

Research Connect

Requirements Specifications



TeamRanks

Selina Nguyen

Sejal Welankar

Nick Kildall

Dan Rouhana

Course: CptS 322 - Software Engineering Principles I

Instructor: Sakire Arslan Ay

TABLE OF CONTENTS

I.	INTRODUCTION	3
I.1.	DOCUMENT PURPOSE	3
I.2.	PRODUCT SCOPE	3
I.3.	DOCUMENT OVERVIEW	3
II.	REQUIREMENTS SPECIFICATION	4
II.1.	CUSTOMER, USERS, AND STAKEHOLDERS	5
II.2.	USE CASES	5
II.3.	NON-FUNCTIONAL REQUIREMENTS	14
III.	USER INTERFACE	16
IV.	REFERENCES	30

Document Revision History

Rev 1.0 2020 - 10 - 21 Initial version

I. Introduction

Undergraduate students often have difficulty finding research opportunities. While there are many projects to be worked on, they vary both in size and scope. Furthermore, websites currently used as directories for research opportunities are simplistic pages that list postings.

This website will streamline this process for both the faculty and the undergraduates. Both will have the opportunity to apply, interview, and ultimately connect with the optimal project that suits their qualifications.

I.1. Document Purpose

The purpose of this SRS document is to detail the specifications of the web application and list use-cases. This system will provide infrastructure for students to browse through open research positions and apply. It will also enable faculty to advertise any open positions they might have and recruit students. This document describes the non functional requirements and documents functional requirements using use cases and swim lane diagrams.

I.2. Product Scope

The website will have the following functionalities available for students:

- Enter all contact information
- Record academic history, including GPA, expected graduation date, technical electives, research experience, etc
- Select and display research topics and interests
- View listed research opportunities and apply for them
- View and check status of in-progress applications

The website will have the following functionalities available for faculty:

- Post new research positions with listed qualifications and requirements
- View all current applications for a specific project
- View profiles with listed qualifications and experience for applicants
- Accept or deny student applications for specific projects
- Delete postings that have either been filled or are otherwise unavailable

I.3. Document Overview

Section II.1 - Customers Users and Stakeholders

This section describes which users and stakeholders our application will have

Section II.2a - Use Cases

This section describes all the tasks related to the application and each use case explains the specifics of each task. Each will include;

- Name
- Users
- Rational
- Preconditions
- Actions
- Alternative paths
- Postconditions
- Acceptance tests
- Iteration

Section II.2b - Swimlane Diagram

This section gives an example of the following subcase scenario in our application:

"A student applies to a research position; initially its status will appear as "Pending". The faculty who created that position reviews the application and updates the application status to either "Approved for Interview", or "Hired", or "Not hired". The updated status of the application is displayed on the student view.

The student may delete the pending applications (i.e., whose status is still "Pending".)"

Section II.3 - Non-Functional Requirements

This section describes the constraints on our system

Section III - User Interfaces

This section shows sketches of the main parts of our application.

The sketches include:

- Student registration form
- Student edit profile
- Login page
- Student Home Page
- Student: Your Application Tab
- Student: Applying
- Faculty Home Page
- Create Post for Faculty
- Review Application for Faculty
- Faculty Registration
- Faculty All post Page
- All Users: send message
- Student message page
- Faculty message page

II. Requirements Specification

The system needs to have a display so that it can properly display the UI

The application should run on browsers such as Chrome and Firefox.

The application should run on browsers such as Windows, Linux and Mac.

The application has buttons, a navigation bar, forms, and links that can be controlled by a mouse and keyboard

II.1. Customer, Users, and Stakeholders

Users: The application will include student users and faculty users.

Stakeholders:

Students - Application makes research opportunities more accessible to students (undergraduate students in particular)

Faculty - Application makes it easier for faculty to find student researchers

Washington State University - Since the application benefits students and faculty, the application will also benefit the university and its reputation.

