Business Requirements Document:

AE Project Management Tool

Group 2: JSON Bourne

Date: January 30, 2020

Version: 1.0.0

Document Information

Revision History

Version	Date	Status	Prepared By	Comments
1.0.0	01/31/2020	Completed	JSON Bourne	Recently received more clarification from AE, and will adjust requirements in the near future.
1.0.1	02/24/2020	Completed	Katrina	Updated the prototype link

Document Control - Team Participants

Role	Name	Email
Project Manager/Developer	Jacqueline Yin	yin.sangxu@gmail.com
Backend Developer	Jenessa Tan	jenessatan@alumni.ubc.ca
Backend Developer	Bang Chi Duong	bcduong@students.cs.ubc.ca
UX-UI Designer/ Front-end Developer	Katrina Tan	katrinatan91@yahoo.com
Front-end Developer	Lisa O'Brien	lisa.obrien@alumni.ucb.ca
Full Stack Developer	Stacy Leson	stacy.leson@gmail.com
Full Stack Developer	Nicole Kitner	nicolekitner@gmail.com

Stakeholders / Signoff list

Role	Name	Signature	Sign-Off Date
Supervisor	Dave Pagurek		
Sponsor	Nash Naidoo		
Sponsor	Steve Robinson		
Sponsor	Shawn Goulet		
Sponsor	Eric Ly		

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Executive Summary

Project Description / Purpose of Project

As one of the largest engineering consultants in Canada, Associated Engineering faces a challenge in which their current system of seeking and allocating resources requires manual effort, making for an inefficient and time-consuming process.

To minimize the extensive time needed to ensure that appropriately skilled individuals are assigned to suitable projects and/or initiatives, AE is requesting for an implementation of a resource utilization optimization system through which their staff members will be able to insert, retrieve, and organize relevant information on their engineers/staff and projects.

Project Objectives and Goals / Scope

Our goal is to design and implement a resource utilization optimization system that allows for the easy tracking of an individual's skills and utilization by a Resource or Project Manager.

We will do this by implementing a system whereby the following users will be able to perform the tasks respective to their roles:

- 1. Individual Contributors:
 - a. Able to edit information in their own profile
- 2. Project Managers
 - a. Able to create new projects
 - b. Able to assign workload to individuals on projects on a monthly basis
 - c. (Stretch Goal): Able to review and approve or reject an individual's attempt at creating/editing their profile before said individual contributor's profile is successfully completed/their information is added to or updated in the database
- 3. Resource Managers
 - a. Able to easily view information on individual contributor's availability.
 - i. Able to see the underutilization/overutilization of the resource/individual
 - b. Able to look up which staff/individuals have appropriate skills and appropriate availability level for a potential project
 - i. (Stretch Goal): output displays in priority order either by:
 - 1. Degree of how many skills an individual has matches the criteria
 - 2. Individual's level of availability
- 4. Admin
 - a. Able to adjust the system's database through setting adjustments:
 - i. Able to add/remove/edit Disciplines
 - ii. Able to add/remove/edit Skills
 - iii. Able to add/remove Locations
- 5. All Users:
 - a. Able to sign in using their Azure Active Directory Accounts

