Undergraduate Research Portal

Requirements Specifications

Team MED

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Course: CptS 322 - Software Engineering Principles I

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I.   Introduction

I.1.   Document Purpose
This document aims to provide a detailed breakdown of the proposed web app and how it works, and insight to the WSU EECS department as to when the project will be complete. A clear idea of what the final product's capabilities should result .

I.2.   Product Scope
The proposed product is a web app that streamlines the process of WSU faculty recruiting students for their research projects. The design will provide a single place for all research projects in need of students to be listed. The research projects will be detailed in a way that allows students to easily find suitable options. Students will be able to apply to any position they choose, which will substantially increase accessibility to students looking for research opportunities while also providing many more options for the faculty in need of additional help. Students will create accounts consisting of information about themselves that is relevant to the positions they apply to, and faculty will be able to choose students based on this information. This system will benefit both students in search of research opportunities and faculty in search of suitable students greatly.

I.3.   Document Overview
The rest of this document specifies the target audience of the proposed web app and the different use cases that each user type has access to. Each one of these use cases is broken down, detailing who can use them, how they are used, what they accomplish, and anything else of note. Also associated with each task is the planned iteration for which they will be completed. Following these are the other important features that will be included, and a prototype of the UI that shows the components that are key for the functions of the web app and does not necessarily represent how the final product will look.

II. Requirements Specification

II.1.   Customer, Users, and Stakeholders
The customers of this software will be Washington State University and the School of EECS.

The primary stakeholder will be EECS Faculty and students. Faculty because they will benefit from having direct access to students who are qualified and want to partake in research. The students will benefit by easily seeing and applying to research opportunities. Washington State University and any other entities who will benefit or are funding research will benefit by having quality and accessible research participants.

The primary users of the software are Washington State University students interested in research and research faculty with openings in their lab for undergraduates.

II.2.   Use Cases

Student Use Cases

Use case # 1

Name	Create a student account and enter the profile information
Users	Students
Rationale	In order for faculty to see who signed up for their research opportunities and the information and qualifications of said person, the person will need an account with relevant information available.
Triggers	User clicks on create student account
Preconditions	User is not logged in

Actions	1. The user navigates to and clicks the create student account button
	2. The user enters their:
	    a. WSU Email
	    b. Password
	    c. Contact Information
	    d. Optional additional info
	        i. Major
	        ii. GPA
	        iii. Graduation date
	    e. Technical elective courses completed
	    f. Research topics of interest
	    g. Familiar Programming Languages
	    h. Prior Research Completed
	3. The system will validate the entered information then create an account containing the entered information

Alternative paths	N/A
Postconditions	The account is saved and the user will be able to log into it
Acceptance Tests	Ensure the account was made Ensure the account information was correct Ensure the entered email is valid
Iteration	1

Use case # 2

Name	Login with username and password
Users	Students
Rationale	In order to access postings, the user will have to login to their existing account
Triggers	User clicks on the login button
Preconditions	User is not logged in

Actions	1. The user navigates to the login page 2. The user enters their WSU email and password and clicks submit 3. The system logs the user into the entered account and redirects them to a home page
Alternative paths	N/A
Postconditions	The user is logged into the correct account
Acceptance Tests	The user only logs into the correct information
Iteration	1

Use case # 3

Name	View the open research positions
Users	Students, Faculty
Rationale	Students need to be able to view the open research positions in order to explore and apply for research opportunities
Triggers	The user loads the open research position page (possibly student home page)
Preconditions	Open research positions exist and the user is logged in
Actions	1. The user navigates to the view open research positions page 2. The page renders all open research positions
Alternative paths	N/A
Postconditions	The page has rendered
Acceptance Tests	The page rendered the correct posts
Iteration	2

Use case # 4

Name	For each research position, various information should be displayed
Users	Students, Faculty
Rationale	Students need to be able to view the information about each opportunity to decide whether or not to apply
Triggers	The user loads the open research position page (possibly student home page)
Preconditions	Open research positions exist and data for the position was entered and the user is logged in

Actions	1. The user navigates to the view open research positions page
	2. Each post displays:
	    a. Research Project title
	    b. A brief description of the project goals and objectives
	    c. Start date and end date
	    d. Required time commitment
	    e. Research fields

	f. A brief description of the required qualifications
	g. Faculty's name and contact information
	3. The page renders all open research positions
Alternative paths	N/A
Postconditions	The page has rendered
Acceptance Tests	The page rendered the correct posts and information
Iteration	2