II.2. Use Cases

Use Case List:

The following is a list of all the Use Cases:

1. login
2. student registration
3. faculty registration
4. display open positions
5. display your posted positions
6. create research opening
7. apply to research opening
8. edit profile faculty
9. edit prof student
10. review application
11. status for student
12. statu schagne for faculty
13. withdrawal pending app
14. delete positions
15. approve for interview
16. logout

Use case # 1

Name	Login
Users	All users
Rationale	To give users a seamless personal experience by reloading the user's previous information.
Triggers	User is not authenticated
Preconditions	no preconditions, any user can access this page
Actions	1. User routes to the login page

	<ol style="list-style-type: none"> 2. application asks user for email and password 3. user enters in email and password 4. user submits information entered 5. application authenticates if the email and password is an existing user. If the user is an existing user, the user is rerouted to the home page. If they are not an existing user, the user stays on the login page
Alternative paths	Any user can register a new account on the login page
Postconditions	if the user is authenticated, the user has access to the information of the application. If user is not authenticated , they stay on the login page
Acceptance Tests	check if there are an existing user
Iteration	1

Use case # 2

Name	Student: Registration Form
Users	Student Users
Rationale	users can provide relevant information to match with research opportunities
Triggers	User selects "New Student User? Click to Register!"
Preconditions	user is on login page
Actions	<ol style="list-style-type: none"> 1. user indicates to the application that they want to register as a student 2. application redirects user to student registration form 3. application asks user to enter in required information: wsu email, password, first and last name, wsu id, phone number, non required information: additional info (major, cumulative gpa, expected graduation date), technical elective with gpa, research topic interests, programming languages they have experience with, and prior research experience. 4. the application creates a Student user with information user has entered
Alternative paths	the User can edit their profile at any time.
Postconditions	a registered student user is created
Acceptance Tests	make sure that the user is registered as a student in the database with the correct information
Iteration	1

Use case # 3

Name	Faculty: Registration form
Users	Faculty users
Rationale	users can provide relevant information for Faculty-type accounts
Triggers	User selects "Register as faculty"
Preconditions	User is on login page

Actions	<ol style="list-style-type: none"> 1. User indicates to the application that they want to register as a faculty member 2. Application redirects user to faculty registration form 3. Application asks user to enter in required information: wsu email, password, first and last name, wsu id, phone number. 4. the application creates a faculty user with information user has entered
Alternative paths	the user can edit their profile at any time.
Postconditions	a registered user is created
Acceptance Tests	Check if they are an existing user with the correct information inputted
Iteration	1

Use case # 4

Name	Display open research positions
Users	Students
Rationale	This is the main page students would view once they log in, the student users should have access to all open research positions
Triggers	User visits home page
Preconditions	User is authenticated as account type student
Actions	<ol style="list-style-type: none"> 1. Application authenticates profile as type student 2. Application directs user to student home age 3. student user has access to all research posts
Alternative paths	1. Users can sort positions by their recommendations
Postconditions	users can see all the positions available
Acceptance Tests	make sure users are able to see posts with its corresponding information
Iteration	1

Use case # 5

Name	Display your posted positions
Users	Faculty
Rationale	This is the main home page for faculty accounts
Triggers	User visits home page
Preconditions	user authenticated as account type faculty
Actions	<ol style="list-style-type: none"> 1. Application authenticates profile as type faculty 2. Application directs user to faculty home age

	3. faculty user has access to all their posted positions
Alternative paths	1. user is able to see all post not just their postings
Postconditions	faculty can see posts
Acceptance Tests	make sure the user can see their posts or all posts with its correct corresponding information.
Iteration	1

Use case # 6

Name	Create Research Opening
Users	Faculty
Rationale	This is the page where faculty create and post research opportunities
Triggers	User clicks "Create Post"
Preconditions	user is authenticated as account type faculty
Actions	<ol style="list-style-type: none"> 1. user indicated to application that they want to create a post 2. application asks user to enter in research project title, a brief description of the project goals and objectives, start and end date, required time commitment, research field, and a brief description of the required qualifications 3. user enters in the research details 4. application creates a research position
Alternative paths	no alternative paths
Postconditions	a research position is created
Acceptance Tests	make sure that the research position is created with the exact information the user has submitted
Iteration	1

