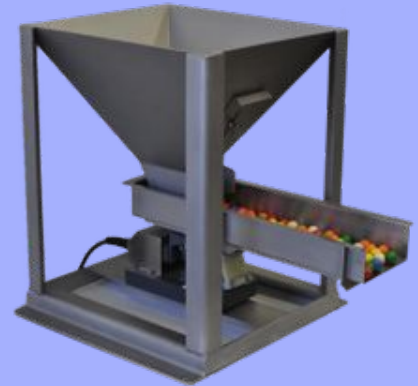
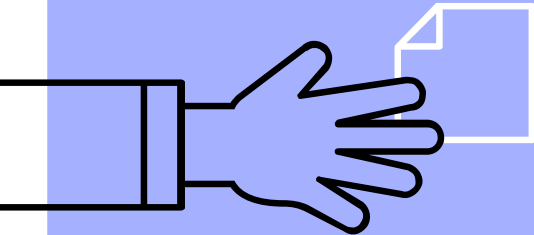
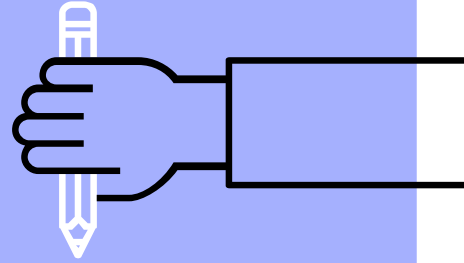
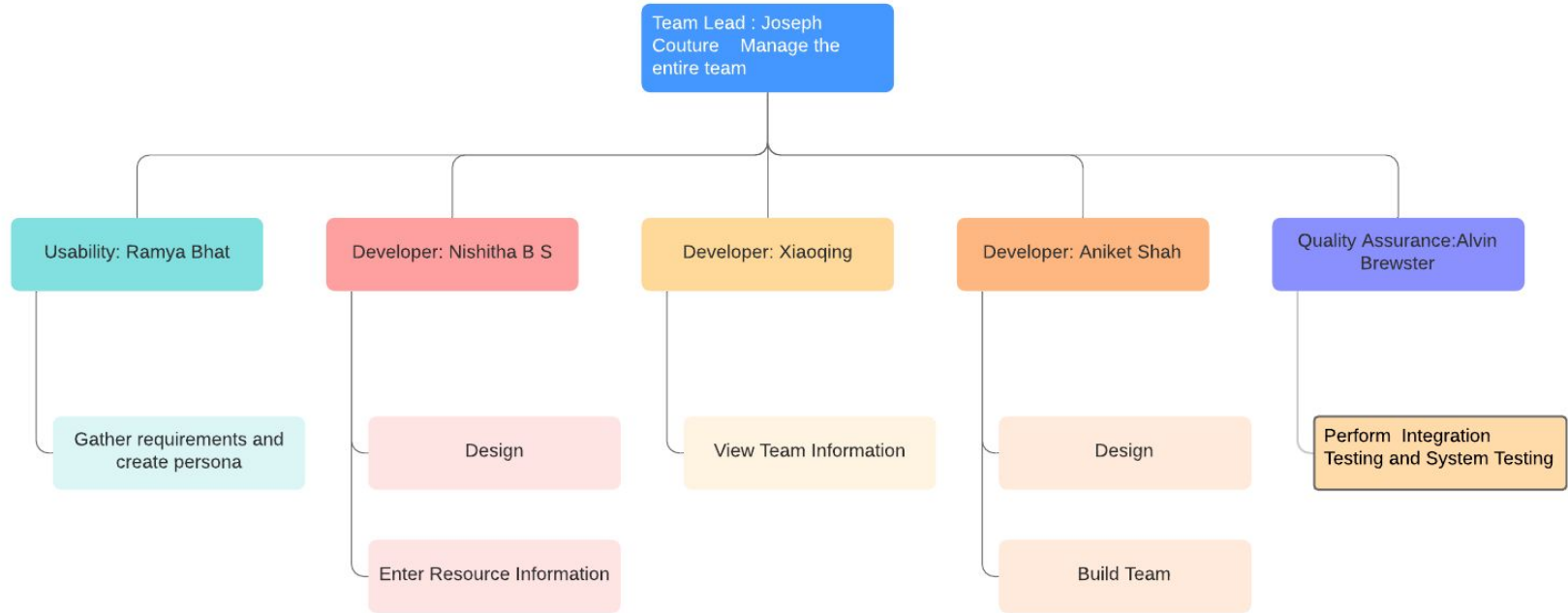


CS633 - Software  
Quality, Testing and  
Security Management.  
Project: Team A  
Resource Hopper



# Team Composition



# Scope

- ❑ To develop a application of skilled individuals who can be recruited for a variety of tasks or to organize a team.
- ❑ Objective: Complete the Resource Hopper website by the end of the semester and submit the required materials to the professor by their due dates.
- ❑ The Resource Hopper is a way for Project Managers/Product Owners to assemble a team of resources that are best suited for the project and identify those that are available within the project's timetable.



# Schedule

- ❑ Ad hoc meetings occurred on an as needed basis.
- ❑ Each iteration will run for two weeks.
- ❑ Open Slack workspace throughout the iteration for people to “drop by” with questions.
- ❑ Sunday and Friday night meetings on Zoom - alternate between “stand up” and “sprint retrospective/kickoff.”
- ❑ All team members can submit stories to Icebox and anytime. Moved into iteration every-other Sunday.
- ❑ Quick meetings before each class every week.



# Tools & Technologies

- ❑ Personas
- ❑ Requirements
- ❑ Use Cases
- ❑ Diagrams (Component Interaction & State Transition)
- ❑ Wireframes
- ❑ Test Cases
- ❑ SQL Database
- ❑ Web Interface
- ❑ Django
- ❑ Python



# PERSONA #1

**Pseudo Pharmacy - Jeff Smith, Project Manager**

**Pseudo Pharmacy is a pharmaceutical company that focuses on creating medicines for rare diseases such as Cystic Fibrosis, Hemophilia, and Alzheimer's. Pseudo pharmacy has begun a small project with Project Manager, Jeff Smith in charge of gathering resources. The project is supposed to facilitate the integration between a research notebook database and a repository that will be used to keep copies of all old data.**

## **Scenario(s)**

**Pseudo Pharmaceuticals prides itself on the integrity and dedication of its employees. Their employees are competent technicians, but they are all tasked with larger projects. In order to fill the resource gap with skilled technicians, Jeff resorts to looking for resources on our website.**

**Human Resources works with Jeff in order to locate users with specialized skills on our website, in addition to paying close attention to their availability and ability to accommodate our project. After Jeff selects his potential candidates, they will receive notification of Jeff's interest in their skills. Jeff will then establish a call or plans to meet in order to perform a quick interview.**