Parties/Individuals Impacted

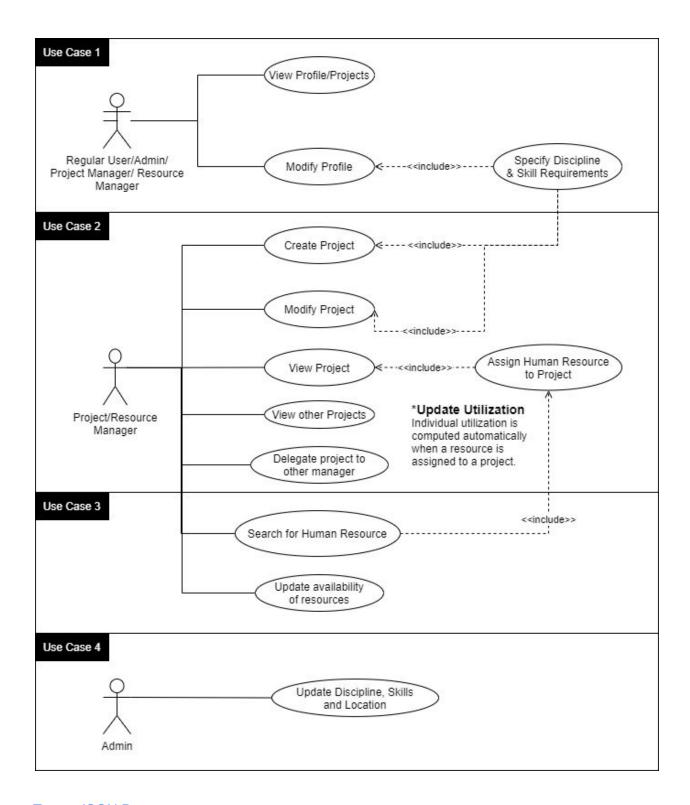
Party	Impact
Project Managers	- Will need to frequently and continuously update the forecasted utilization of the members on their projects (for best results)
Resource Managers	 Will have access to the utilization numbers and listed disciplines/skills of an individual Will be able to search for qualified individuals by filtering skills and levels of utilization Will have to adjust their workflow from the current informal manual method to one which uses a resource utilization system
Individuals	 Will update their discipline/skills as needed Will be aware that their Project Managers and Resource Managers will have access to their listed skills and utilization

Systems Impacted

System	Sub-System	Impact
Existing Software Systems	Database	- Structure of any existing Database may be affected in order to accommodate the additional information of which are necessary to keep track. Areas of the database that may be affected include (but are not limited to)
Existing Hardware Systems	Not Applicable	- With scalability in mind for the future, potential hardware may need to be added to support software features, such as storage for capacity needs

Project Requirements - Details

Use Case Diagram



Use Case Explanations

Use Case 1: View Profile	
Description	An individual/employee of AE logs into the system.
Actors	- Individual Contributor (IC)
Preconditions	- The IC has a valid Azure Active Directory Account - The IC has either Chrome browser or IE11 browser
Postconditions	The IC successfully logs in and is directed to their own profile page
Main Scenario	The IC logs into the resource utilization system with their Azure Active Directory Account The IC sees feedback that login is successful The IC is redirected to their profile page
Alternative Scenario	- [1] The IC's Azure credentials are incorrect - App displays an error message

Use Case 1: Edit	Use Case 1: Edit Profile		
Description	An individual/employee of AE needs to update their skills and disciplines. They are able to do so on their profile page		
Actors	- Individual Contributor (IC)		
Preconditions	- The IC is signed in onto the resource utilization system		
Postconditions	 The IC can successfully update their information The information on the IC's profile page is updated to reflect changes The relevant information in the database is changed to reflect changes 		
Main Scenario	 The IC goes to their profile page The IC clicks an edit button to go to the edit profile page A. The IC selects a discipline B. The IC selects skill(s) under that discipline to add to their profile OR C. The IC selects skills(s) that they want to remove from their profile The IC clicks the 'Save' button The page refreshes to reflect changes 		
Alternative Scenario	 [2]. The skill they are trying to add/delete is already on their profile or has not been added yet (respectively) App displays an error message [3] The user navigates away from the page without saving No changes are made 		