Use case # 5

Name	Apply for research positions.
Users	Students
Rationale	The ability to apply straight from the web application is a primary functionality.
Triggers	The user clicks the apply button on a post
Preconditions	The position they are applying for exists and the user is logged in

Actions	1. The user selects a post to apply to
	2. The user clicks the apply button on the post
	3. The user will fill out a form describing:
	    a. a brief statement of their interest
	    b. What they hope to gain with the by participating
	    c. The name and email of one faculty member who can provide them a reference
	4. The user will submit the form
	5. These actions can be repeated for each post

Alternative paths	N/A
Postconditions	The form had been saved and added to the faculty list of applicants
Acceptance Tests	The form was saved The information was valid The information was correct
Iteration	2

Use case # 6

Name	View the research positions they already applied to and check the statuses of their applications
Users	Students
Rationale	Students need to be able to view and track each application they have submitted
Triggers	The user loads the view submitted applications page
Preconditions	The user is logged in
Actions	1. The user will click a button to take them to a page displaying their past applications

	2. If the user has applied for a position, the page will render each application with the following information:
	    a. If the application was submitted, it will display its status as pending
	    b. If a faculty member approves the application for an interview, the status will read Approved for Interview
	    c. After an interview, the status will read Hired or Not Hired
	3. If the user has no applications, the page will say No applications found

Alternative paths	N/A
Postconditions	The page has rendered
Acceptance Tests	The page rendered the correct posts and information
Iteration	3

Use case # 7

Name	Withdraw pending applications
Users	Students
Rationale	If a student decides they are no longer interested in a research opportunity they applied for, they need to be able to cancel or withdraw the application
Triggers	The clicks the withdraw button on a submitted application
Preconditions	The user is logged in and has submitted an application
Actions	1. The user clicks the withdraw button on a submitted application
Alternative paths	N/A
Postconditions	The application is removed from the database
Acceptance Tests	The application is successfully removed
Iteration	3

Faculty Use Cases

Use case #8

Name	Create a faculty account and enter profile information
Users	Faculty
Rationale	In order to publish research openings for undergrads, the system needs to be able to identify faculty and allow them to login to publish openings. Without the ability to do this, the only alternative would be for anonymous publishings, which doesn't make sense to do in this case.
Triggers	The faculty user selects the create faculty account option.

Preconditions	The user is not logged in.

Actions	1. The user selects and navigates to the create faculty account
	2. The user enters in their:
	    a. WSU email
	    b. Password
	    c. Contact info: Name, last name, WSU ID, phone
	3. The user submits the form
	4. The system creates an account of the WSU email is not in use.

Alternative paths	Instead of having a link to create an account, perhaps it could be an invite only system, where an admin can invite faculty. This would eliminate confusion by the students or other users trying to create a student account. At the end of the form submission, we may want to implement an email confirmation system. This would verify the email is correct and the user is indeed a WSU faculty.
Postconditions	The faculty account is saved and the faculty will be able to login.
Acceptance Tests	Ensure the faculty account is created with the correct information. Ensure the account is able to login after creation. If an existing email exists, the user will be notified.
Iteration	1

Use case # 9

Name	Login as faculty
Users	Faculty
Rationale	In order to publish research openings and so forth, the faculty user must be able to login.
Triggers	The faculty selects or navigates to the login page. OR the user attempts to view a faculty page while not logged in.
Preconditions	The user is not logged in.
Actions	1. The faculty user is on the faculty login page 2. The user enters in their username (WSU email) and password 3. The user submits the form
Alternative paths	N/A
Postconditions	The user is logged in if the information is correct
Acceptance Tests	The user logs in when the information is correct. If the information is incorrect, the user is not logged in.
Iteration	1

Use case #10

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Name	Create undergraduate research positions
Users	Faculty
Rationale	Faculty members need a way to create undergrad research openings. This would allow undergrad students to be able to view the openings and understand what openings are available, as well as the requirements/qualifications for these positions.
Triggers	The faculty navigates to the create research position option.
Preconditions	The faculty user is logged in.

Actions	1. The user enters the details of the position and qualifications:
	    a. Research position title
	    b. Description of the project goals and objectives
	    c. Start date/end date
	    d. Required time commitment
	    e. Research field
	    f. Required qualifications
	2. The user submits the details

Alternative paths	The specific fields can be adjusted to better meet the requirements. Perhaps some fields can be auto populated, like the start date and end date could be set to the next semester.
Postconditions	The research position is saved to the system.
Acceptance Tests	Invalid forms will notify the user of the error. The research position is saved when valid.
Iteration	1

Use case #11

Name	View applicants
Users	Faculty
Rationale	There has to be a way for faculty to view which students have applied for the position.
Triggers	The user selects the "View Applicants" option on a position listing
Preconditions	The user is logged in. There is a valid position listing to view with applicants.