**Goal(s) : Recruit resources that will be a good fit at the company to facilitate projects of varying timelines.**

**Features : A contract to aid in locating resources that will be a good fit to the organization.**

**Concerns : Will the recruited resource yield positive results?**

# PERSONA #2

## **John Williams - Recruiter**

**John Williams is a successful recruiter working for a popular technology recruitment firm. He constantly gets requests from companies for competent resources with specific technical skills.**

### **Scenario(s)**

**John is hoping to fill a role for one of his clients for a developer. The developer must have the ability to travel overseas and the availability to start in 2 weeks. John searches the website to locate an individual with the skills required and has the ability to travel overseas.**

**Goal(s) : Recruit a resource who can travel overseas and has flexibility.**

**Features : A contract to aid in locating resources that will be a good fit to the organization.**

**Concerns : Will the recruited resource yield positive results?**

# PERSONA #3

**Adam Johnson – System Analyst, Resource**

**Adam Johnson is a successful Systems Analyst who left a tech company in order to get more experience working on IT projects in different markets. Adam was at his company for many years and has a ton of experience, but he wanted a change - a different playing field to utilize his technological skills.**

**Scenario(s)**

**Adam joins the website by filling out his profile with information regarding his skills and availability. He is also questioned about his desired employers. Once he completes his profile, Adam is then added to the roster of thousands of skilled resources seeking employment. Additionally, Adam is able to search for companies or individuals who are seeking resources to facilitate projects. Adam may receive messages from potential employers or individuals looking for his skills. Adam may also send messages to those seeking resources.**

**Goal(s) : Seeking employment in a new industry.**

**Features : Easily search for employers or individuals seeking resources.**

**Concerns : Will there be any projects available?**



# Requirements

- ❑ A user must be able to enter the first name of a resource into the database.
- ❑ A user must be able to enter the last name of a resource into the database.
- ❑ A user must be able to enter the timezone of a resource into the database.
- ❑ A user must be able to enter the language of a resource into the database.
- ❑ A user must be able to enter the skills of a resource into the database.
- ❑ A manager must be able to build teams consisting of resources stored in the database.
- ❑ A manager must be able to view teams stored in the database.
- ❑ An admin must be able to edit the profile of any user.



# Configuration Items List

|    | Configuration Item Name       | Version | Date       | Owner | Repository |
|----|-------------------------------|---------|------------|-------|------------|
| 0  | Configuration Items List      | 2.0     | 10/23/2019 | JC    | Excel      |
| 1  | Entity Relationship Diagram   | 1.0     | 10/11/2019 | JC    | Visio      |
| 2  | Definition of Personas        | 1.0     | 9/29/2019  | AB    | Word       |
| 3  | Estimation Record             | 1.0     | 10/23/2019 | JC    | Excel      |
| 4  | Definition of Fields          | 1.0     | 11/3/2019  | JC    | Lucidchart |
| 5  | Activity Diagram              | 1.0     | 11/4/2019  | RB    | Visio      |
| 6  | Class Model                   | 1.0     | 11/4/2019  | RB    | Visio      |
| 7  | Sequence Diagram              | 1.0     | 11/4/2019  | RB    | Visio      |
| 8  | Tools Connectivity            | 1.0     | 10/23/2019 | RB    | Visio      |
| 9  | Bi-Weekly Status Report       | 3.0     | 10/23/2019 | JC    | Powerpoint |
| 10 | PM Wireframe                  | 1.0     | 11/1/2019  | JC    | Visio      |
| 11 | Resource/Recruiter Wireframe  | 1.0     | 11/1/2019  | JC    | Visio      |
| 12 | Charter Scope                 | 1.0     | 9/25/2019  | JC    | Word       |
| 13 | Use Cases                     | 1.0     | 11/4/2019  | RB    | Word       |
| 14 | State Transition Diagram      | 1.0     | 11/4/2019  | RB    | Visio      |
| 15 | Component Interaction Diagram | 1.0     | 11/4/2019  | JC    | Visio      |
| 16 | Team Listing Wireframe        | 1.0     | 11/19/2019 | JC    | Visio      |

# Estimation Record I: Documentation

| Phase         | Task                          | Size Measure | Effort Per Size Measure | Size | Estimated Effort | Actual Effort |
|---------------|-------------------------------|--------------|-------------------------|------|------------------|---------------|
| Documentation | Configuration Items List      | Document     | 0.5                     | 1    | 0.5              | 0.2           |
| Documentation | Entity Relationship Diagram   | Diagram      | 0.5                     | 1    | 0.5              | 0.2           |
| Documentation | Definition of Personas        | Personas     | 1                       | 3    | 0.5              | 0.2           |
| Documentation | Estimation Record             | Document     | 1                       | 1    | 0.5              | 0.2           |
| Documentation | Definition of Fields          | Document     | 0.5                     | 3    | 0.5              | 0.2           |
| Documentation | Activity Diagram              | Diagram      | 1                       | 1    | 0.5              | 0.2           |
| Documentation | Class Model                   | Diagram      | 1                       | 1    | 0.5              | 0.2           |
| Documentation | Sequence Diagram              | Diagram      | 1                       | 1    | 0.5              | 0.2           |
| Documentation | Tools Connectivity            | Diagram      | 0.5                     | 1    | 0.5              | 0.2           |
| Documentation | Bi-Weekly Status Report       | Document     | 0.5                     | 1    | 0.5              | 0.2           |
| Documentation | PM Wireframe                  | Diagram      | 2                       | 1    | 0.5              | 0.2           |
| Documentation | Resource/Recruiter Wireframe  | Diagram      | 2                       | 1    | 0.5              | 0.2           |
| Documentation | Charter Scope                 | Document     | 0.5                     | 1    | 0.5              | 0.2           |
| Documentation | Use Cases                     | Use Cases    | 1                       | 2    | 0.5              | 0.2           |
| Documentation | State Transition Diagram      | Diagram      | 2                       | 3    | 0.5              | 0.2           |
| Documentation | Component Interaction Diagram | Diagram      | 2                       | 2    | 0.5              | 0.2           |
| Documentation | Team Listing Wireframe        | Diagram      | 2                       | 1    | 0.5              | 0.2           |
|               |                               | Totals       | 19                      | 25   | 8.5              | 3.4           |

# Estimation Record II: Coding

| Phase          | Task                     | Size | Estimated Effort | Actual Effort |
|----------------|--------------------------|------|------------------|---------------|
| Infrastructure | Build Server             | 1    | 0.5              | 0.5           |
| Infrastructure | Install Software         | 1    | 0.5              | 0.1           |
| Coding         | Create CSS               | 3    | 2                | 0.5           |
| Coding         | Create DB                | 8    | 4                | 4             |
| Coding         | Create Team Screen       | 3    | 1.5              | 0.5           |
| Coding         | Create Build Team Screen | 3    | 1.5              | 3             |
| Coding         | Create Resource Screen   | 3    | 3                | 3             |