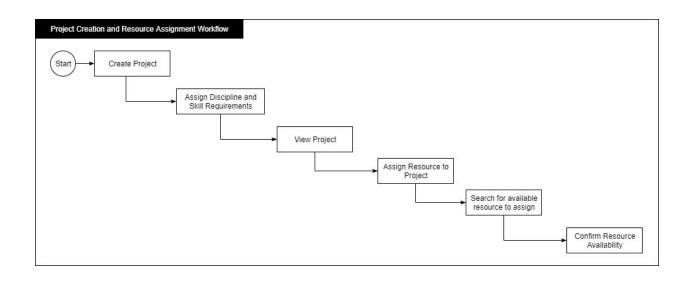
Use Case 2: Create Project		
Description	A project manager succeeds in bidding for a project and needs to record it in the system. The project manager creates a Project in the system to represent that project	
Actors	 - Primary Actor: Project Manager/ Resource Manager (PM/RM) - Individual Contributor - Database - System 	
Preconditions	- The PM needs to be logged into the system with an account with PM credentials	
Postconditions	The PM succeeds in creating a project A. The PM is automatically assigned to the project B. The project and its information is added to the database	
Main Scenario	 The PM goes to the 'Manage Projects' page The PM clicks a button to go to the Add Projects page App displays "Project Details Page" Default Project PM is set as current PM user Record Project Details Select Team Requirement fields PM adds a Team Requirements post PM selects a Discipline App displays skills based on Discipline selected PM selects skills relevant to the position PM inputs Years of Experience range PM inputs duration of project PM saves Team Requirements input PM repeats steps 4 - 10 as necessary PM saves all changes on the project page App creates new record 	
Alternative Scenario	- [12] PM does not save the new project before navigating away from the page - changes are not saved	

Use Case 2: Assign Resource to Project		
Description	After a project has been created, a Resource Manager will search for and assign an appropriately skilled resource to the project representation in the system.	
Actors	 - Primary Actor: Project Manager/ Resource Manager (PM/RM) - Individual Contributor - Search (System) - Database 	
Preconditions	The RM needs to be logged into the system with an account with RM credentialsThe system/database should have at least one resource	
Postconditions	If there is an appropriate candidate, the RM successfully assigns the candidate/resource to the project in the system a. The opening in the discipline is removed from the project page b. The resource is assigned to the project with the status of pending	
Main Scenario	 PM/RM opens project in question In the openings section, clicks assign button to the discipline of interest App redirects to a search page - 10. PM/RM searches in accordance to Use Case 3: Resource Search PM/RM selects "Assign" button beside the desired resource to assign them to the opening App redirects back to the project page Assigned opening is removed from the Openings list Assigned resource is added to the Team list with a Pending status PM/RM can confirm a Pending resource from the project page by selecting the "Confirm" button next to the resource Confirmed resource will then have a confirmed badge next to their listed name 	
Alternative Scenario	 - [10] If no resources match the criteria, PM/RM will remain on search page until they navigate away - [11] PM/RM clicks on resource - App redirects to the resource's profile page 	

Use Case 3: Update Resource Availability		
Description	When resources take vacation days, or is otherwise unavailable, a Resource Manager will want to update their availability so that the system accurately reflects the resource's availability	
Actors	 - Primary Actor: Project Manager/ Resource Manager (PM/RM) - Individual Contributor - Search (System) - Database 	
Preconditions	- The RM needs to be logged into the system with an account with RM credentials - Resource that RM wants to update is available in the system	
Postconditions	- Availability of selected Resource is updated to reflect the data that the RM has inputted	
Main Scenario	 RM navigates to "Manage People" page RM searches for the resource in question RM selects "Manage" option under resource information App redirects to personal details of that resource In "Unavailability" section, RM adds Start Date of resource's unavailability RM adds End Date of resource's unavailability RM inputs a "Provided Reason" RM selects add button to add new unavailability record to list List rerenders with new information RM clicks save to save record App redirects to resource profile page view 	
Alternative Scenario	- [8] RM does not click add - New record is not added to list - [10] RM does click save button and navigates away - New record is not added/change is not reflected	

Use Case 3: Resource Search				
Description	A Resource Manager can search for all resources in the database based on desired filter criteria			
Actors	 - Primary Actor: Project Manager/ Resource Manager (PM/RM) - Individual Contributor - Search (System) - Database 			
Preconditions	- The RM needs to be logged into the system with an account with RM credentials - The system/database should have at least one resource			
Postconditions	- A list of resources that match the search criteria is returned and displayed			
Main Scenario	 PM/RM navigates to the Search page PM/RM selects location PM/RM selects a Discipline App displays skills based on Discipline selected PM/RM selects skills relevant to the position PM/RM inputs Years of Experience range PM/RM clicks "Apply Filters" button App displays list of resources that match the submitted search parameters 			
Alternative Scenario	- [8] If no resources match the criteria, PM/RM will remain on search page until they navigate away			