Actions	1. The user selects the view applicants option on a position
	2. The applicants are displayed, it should show the student's:
	    a. Name
	    b. Contact information
	    c. Status (Approved for interview, hired)
	    d. Other offers that the student has received

Alternative paths	N/A
Postconditions	N/A
Acceptance Tests	The system correctly displays the students who applied to a position. The system should have an error if the position is not valid.

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Iteration	2

Use case #12

Name	View student qualifications
Users	Faculty
Rationale	To make an informed decision on an applicant, the faculty must be able to see if a user is qualified for a position.
Triggers	The user selects a student who has applied to a position
Preconditions	The student exists and is valid The student has applied to a position

Actions	1. The faculty selects a student on a research position
	2. The faculty views the student's:
	    a. GPA
	    b. technical electives
	    c. research topics of interest
	    d. programming experience
	    e. prior research experience

Alternative paths	The programming experience may not be necessary, as not all positions will require it.
Postconditions	N/A
Acceptance Tests	The system correctly displays the student's qualifications
Iteration	3

Use case #13

Name	Faculty approval of students
Users	Faculty
Rationale	To proceed in the hiring process, the faculty must be able to mark and notify students for interviews
Triggers	The user selects a student for an interview
Preconditions	The student has applied for the position
Actions	1. The faculty selects a student who has applied to a position 2. The student is marked as "Approved for interview" 3. The system contacts the student and notifies them that there's an interview request
Alternative paths	Could include a specific time for an interview, or could include a form to email the user.
Postconditions	The student is approved for an interview for the selected research position.
Acceptance Tests	The student is correctly marked as "approved for interview" The student is contacted
Iteration	3

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Use case #14

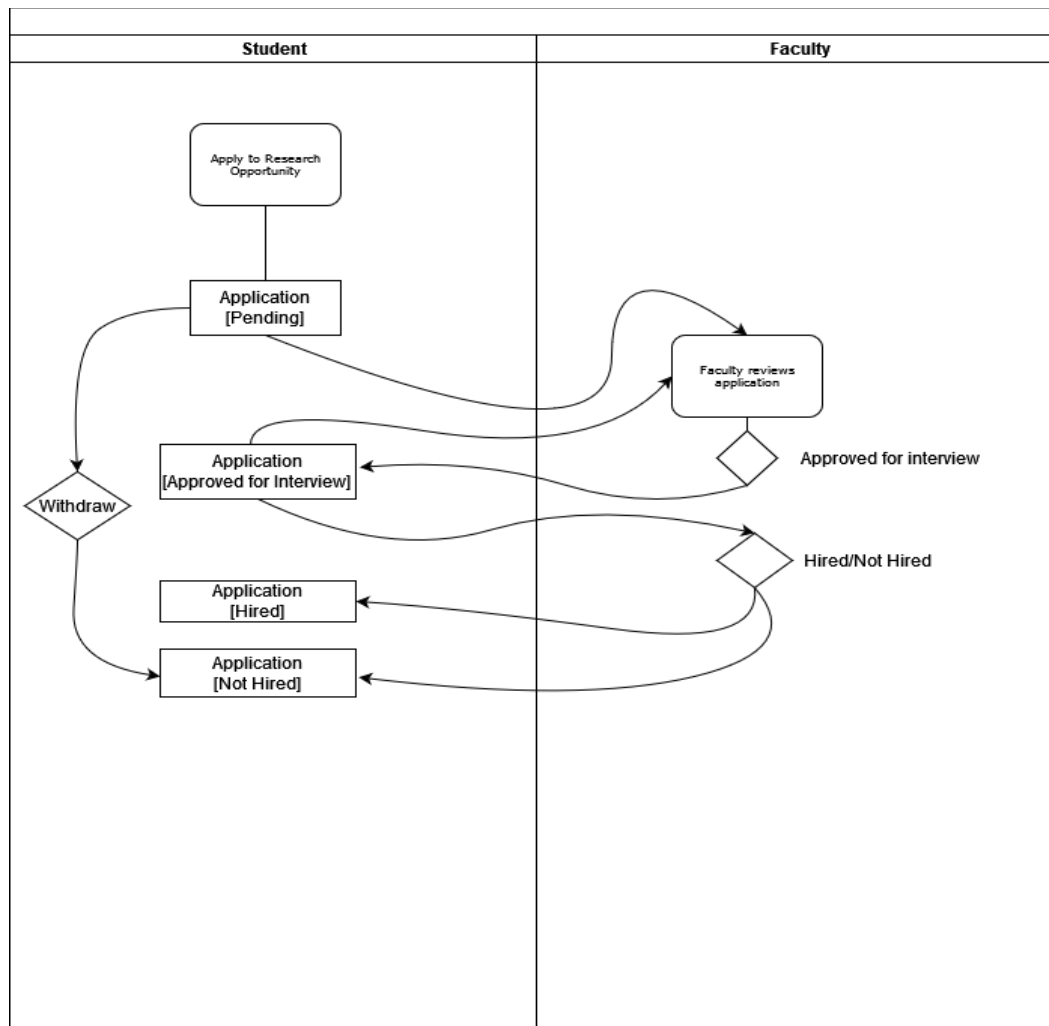| Name	Hired/not hired status
Users	Faculty
Rationale	The faculty member will want to hire students and notify students of their decision after interviewing
Triggers	The user selects a student to hire or not hire
Preconditions	The student has applied to a position and was approved for an interview
Actions	1. After interviewing a student, the user selects either hired or not hired 2. The student is contacted of their decision
Alternative paths	Other students are marked as not hired automatically or have an option to do so
Postconditions	The student's hiring status is updated.
Acceptance Tests	The student is correctly marked as either not hired or hired. The student is notified of the decision.
Iteration	3