# Estimation Record III: Testing & Implementation

| Phase   | Task                        | Size | Estimated Effort | Actual Effort |
|---------|-----------------------------|------|------------------|---------------|
| Testing | Test for invalid data       | 2    | 1                | 0.5           |
| Testing | Test for inaccurate results | 2    | 2                | 2             |
| Testing | Test for availability       | 1    | 0.5              | 0.5           |

# Use Case 1

- ❑ This use case is cornered around our resource.
- ❑ This describes how a resource add his personal details and rates his skills.

|                            |  |   |
|----------------------------|--|---|
| Use Case Name              | Resource Hopper cornered around resources allowing them to enter their information.                      |   |
| Actor:                     | Resource   |   |
| Description:               | This use case describes a resource filling out his personal details like name, timezone, skills etc      |   |
| Precondition:              | Resource is new to this application and have not previously filled out his details.                      |   |
| EVENTS                     | Actor  | System  |
|                            | Resource is navigated to the resource hopper application   | System displays a Manage Resources page for the resource to fill out their personal details like name, timezone, language and click <u>on add</u> resource. |
|                            | Resource fills out skill requirement details   | The <u>resource need</u> to set the resource skill. They must select the resource, and set her/her skills and set the skill level and click set skill.      |
|                            | Resource closes the application  | The resource can close the application once they are done filling out the required fields.  |
| Alternate courses          | The system automatically logs a user out when they close the application.                                |   |
| Conclusion                 | The use case ends when the resource has successfully filled in their profile.                            |   |
| Implementation Constraints | The web application must work fine on mobile and desktop devices. The screen size must vary accordingly. |   |
| Post conditions            | System is able to successfully store the resource information in the database.                           |   |



# Use Case 2

- ❑ This use case is cornered around the manager.
- ❑ It mainly illustrates how a program manager can list out his criteria for a project and filter out the resources based on their skills, timezone, language etc.

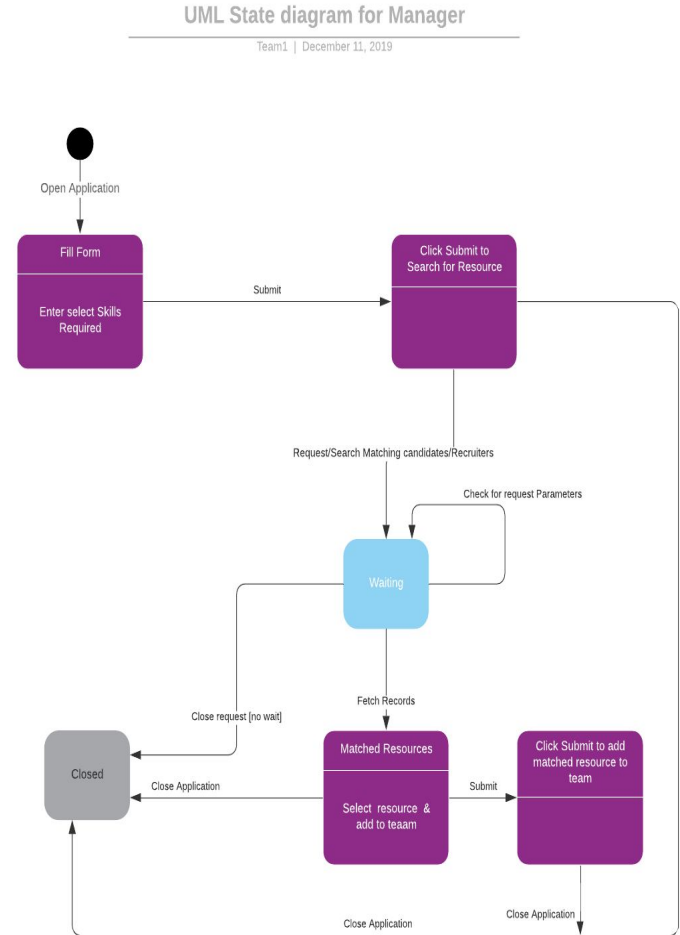
|                                   |  |   |
|-----------------------------------|--|---|
| <b>Use Case Name</b>              | Resource Hopper cornered around project managers allowing them to search for resources.  |   |
| <b>Actor:</b>                     | Project manager  |   |
| <b>Description:</b>               | This use case is to illustrate how a program manager can select among multiple resources based on skills, skill ratings, time zone and other requirements and add them to projects.      |   |
| <b>Precondition:</b>              | Manager has a project team to which he has to add resources.   |   |
| <b>EVENTS</b>                     | <b>Actor</b>   | <b>System</b>   |
|                                   | Manager is navigated to the resource hopper application  | System displays a screen for the manger to search for the skills required for that particular project.                                  |
|                                   | Manager filters out resources  | System provides a list of resources matching the criteria the manager requested for. And he can select among those resources.           |
|                                   | The manager adds <u>resource</u> to team.  | Once the manager filter out and selects the resource, he selects the team he wants to add the resource to by clicking on submit button. |
|                                   | Manager closes the application   | Manager can either continue adding resources to the team or they can close the application.   |
| <b>Alternate courses</b>          | The system automatically logs a user out when they close the application.  |   |
| <b>Conclusion</b>                 | The use case ends when the manager have successfully found a deserving/matching resource for the specified project.  |   |
| <b>Implementation Constraints</b> | The web application must work fine on mobile and desktop devices. The screen size must vary accordingly.   |   |
| <b>Post conditions</b>            | System is able to successfully store the manager requirements information, selected resource information etc and also will let them update their requirements according to each project. |   |

# State Transition Diagram-1

## State Transition Diagram for Manager.

### Steps:

- Open the Resource Hopper Web Application
- Fill in the details and requirements and click on submit
- The matched resources are displayed.
- Select a resource and search for the team to add him/her
- Click on submit to make changes.
- Close the application or continue to build team.