Business Flow Diagram of Project Management



Requirement Traceability Matrix

Req ID	Reference	Applicable Roles	Requirements Description	Category	Priority	Туре	Status	Testing Strategy
			Sign In					
0.0.0	N/A	- All	- All Users with appropriate Azure Credentials should be able to successfully log into the system	Required	High	Functional	Incomplete	TBD
0.0.1	N/A	- All	- All Users should be able to successfully log out of the system	Required	High	Functional	Incomplete	TBD
			View Individual Contributor	Page				
1.0.0	Use-Case 1	- User / Individual	- When an Individual signs in, they should be able to see their own profile	Required	High	Functional	Incomplete	TBD
1.0.1	Use-Case 1	- User / Individual	- When an individual is viewing their profile page, they will be able to see their utilization	Expected	Medium	Functional	Incomplete	TBD
	Edit Individual Contributor Page							
1.1.0	Use-Case 1	- User / Individual	- Individual must be able to add/remove/edit their discipline on their own profile	Required	High	Functional	Incomplete	TBD

		- Manager						
		(Stretch						
		Goal)						
		- User /						
		Individual						
		- Manager						
		(Stretch	- Individual must be able to add/remove/edit					
1.1.1	Use-Case 1	Goal)	their skills on their own profile	Required	High	Functional	Incomplete	TBD
		- User /						
		Individual						
		- Manager						
		(Stretch	- Individual must be able to edit their personal					
1.1.2	Use-Case 1	Goal)	information on their own profile	Required	High	Functional	Incomplete	TBD
			Create Project Page					
			- Project Manager can create a new project					
			with the following information:					
			1. Disciplines & Skills needed					
			2. Projected Timeframe					
2.0.0	Use-Case 2	PM / RM	3. Location	Required	High	Functional	Incomplete	TBD
			- Project Managers should be able to assign					
			resources to a project upon creation of a					
2.0.1	Use-Case 2	PM / RM	project	Expected	High	Functional	Incomplete	TBD
			View Project Page					
			- PMs should be able to read-only view					
2.1.0	Use-Case 2	PM / RM	projects they are not assigned to	Required	High	Functional	Incomplete	TBD
			- PMs should be able to tentatively assign					
			resources to their projects					
			- Assignment status will be 'pending' until					
2.1.1	Use-Case 2	PM / RM	confirmed	Required	High	Functional	Incomplete	TBD
			- Assigning of resource to project					
			automatically updates "openings"/disciplines					
			list as needed					
			- Removing a resource from project	Bonus				
2.1.2	Use-Case 2	PM / RM	automatically updates "openings" as needed	Feature	Low	Functional	Incomplete	TBD
			- PMs should be able to remove resources					
2.1.3	Use-Case 2	PM / RM	from their own projects	Expected	High	Functional	Incomplete	TBD
			- PMs/RMs should be able to see the					
			utilizations of the individuals assigned to the					
2.1.4	Use-Case 2	PM / RM	project	Required	High	Functional	Incomplete	TBD