Use case #15

Name	Delete research openings
Users	Faculty
Rationale	Research positions will eventually need to be closed, as either the faculty will hire students or they may be closed for other reasons.
Triggers	The faculty selects the delete research opening on a position
Preconditions	The research position exists
Actions	1. The research opening is displayed 2. The faculty presses the delete button 3. The system deletes the position
Alternative paths	The research opening may be closed automatically when a student is hired (by the previous use case). Students that were approved for interview will now show up as "Not hired"
Postconditions	The position is hidden from the student's view, and will show "Position not available"
Acceptance Tests	The research position is correctly deleted
Iteration	3

Swim-lane diagram that illustrates the message flow and activities for following scenario:
"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.

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

II.3. Non-Functional Requirements

1. Pages: There should be a separate page each for students and faculty.

2. Browser: Should be compatible with all major web browsers: Chrome, Firefox, IE/ Edge, Safari, etc..

3. Server: Hosted on a WSU SSO server for security and to limit access to targeted users.

4. Database: All user submitted data should be stored in SQLAlchemy database models.

5. Privacy: Student information should only be accessible by the student it belongs to and faculty of projects that the student has applied to.

6. Styling: CSS should be used to style all pages displayed in a professional way that looks generally pleasing.

7. Layout: All pages should be laid out in an intuitive way for a positive user experience.

8. Structure: The overall structure should follow some form of MVC standard.

III. User Interface

For this project, we will attempt to follow WSU's web and digital guidelines [1]. The mockups for prominent pages are shown below.

Create Research Position

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla quam velit, vulputate eu pharetra nec, mattis ac neque. Duis vulputate commodo lectus, ac blandit elit tincidunt id.

Position Name

Position Description

Start/End Date: 10/13/2021 📅   10/13/2021 📅

Time Commitment (hours)

Field

Qualifications

Create

View Applicants

View Posting

Undergrad Lab Technician

Kevin Evans
Senior

Approved For Interview ▼

Bob Bobbyson
Junior

Hired ▼

Senor Chang
Senior

Pending ▼

View Posting goes to the posting, allowing the faculty to delete, etc.

Clicking a user opens a new page with more information

The dropdown could be changed to buttons?

Open Research Positions

☑ View Applied Only

Undergrad Lab Technician
Dr. Some Body
Computer Engineering

October 2021 - November 2022

Applied

Undergrad Lab Technician
Dr. Some Body
Computer Engineering

October 2021 - November 2022

Undergrad Lab Technician
Dr. Some Body
Computer Engineering

October 2021 - November 2022

Clicking an entry goes to a new page with more detail

The application status will appear

The apply button will change depending on the status. If the user has applied, it could change to a button to un-apply

IV. References

[1] Web and Digital Style Guidelines, Washington State University, https://brand.wsu.edu/web-digital/