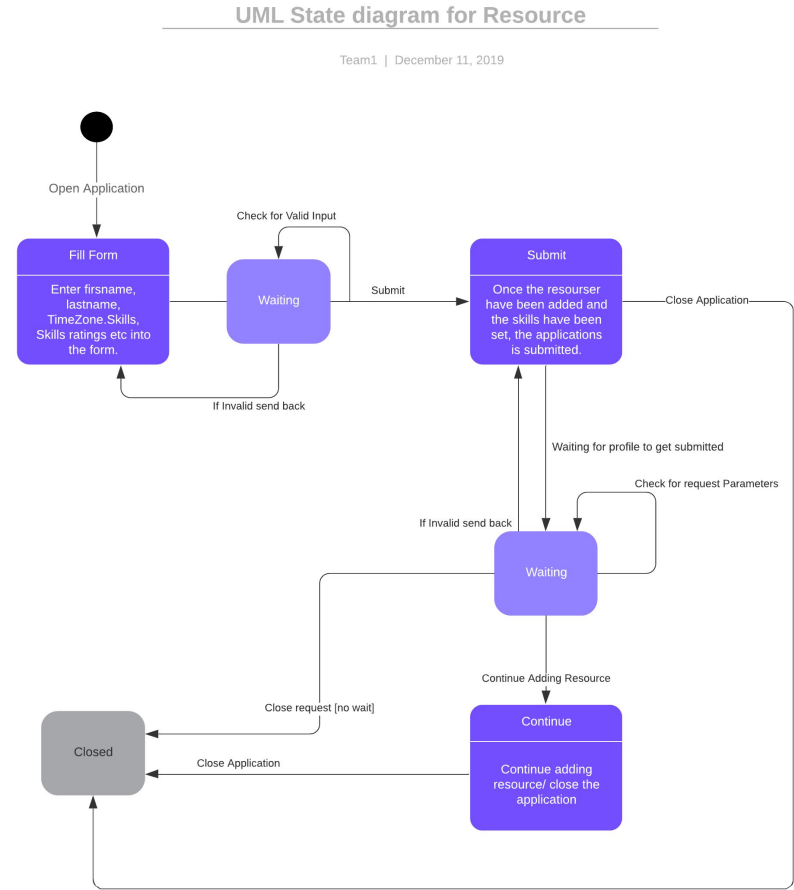




# State Transition

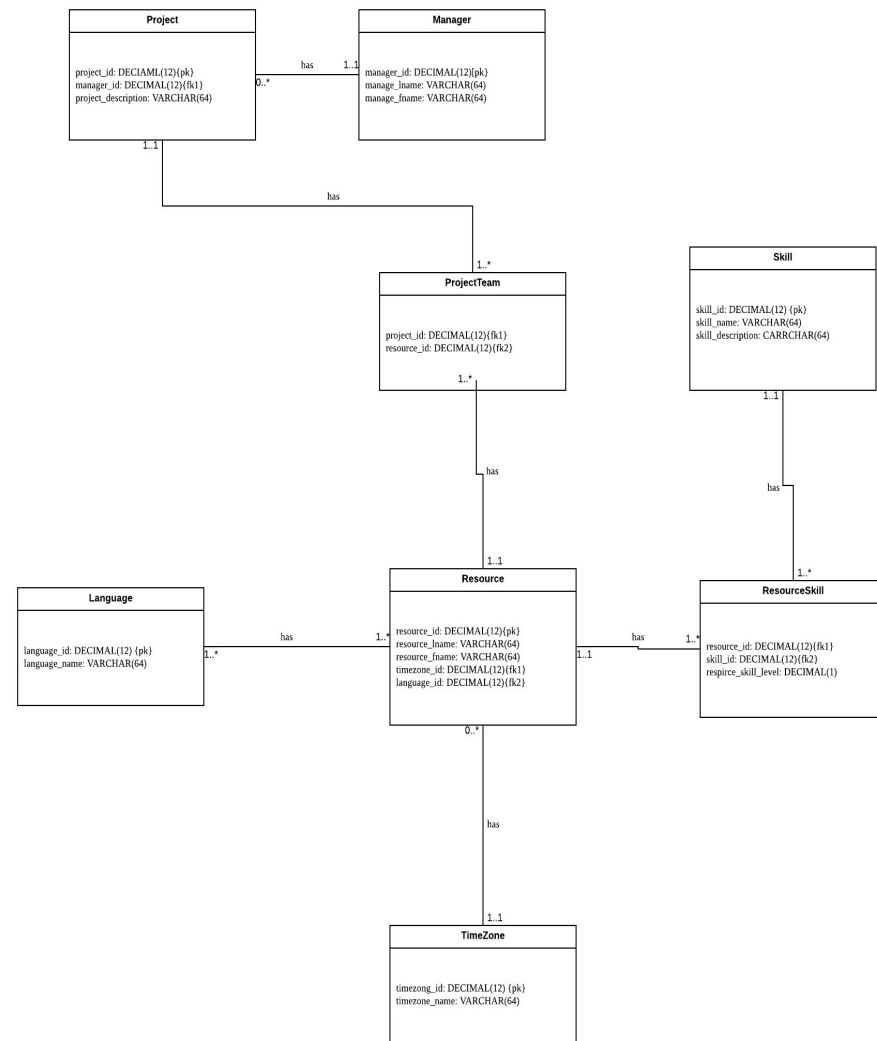
## Diagram-2

- ❑ State Transition Diagram for Resource.
- ❑ Steps:
  - Open the Resource Hopper Web Application
  - Fill in the details like name, time zone etc.
  - Fill in the skills and skill level.
  - Once add resource and set skill is clicked, the application gets submitted and is saved.
  - Close the application or continue.

