - These meetings are where our daily standup meetings will occur
    - Meetings will occur on campus when possible and using Discord when necessary
- Sprint backlogs and a project backlog will be used to keep track of progress and work done

Things we expect to accomplish during each  sprint:

- Sprint 1
    - We plan on having data store access, network communication, and logging/archiving done by the end of sprint 1. We plan on doing data store access, network communication and logging/archiving first since they might have other core features dependant on them
- Sprint 2
    - At the end of sprint 2 we plan on having registration, login, logout, and error handling done. We estimate registration, login, and logout to take a couple of days leaving time to complete error handling. We need to do registration after network communication and data store access since it depends on both of those items.
- Sprint 3
    - We plan on having user management, user access control, and usage analysis dashboard by the end of sprint 3. These are the requirements that depend on previously done items, so it makes sense to build them later.
    - At the end of sprint 3 is when we plan on having all of the core features done
        - This is what we plan as the end of milestone one
- Sprint 4
    - We plan on having Schedule of classes, messaging, and student discounts done by the end of this sprint. The schedule of classes is the first thing that needs to be done due to the fact that other features are dependent on it. Messaging also needs to be completed as matching depends on it. We don't expect messaging to take quite as long as the other features. Student

discounts is not dependent on anything and can be switched around if needed.

- Sprint 5
    - We plan on having schedule builder, schedule comparison, and course reviews done by the end of this sprint. Schedule builder and schedule comparison are technically one feature so building this together makes sense. We need schedule of classes to be done in order to work on both schedule builder and course reviews, which would be done by the end of the previous sprint. We need to build schedule comparison in order to build matching.
- Sprint 6
    - We plan on having matching and career opportunities done by the end of sprint 6. Matching couldn't be done until after the completion of messaging and schedule comparison. Career opportunities does not depend on anything and can be switched around if needed.
- Sprint 7
    - We plan on having aid eligibility and system testing done by the end of sprint 7. We plan on building aid eligibility while still testing the system and including it in those tests once complete.
    - At the end of sprint 7 is when we plan on having all the application features done
        - This is what we plan as the end of milestone two
    - At the end of sprint 7 we plan on having tested our system as a whole
- Sprint 8
    - We plan on having deployed our project by the end of sprint 8. This will be the last sprint we have, and therefore our project will be done by the end of it.
        - This is what we plan as the end of milestone three

# Deployment Plan

| Item | Date of Completion |
|---|---|
| Set up Web Server | 4/30/22 |
| Set up DataBase | 5/1/22 |
| Security Configuration | 5/2/22 |
| Deployment | 5/3/22 |

At this point in the process, everything will be ready to go and it will just be a matter of deploying a live version.

- Set up Web Server
    - Our web servers will hosted through Amazon Web Services (AWS)
- Set up DataBase
    - Our database will be hosted using Amazon RDS
    - Information for the database regarding some features must be present before deployment
- Security Configuration
    - This is a final step to ensure all security features are properly in place, and that the live product will be secure.
- Deployment
    - Our product will be officially deployed, and set live.
- After Deployment
    - After deployment we will continue to do regression testing
    - After deployment we will continue to monitor the status of the web app to verify that it is functioning properly

## Resources

- Human
    - Team Marvel (5 people)
        - Albert
        - Audrey
        - Brad
        - Joseph
        - Michael
- Time
    - Our time capacity is about 15 hours per person per week, or about 75 total hours per week.  Over 16 weeks of development this is a total of 1200 hours (240 per person)
- Cost
    - Amazon Cloud - free tier
        - Overfee - see risk identification RSC01
    - Domain name  - $12/year
    - Google Maps - Free tier
        - Up to 500 free requests per month
        - $0.01 for every request after
- Outside databases
    - Career opportunities
    - Schedule of classes
    - Aid eligibility

## References


- AWS General Reference
  https://docs.aws.amazon.com/general/latest/gr/Welcome.html
- Google Docs pricing
  https://rapidapi.com/googlecloud/api/google-maps-geocoding/pricing