Use case # 7

Name	Apply to Research Opening
Users	Students
Rationale	students should be able to apply to any research opening that they are interested in
Triggers	User clicks "Apply"
Preconditions	user is authenticated as account type student and a research opening is created
Actions	<ol style="list-style-type: none"> 1. user indicates to the application that they want to apply for a research position 2. application asks user to enter in research project title, a brief description of the project goals and objectives, start and end date, required time commitment, research fields. brief description of the required qualifications

	3. user enters in the research details 4. application creates the application with the user information
Alternative paths	user could stop applying at any moment when entering in information for the research position
Postconditions	application is created for the user
Acceptance Tests	make sure the application is correct with all the information the user entered
Iteration	2

Use case # 8

Name	Edit your Profile (Faculty)
Users	faculty
Rationale	faculty can update their profile information and interests as the scope of their projects expands
Triggers	user clicks "edit profile" while on the home page
Preconditions	User is authenticated as account type faculty
Actions	1. user clicks "edit profile" 2. user is then able to edit password or phone number 3. user then clicks "save" to update their profile in the database
Alternative paths	no alternative paths
Postconditions	one (or all) of the profile components is updated with the latest relevant information
Acceptance Tests	make sure that the password is updated and the phone number is updated to the correct information the user inputed
Iteration	1

Use case # 9

Name	Edit your Profile (Students)
Users	students
Rationale	students can update their profile information and research interests as their qualifications increase and broaden
Triggers	user clicks "edit profile" while on the home page
Preconditions	User is authenticated as account type student
Actions	1. user clicks "edit profile" 2. user is then able to change one (or all) of their listed profile components 3. user then clicks "save" to update their profile in the database
Alternative paths	no alternative paths
Postconditions	one (or all) of the profile components is updated with the latest relevant information

Acceptance Tests	Upon clicking “save,” the entries are verified to ensure length is within bounds, selected research interests are ones that exist, dates are entered without typos, etc
Iteration	1

Use case # 10

Name	Review Applications
Users	Faculty
Rationale	faculty have to be able to see who is applying to their research positions and review the candidates.
Triggers	user clicks on the name of the applicant for the posting
Preconditions	the research position must be active and posted
Actions	<ol style="list-style-type: none"> 1. user indicates to the application that they want to review a students application 2. the application will display the students qualifications: gpas, technical electives take, research topics interest, programming language experience, prior research experience, and if the student is approved for interview or was hired for another position
Alternative paths	no alternative paths
Postconditions	the user will see the qualifications of an applicant
Acceptance Tests	make sure the user can see the correct student with their corresponding information
Iteration	2

Use case # 11

Name	Your Applications
Users	students
Rationale	students should be able to see their applications and the statuses related to each one
Triggers	user click on “Your Application”
Preconditions	user must be a registered user
Actions	<ol style="list-style-type: none"> 1. user indicates to the application that they want to see their applications 2. application will direct user to a page with all their applications 3. user can see the status of each application they have made with the corresponding status: pending, approved for interview, hired, and not hired. They will also see the information of each research position. If the status is pending the user will have the option to withdraw their

	application and if the status is “application under review” the user will have the option to message the faculty member
Alternative paths	no alternative paths
Postconditions	users will be able to see the status of each application they have created
Acceptance Tests	make sure that the user is seeing the application with the correct information and status
Iteration	2

Use case # 12

Name	Status Change for faculty
Users	faculty
Rationale	faculty should be able to change the status of each application to let their interested students know where the application is
Triggers	user clicks on down on the dropdown menu for status
Preconditions	an application has to be created and under the research position
Actions	<ol style="list-style-type: none"> 1. the user indicates to the application that they want to change the status of an application 2. the application lists out the potential status change they can make, approved for interview, hired or not hired 3. the user will choose which status they want
Alternative paths	no alternative paths
Postconditions	the status is changed for the applicant
Acceptance Tests	make sure the right status is updated for the applicant
Iteration	2