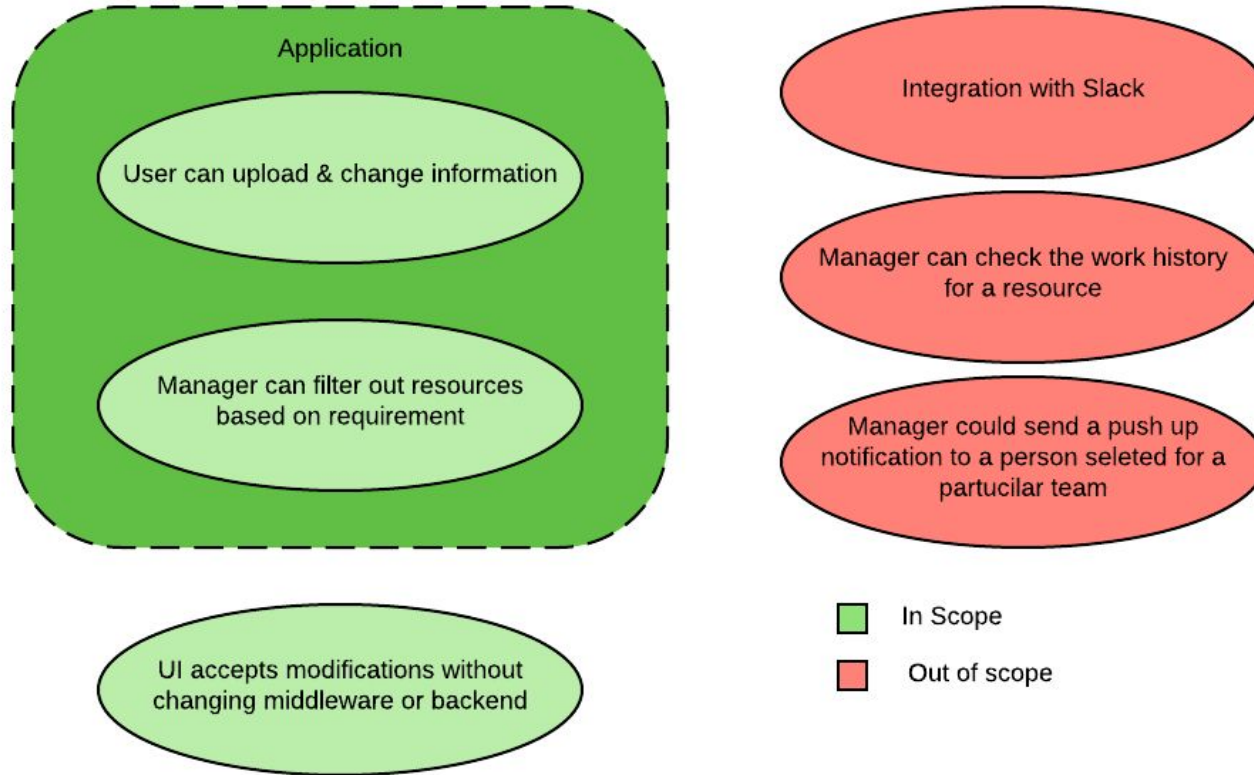


# Entity Relationship Diagram

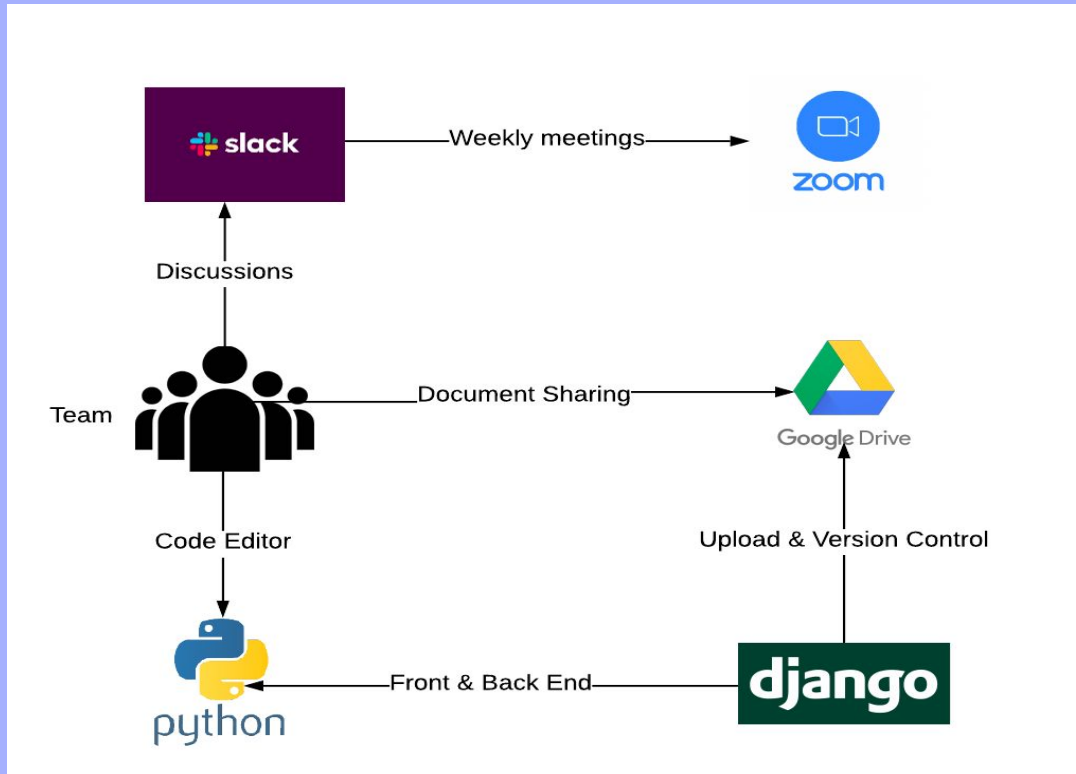
- ❑ This Entity Relationship Diagram contains the important entities of TimeZone, Language, Resource, Skill, Project and Manager, as well as relationships between them, every entities is normalization to BCNF.
- ❑ And also contains the necessary attributes that database need to support the web app.