Use case # 13

Name	Withdrawing pending applications
Users	Students
Rationale	students should be able to withdraw any applications of theirs that is under pending if they are not interested in the position anymore
Triggers	user clicks on “withdraw application”
Preconditions	user has to have created an application for a posting
Actions	<ol style="list-style-type: none"> 1. user indicates to the application that they want to withdraw a pending application 2. application will then delete their application for the specific posting
Alternative paths	no alternative paths
Postconditions	users application is deleted

Acceptance Tests	make sure that the users application is deleted for the right research opening
Iteration	2

Use case # 14

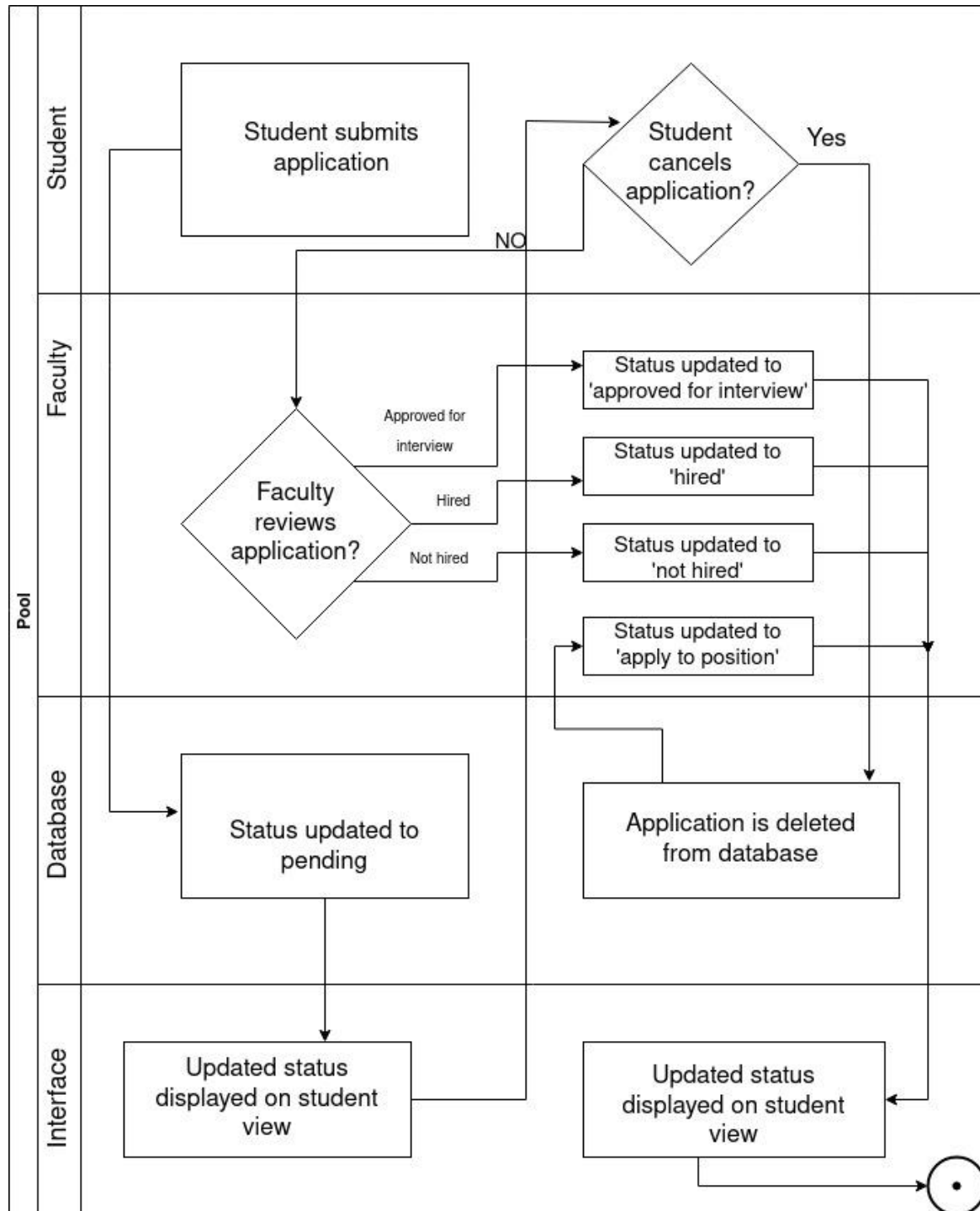
Name	Delete Research Positions
Users	faculty
Rationale	faculty should be able to delete their research openings if the opportunity is not available anymore
Triggers	faculty click on "Delete "
Preconditions	a research position has to be created
Actions	<ol style="list-style-type: none"> 1. user indicated to the application that they want to delete a specific research opening 2. application deletes the research opening
Alternative paths	no alternative paths
Postconditions	the research position will be deleted
Acceptance Tests	make sure that the right position was deleted
Iteration	2

Use case # 15

Name	Message
Users	student
Rationale	once a students application is approved for interview, they need to reach out to the faculty member to schedule an appointment for the interview
Triggers	student clicks on "send message"
Preconditions	student's status for an application needs to be "approved for interview"
Actions	<ol style="list-style-type: none"> 1. user indicated to the application to send message to the faculty member 2. application asks user to enter in the body of the message 3. user enters in required information and indicates to the application that they want to send message 4. application sends message to faculty member
Alternative paths	no alternative paths
Postconditions	a message is sent to the faculty member
Acceptance Tests	make sure the message is sent to the right faculty with the right message contents
Iteration	2

Use case # 16

Name	Logout
Users	faculty and students
Rationale	faculty and students should be able to logout from their account when they are done using the application
Triggers	user clicks on "Logout"
Preconditions	user must be an existing user and logged in
Actions	<ol style="list-style-type: none">1. user indicated to the application that they want to log out2. application redirects user to login route
Alternative paths	no alternative path
Postconditions	the user is logged out
Acceptance Tests	make sure the user is logged out and on the login page
Iteration	1



II.3. Non-Functional Requirements

List the non-functional requirements in this section.

1. User Authentication: access to website functions must be restricted to authenticated users. Furthermore, the actions can then be restricted based on account type (e.g. student, faculty)

2. Usability: the user interface must be straightforward and easy to use
3. Performance: website load time should be < 3 seconds
4. Security: the application should not display user information directly in the HTML
5. Reliability: the application should not crash when the user is interacting with the system.
6. Availability: the application should take accessible design principles into consideration. Ex: the document should be accessible to people who are color blind.

III. User Interface

Student Edit profile

Home | Your Applications | Messages | Edit Profile | Logout

Edit Profile

password
[text input]

repeat Password
[text input]

Phone
[text input]

Additional information

major [text input] Cumulative GPA [text input]

Expected graduation Date [text input]

add technical electives
[text input]

Select Interested Research Topics:

- ☐ Machine Learning
- ☐ AI
- ☐ Math

add Programming experience [text input]

add prior research experience
[text input]

Registration Form: Student

Student Registration

Username (WSU email)

Password

Repeat Password

First Name

Last Name

Email (WSU email)

Phone

WSU ID

Additional information

Major

Cumulative GPA

Expected graduation Date

Add technical electives

Select Interested Research Topics: ☐ Machine Learning

☐ AI

...

☐ Math

Programming experience

Describe prior research experience if any:

Submit

Login Page

Welcome to ResearchConnect!

Sign In

Username

Password

☐ remember me

New Student User? [Click to Register!](#)

New Faculty User? [Click to Register!](#)

[Home](#) | [Your Applications](#) | [messages](#) | [edit profile](#) | [logout](#)

Research Connect!