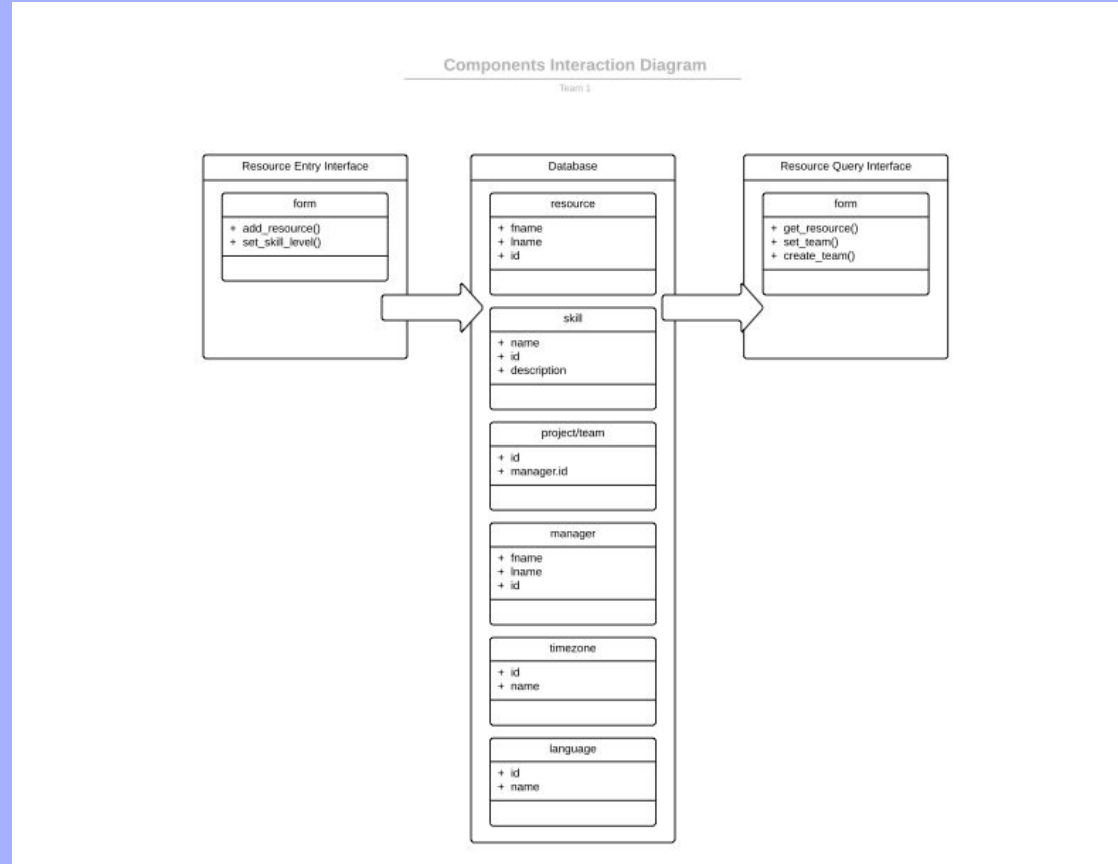
# System Boundary Diagram



# Tools Connectivity Diagram



# Components Interaction Diagram



# Wireframe I: Search and Display

**Project Manager Wireframe**  
Joseph Couture | December 11, 2019

← → ↻ 🏠

http://lucidchart.com

Title

**Resource Hopper** [Enter Resource](#) [Build Team](#) [View Teams](#) [Login](#) [Register](#)

Select Skills

☒ CS 633 - Requirements ☒ CS633 - Testing

☐ CS633 - PM ☐ CS633 - UX

☐ CS633 - Coding

Search

Results

| Resource | Skill                | Skill Level | Language | Time Zone |
|----------|----------------------|-------------|----------|-----------|
| James    | CS633 - Requirements | 5           | English  | UTC+02:00 |
| Maria    | CS633 - Testing      | 5           | Hindi    | UTC+05:00 |
| Sam      | CS633 - Testing      | 4           | Spanish  | UTC+04:00 |
|          |                      |             |          |           |
|          |                      |             |          |           |
|          |                      |             |          |           |

Resources

James

Maria

Sam

Teams

Team 1

Team 2

Team 3

Add to Team

# Wireframe II: Enter Resource Information

**Resource Hopper Recruiter Entry Wirefram**  
Joseph Couture | December 11, 2019

**Resource Hopper**[Enter Resource](#)[Build Team](#)[View Teams](#)[Login Register](#)

### Enter Resource Information

**First Name**

**Last Name**

**Language**

English ▼  
Mandarin

**Timezone**

+12:00 ▼  
+11:00

[Add Resource](#)

### Set Skill Levels

**Select Resource**

Jane Goodall ▼  
Clark Kent

**Skill**

CS633 - UX ▼  
CS633 - PM

**Skill Level**

[Set Skill](#)

# Wireframe III: View Teams

nishitha@bu.edu |

http://lucidchart.com

Resource Hopper Manage Resources Build Teams Teams

## Teams

| Team       | Name  | Language | Timezone |
|------------|-------|----------|----------|
| Team One   | James | English  | UTC-12   |
| Team Two   | Sam   | English  | UTC-11   |
| Team Three | Saul  | Mandarin | UTC-12   |

## Create a New Team

Team Name

Add Team



# Actual Site : Enter Resource Information.

Resource Hopper Manage Resources Build Teams Teams

## Manage Resources

**Create Resource**

**Set Resource Skills**

First Name\*

Last Name\*

Timezone\*

Language\*

Add Resource

Resource\*

Skill\*

Resource Skill Level : To rate resource skills from 1-5 \*

Select a Value

Set Skill

# Actual Site II: Build the team

The screenshot shows a web browser window with the following tabs: All Blackbox, Inbox (328), Slack | ! gen, Cross Site R, 18.222.1 X, SQL - Goog, CS 633 - Res, ACFrOgBR7, Documents, Annotated I, Password Rr, and a plus sign for more tabs. The address bar shows the URL `18.222.171.208:8000/hopper/buildteam/`. The browser interface includes back, forward, refresh, and home buttons, as well as star and share icons.

The web application has a dark blue header with the text "Resource Hopper" and navigation links: "Manage Resources", "Build Teams", and "Teams".

The main content area is titled "Build Teams" and includes a "Search for Skills" section with the following options:

- ☐ CS633 - Requirements
- ☐ CS633 - PM
- ☐ CS633 - Coding
- ☐ CS633 - Testing
- ☐ CS633 - UX
- ☐ Return only unassigned resources

Below the search options is a "Submit" button.

A table header is displayed with the following columns:

| Skill | Name | Skill Level | Language | Timezone |
|-------|------|-------------|----------|----------|
|-------|------|-------------|----------|----------|

Below the table header is a section titled "Add Resource to Team". It contains two dropdown menus:

Resource  
-----

Team  
-----

Below the dropdown menus is a "Submit" button.

The Windows taskbar at the bottom shows the search bar with the text "Type here to search", several application icons (File Explorer, Edge, Store, etc.), and the system tray with the date and time "12/11/2019 1:22 PM".

# Actual Site III : View Teams

Resource Hopper   Manage Resources   Build Teams   Teams

## Teams

| Team       | Name           | Language | Timezone    |
|------------|----------------|----------|-------------|
| Team One   | Joseph Couture | English  | UTC - 12:00 |
| Team One   | Brett Morneau  | English  | UTC - 12:00 |
| Team One   | Joe Cool       | English  | UTC - 00:00 |
| Team One   | Jamie Lewis    | Mandarin | UTC + 03:00 |
| Team Three | Pat Tilley     | English  | UTC - 12:00 |

### Create a New Team

Team Name

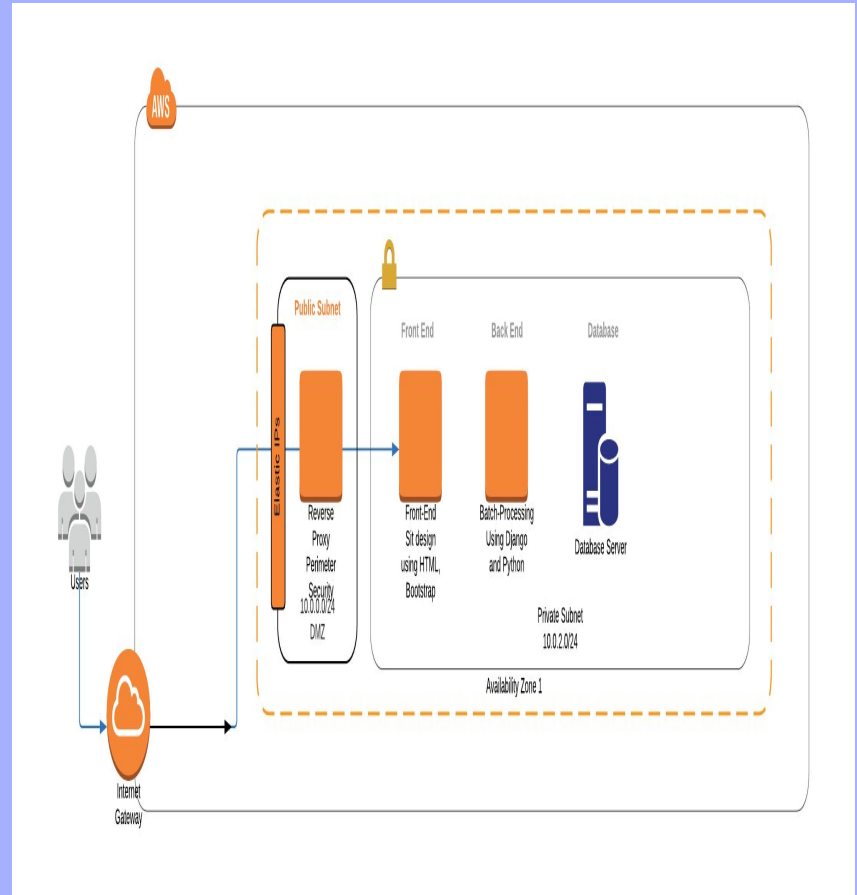
[Add Team](#)