Sort by: Recommended Research Positions ☐

Machine Learning Research
goal objective:

Date: 9/10/21 - 12/10/21
time commitment: 10 hours /week
Qualifications:

[Apply](#)

AI Research
goal objective:

Date: 7/10/21 - 11/10/21
time commitment: 20 hours /week
Qualifications:

Status: Pending [Withdraw application](#)

Math Research
goal objective:

Date: 9/10/21 - 12/10/21
time commitment: 15 hours /week
Qualifications:

Status: Application for review [message](#)

Algorithm Research
goal objective:

Date: 9/10/21 - 12/10/21
time commitment: 10 hours /week
Qualifications:

Status: hired

Students: Your Application Tab

[Home](#) | [Your Applications](#) | [messages](#) | [Edit profile](#) | [logout](#)

Your Applications

AI & E catch
goal objective:

Date: 7/10/21 - 11/10/21

time commitment: 20 hours / week

Qualifications:

Status: pending

Withdraw application

Math Research
goal objective:

Date: 9/10/21 - 12/10/21

time commitment: 15 hours / week

Qualifications:

Status: Application for review

message

Algorithm Research
goal objective:

Date: 9/10/21 - 12/10/21

time commitment: 10 hours / week

Qualifications:

Status: hired

Student: Applying

Home | Your Applications | messages | edit profile | logout

Application: Machine learning Research

Why are you interested in the position?

Fill out the following information for
one Faculty member that can be used as a recommendation:

Name

Email

Submit

Faculty home page

[Home](#) | [All posts](#) | [Create Post](#) [Messages](#) | [Logout](#)

Research Connect!

Your Research Openings:

Machine Learning Research

applicants: [Selina N.](#)

[Sejal W.](#)

[Dan E.](#)

[Nick K.](#)

[Delete](#)

AI Research

applicants: [Selina N.](#)

[Sejal W.](#)

[Delete](#)

Create post for Faculty

[Home](#) | [All posts](#) | [Create POST messages](#) | [logout](#)

Create Research opening

Title

Description of goals and objectives

Start date end date

Required time commitment

Research Fields ☐ machine learning
☐ AI
⋮
☐ math

Qualifications

How many positions available?

Student Application from Faculty View

Home | Create Post | messages | logout

AI Research: Sulina Nguyen

Other Research position: algorithm Research: approved for Interview

GPA: 3.9

technical electives: CPTS 121, A

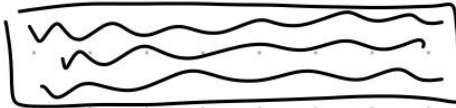
CPTS 122, -A

Interested Research topics: · AI

· machine learning

Programming experience: C++, C, Python

Why are you interested in the position?



Recommendation: Andy O'Fallon, aofallon@wsu.edu

Status: ☒ hired

☐ Submit

Faculty Registration

Faculty Registration

Username (wsu email)

Password

Repeat Password

First Name

Last Name

Email (wsu email)

Phone

WSU ID

Submit

All users: Send message

Send message

to :

From : Selina.Nguyen@usv.edu

message:

Send

Return home

Faculty : All posts

Home | All posts | Create Post | Messages | Logout

Research Connect!

Machine Learning Research
goal objective:

Date: 9/10/21 - 12/10/21

time commitment: 10 hours /week

Qualifications:

Your Post

AI Research
goal objective:

Date: 7/10/21 - 11/10/21

time commitment: 20 hours /week

Qualifications:

Your Post

Math Research
goal objective:

Date: 9/10/21 - 12/10/21

time commitment: 15 hours /week

Qualifications:

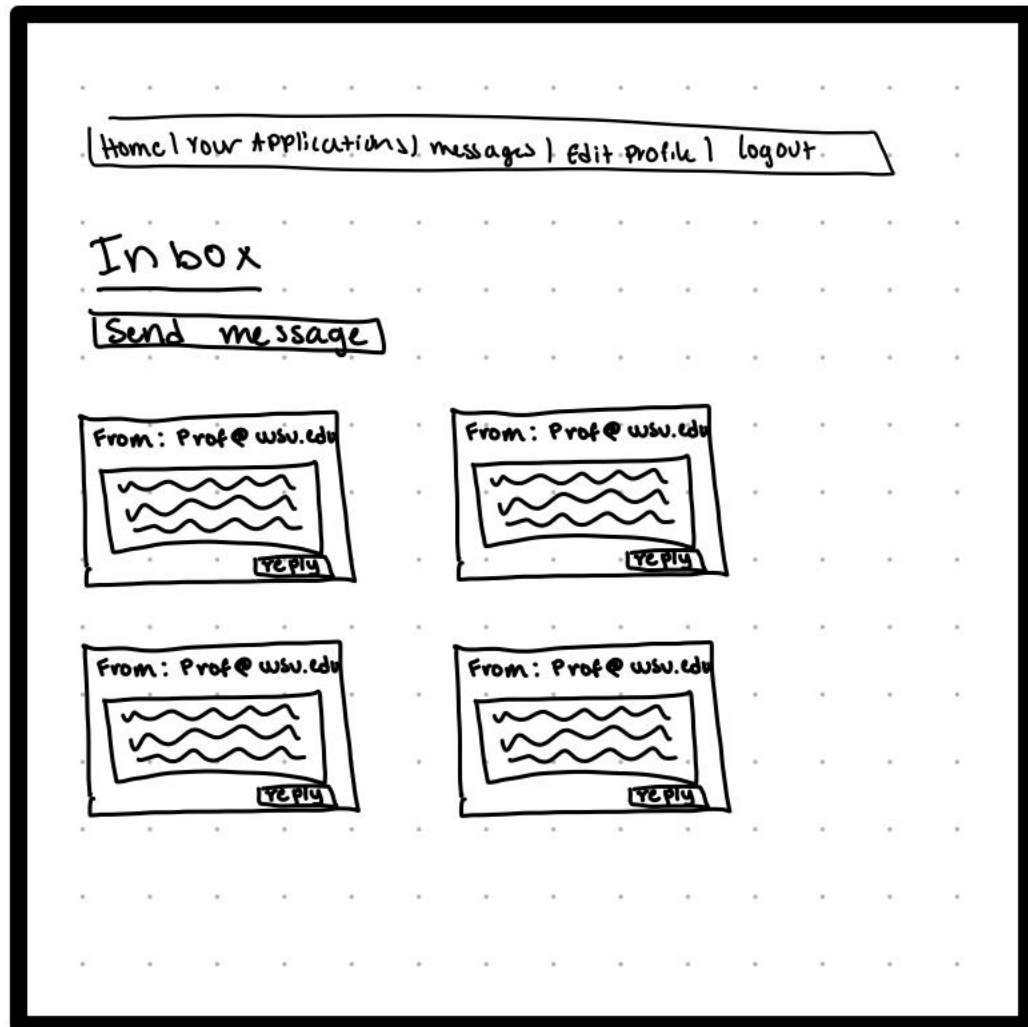
Algorithm Research
goal objective:

Date: 9/10/21 - 12/10/21

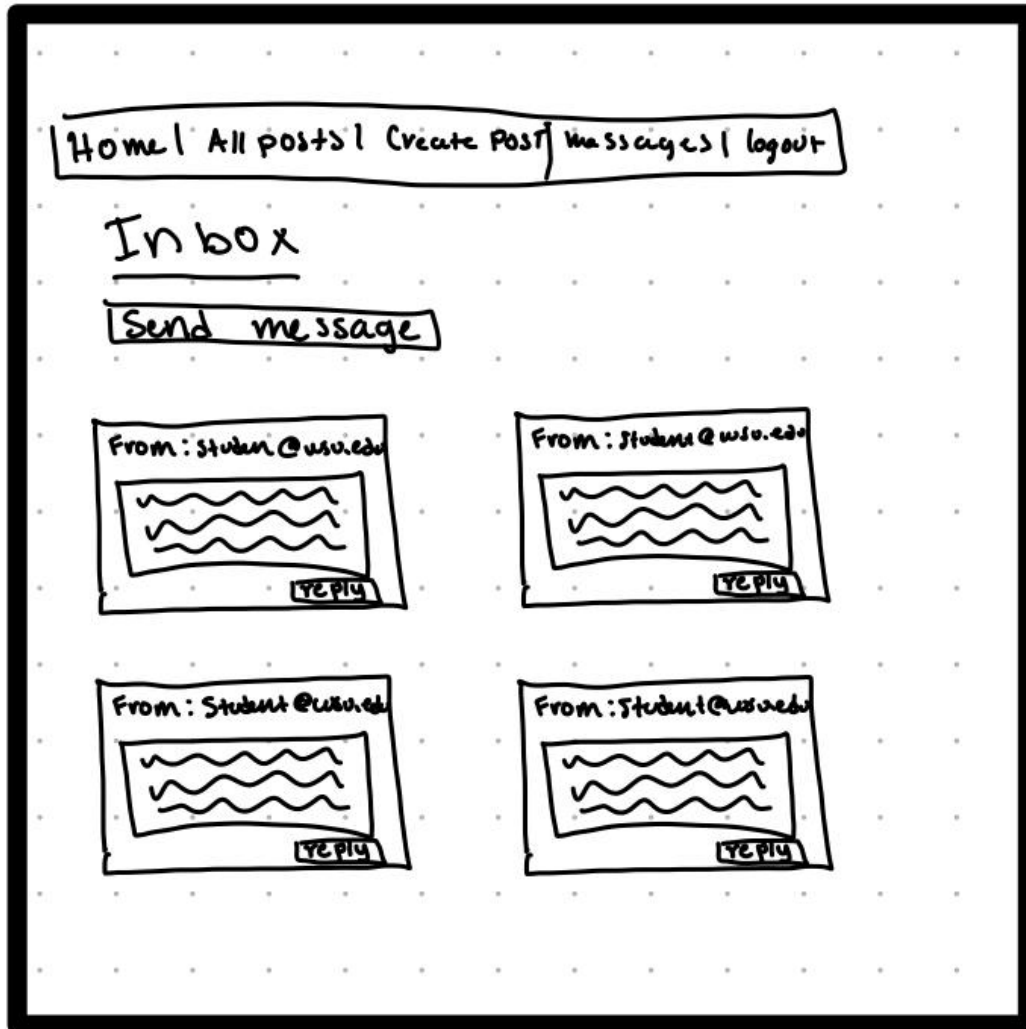
time commitment: 10 hours /week

Qualifications:

Student message page



Faculty: messages page



IV. References

No Current References

Appendix: Grading Rubric

(Please remove this page in your final submission)

These is the grading rubric that we will use to evaluate your document.

Max Points	Content
10	Do the requirements clearly state the customers' needs?
5	Do the requirements avoid specifying a design (<i>note: customer-specified design elements are allowed; non-functional requirements may specify some major design requirements</i>)?
	Completeness
25	Are use cases written in sufficient detail to allow for design and planning?
4	Do use cases have acceptance tests?
20	Is your use case model complete? Are all major use cases included in the document?
8	Has the team provided an appropriate swim-lane diagram for the scenario where faculty reviews a student's application?
10	Are the User Interface Requirements given with some detail? Are there some sketches, mockups?
	Clarity
4	Is the document carefully written, without typos and grammatical errors?
2	Is each part of the document in agreement with all other parts?
2	Are all items clear and not ambiguous? (Minor document readability issues should be handled off-line, not in the review, e.g. spelling, grammar, and organization).
	GitLab Issues
10	<p>Has the team setup their GitHub Issues page? Have they generated the list of user stories, use-cases, created milestones, assigned use-cases (issues) to milestones?</p> <p>Example GitLab repo (check the issues):</p> <ul style="list-style-type: none"> – https://github.com/WSU-CptS322-Fall2021/TermProjectSampleRepo/issues