Type here to search

1:05 PM 12/10/2019

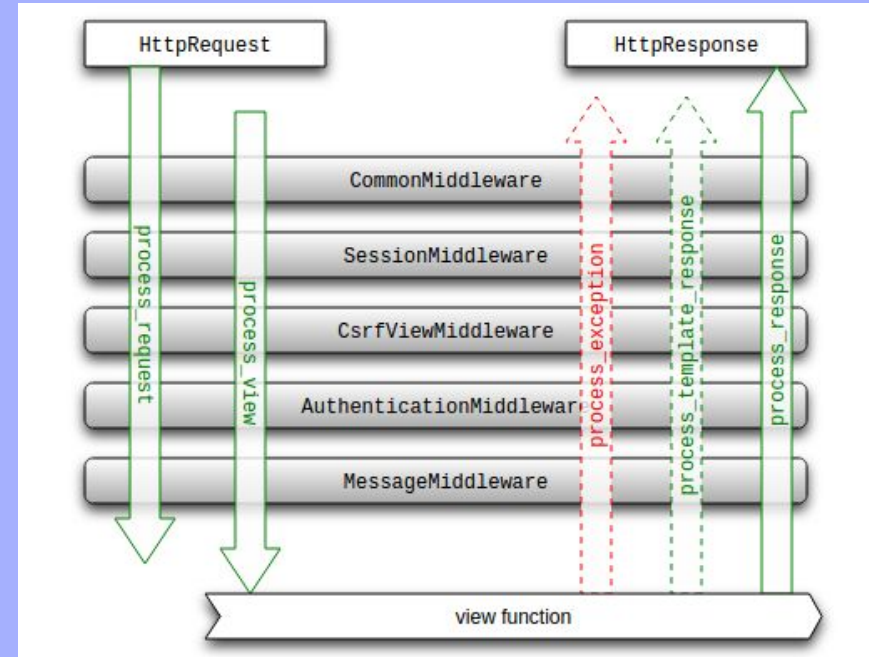
# Design: Frontend

- ❏ Website is hosted on a static AWS S3 Bucket.
- ❏ Site was designed and implemented using Bootstrap HTML, Django.
- ❏ Primarily communicates with the middleware via Hypertext transfer protocol.



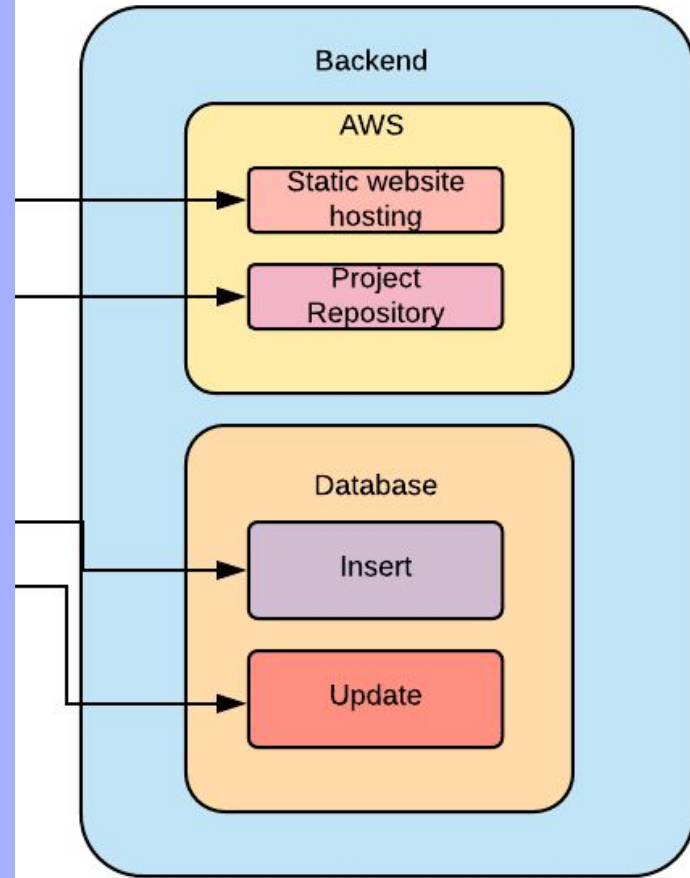
# Design: Middleware

- ❑ Made up of Django forms, views templates and HTTP.
- ❑ Forms and views are written in Python.
- ❑ Two major functions, one for add resource, one for build the team.
- ❑ Functions are invoked by forms and views and initiated from the UI.
- ❑ Perform routines on the backend and then communicate status back to UI.



# Design: Backend

- ❑ Hosting the website on AWS.
- ❑ Connecting to the database with models from Django.
- ❑ Functions in middleware are able to communicate directly with these AWS components.
- ❑ Coding in Django with Python.



DEMO



# Test Cases: Positive

## For Resource

|                             |  |
|-----------------------------|--|
| TEST TYPE                   | Functionality  |
| Test Number                 | 1  |
| Test Case Description       | Verify that Enter resources information allows resources to enter and save all the information.  |
| Result                      | ■Pass □Fall  |
| Requirement(s) to be tested | As a resource, I want to be able to upload my information to the app.  |
| Test Steps                  | <ol style="list-style-type: none"><li>1. Use several user accounts which have different information for each category.</li><li>2. Use the application as a registered resource.</li><li>3. Fill in details for First Name, Last Name, Time Zone, Language.</li><li>4. Set skill level for each selected.</li><li>5. Click on set skill.</li><li>6. Click on add resource.</li><li>7. Repeat for multiple resources by repeating steps from 2 to 6.</li><li>8. Verify all resources are saved and available for search.</li></ol> |
| Expected Results            | Information for Resource entered and saved successfully.   |
| Results                     | Verified Functionality as Expected   |

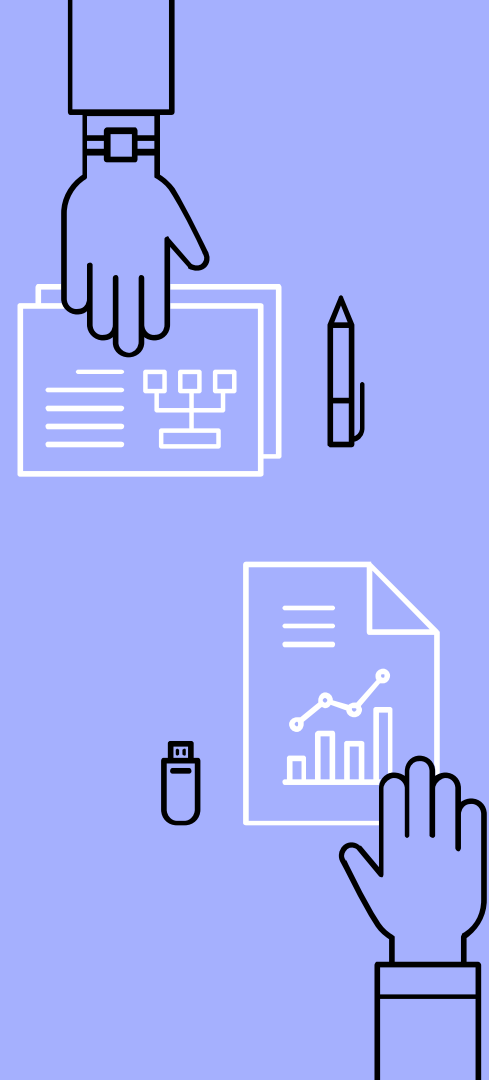




# Test Cases: Positive

## For Manager

|                             |   |
|-----------------------------|---|
| TEST TYPE                   | Functionality   |
| Test Number                 | 2   |
| Test Case Description       | Verify that search function filters different conditions for resources.   |
| Result                      | ■Pass □Fail   |
| Requirement(s) to be tested | As a manager, I want to be able to filter the set of available resources based on the Skills I select to add them to teams.   |
| Test Steps                  | <ol style="list-style-type: none"><li>1. Use several user accounts which have different information for each category</li><li>2. Use the application as a registered manager.</li><li>3. Select Skills required from the search for skills box.</li><li>4. Click submit and check the list in the resources listing page below the search.</li><li>5. Go back to the search box</li><li>6. check out the different set of skills on the check box.</li><li>7. Click submit and check the list of resources returned.</li><li>8. Verify it shows the appropriate result.</li></ol> |
| Expected Results            | Managers view the different resources based on the type of skill they use as a parameter to search.   |
| Results                     | Verified Functionality as Expected  |



# Test Cases: Positive

## For Resource

|                             |  |
|-----------------------------|--|
| TEST TYPE                   | Functionality  |
| Test Number                 | 3  |
| Test Case Description       | Verify that upload project allows manager to create a project and put selected resources into it.  |
| Result                      | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fall   |
| Requirement(s) to be tested | As a manager, I want to be able to select a resource in the team and assign them to a project.   |
| Test Steps                  | <ol style="list-style-type: none"><li>1. Use several user accounts which have different information for each category</li><li>2. Use the application as a registered manager.</li><li>3. Select Skills required from the search for skills box.</li><li>4. Click submit and check the list in the resources listing page below the search.</li><li>5. Add resources to several teams.</li><li>6. Click submit and create new projects.</li><li>7. Select resource and add to a project</li><li>8. Repeat step 6 and 7 several times.</li><li>9. Verify multiple projects created with appropriate resources in each.</li></ol> |
| Expected Results            | Managers view the respective selected resources in each project created.   |
| Results                     | Verified Functionality as Expected   |



# Test Cases: Negative

## Negative Testing:

|                             |  |
|-----------------------------|--|
| TEST TYPE                   | Functionality  |
| Test Number                 | 4  |
| Test Case Description       | Verify that showing user information function works when we login as a user.   |
| Result                      | ■ Pass □ Fall  |
| Requirement(s) to be tested | As a manager, I want to be able to filter the set of available resources based on the Skills I select to add them to teams.  |
| Test Steps                  | <ol style="list-style-type: none"><li>1. Use several user accounts which have different information for each category.</li><li>2. Use the application as a registered manager.</li><li>3. Do not select any Skills from the search for skills.</li><li>4. Click submit and check the list in the resources listing page below the search.</li><li>5. Verify no results appear.</li></ol> |
| Expected Results            | Managers view the different resources based on the type of skill they use as a parameter to search and when no skills are selected, no results appear.   |
| Results                     | Verified Functionality as Expected   |



# Peer Review

“I see a missing here.  
One of the issue is the  
verification of names. As  
some people have  
similar names.”

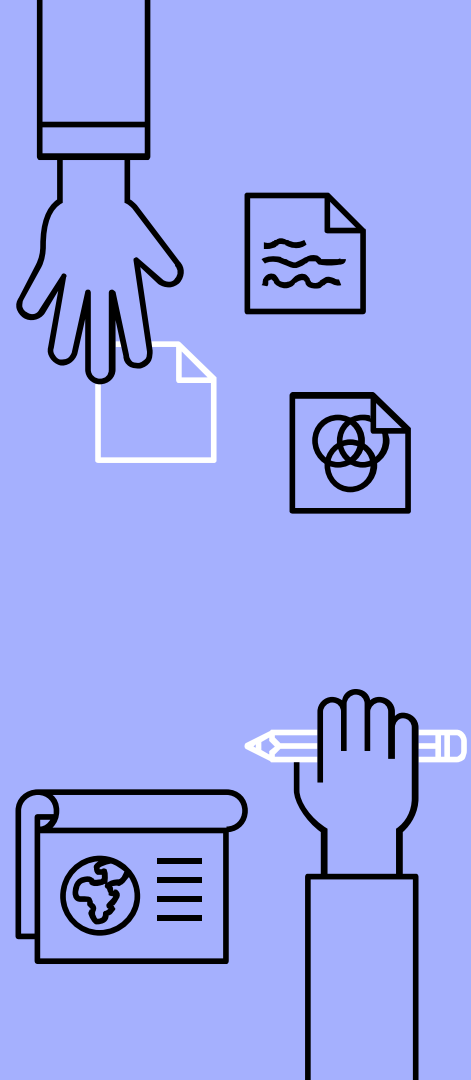
Action Taken:

“Hence we could think  
of a verification/standard  
overall list. After  
verification, an instructor  
needs to correct the  
entries.

“I see an extra here.  
“The persona ‘recruiter’  
does not really apply  
here.”

Action Taken:

“Considered for future  
enhancements as it is an  
agile project.”





Work

# Future“

- ▷ Security Design
- ▷ Implement to Blackboard
- ▷ Log in, log out, register
  - ▷ Updating profile



# What We Learned

- ▶ Working with a team:
  - Collaboration
  - Different roles
  - Consistent Meetings
  - Critiquing each other
  - Utilizing slack and zoom on a daily/weekly basis
  - Learnt new framework like Django



# Any Questions?



# Links

App URL:

<http://18.222.171.208:8000/> (pass: cs633)

Git:

<https://github.com/josephcouture/CS633Fall201Team1>

Google Drive:

<https://drive.google.com/drive/u/2/folders/1VcCcoFBIF4p89VUwmD8-pqoBmia1q8l>

Pivotal Tracker:

<https://www.pivotaltracker.com/n/projects/2397216>