			- PMs should be able to add a forecast of how					
			many hours per month they expect to require					
2.1.5	Use-Case 2	PM	of an individual on their project	Required	High	Functional	Incomplete	TBD
			Edit Project Page					
			- PMs should be able to edit their own					
2.2.0	Use-Case 2	PM / RM	projects	Required	High	Functional	Incomplete	TBD
			- PMs should be able to transfer ownership of					
2.2.1	Use-Case 2	PM / RM	project to another PM	Expected	Medium	Functional	Incomplete	TBD
			- PMs should be able to view other projects					
2.2.2	Use-Case 2	PM / RM	(read-only)	Required	High	Functional	Incomplete	TBD
			- PMs should be able to tentatively assign					
			resources to their projects					
			- Assignment status will be 'pending' until					
2.2.3	Use-Case 2	PM / RM	confirmed	Required	High	Functional	Incomplete	TBD
			- Assigning of resource to project					
			automatically updates "openings"/disciplines					
			list as needed	Damus				
2.2.4.	Use-Case 2	PM / RM	 Removing a resource from project automatically updates "openings" as needed 	Bonus Feature	Low	Functional	Incomplete	TBD
	030-0430 2	T IVI / TXIVI		Catale	LOW	Tariotional	incomplete	100
2.2.5	Use-Case 2	PM / RM	- PMs should be able to remove resources	Evposted	High	Functional	Incomplete	TBD
2.2.3	Use-Case 2	FIVI / KIVI	from their own projects	Expected	High	Functional	Incomplete	טפו
			- PMs/RMs should be able to see the					
2.2.6	Use-Case 2	PM / RM	utilizations of the individuals assigned to the project	Required	High	Functional	Incomplete	TBD
2.2.0	000 0000 2	T W 7 T W	<u> </u>	required	riigii	Tanotona	moompiete	100
			 PMs should be able to add a forecast of how many hours per month they expect to require 					
2.2.7	Use-Case 2	PM	of an individual on their project	Required	High	Functional	Incomplete	TBD
			Delete Project Page	110 40	19			1
			- PMs should be able to delete their own					
2.3.0	Use-Case 2	PM/RM	project	Expected	High	Functional	Incomplete	TBD
			- deleted projects should be put into a	Bonus				
2.3.1	Use-Case 2	PM/RM	recycling bin that can be restored if needed	Feature	Low	Functional	Incomplete	TBD
			Search					
			- RMs should be able to search individuals					
3.0.0	Use-Case 3	PM / RM	with specified skills and utilization using filters	Required	High	Functional	Incomplete	TBD
			- search should return a list of resources that				,	
			match the search parameters showing					
3.0.1	Use-Case 3	PM / RM	utilization at a glance	Required	High	Functional	Incomplete	TBD

				ı			I	
			- RMs should be able to see the results of the					
			search in priority order or how many	Bonus				
3.0.2	Use-Case 3	PM / RM	skills/availability matched search	Feature	Low	Functional	Incomplete	TBD
			- RMs should be able to sort the list by					
3.0.3	Use-Case 3	PM / RM	utilization	Expected	Medium	Functional	Incomplete	TBD
			Assign Resource to Proje	ct				
			- PMs should be able to assign a resource to					
3.1.0	Use-Case 2	PM/RM	their own project	Expected	High	Functional	Incomplete	TBD
3.1.1	Use-Case 2	PM/RM	- PMs should not be able to assign a resource to a project that they do not manage	Expected	High	Functional	Incomplete	TBD
			Admin					
			- Admins should be able to add/remove/edit					
4.1.1	Use-Case 4	Admin	Disciplines	Required	High	Functional	Incomplete	TBD
4.4.0			- Admins should be able to add/remove					
4.1.2	Use-Case 4	Admin	Locations	Required	High	Functional	Incomplete	TBD
4.1.3			- Admins should be able to add/remove/edit					
1.1.0	Use-Case 4	Admin	Skills	Required	High	Functional	Incomplete	TBD
			Update Resource Availabi	lity				
			- RM should be able to add/edit resource					
5.0.1	Use-Case 3	RM	availability	Expected	High	Functional	Incomplete	TBD
			Deployment					
			- The deployment won't require new					
6.0.0	NA	NA	infrastructure to build	Expected	Medium	Non-Functional	Incomplete	TBD
			Maintainability					
			-The team will follow peer code review, and all					
			code will be reviewed by at least one other					
6.1.0	N/A	N/A	group member than the one who wrote it	Expected	High	Non-Functional	Incomplete	TBD
			Security Needs					
			The system should be able to handle secure					
6.2.0	N/A	N/A	user authentication	Expected	High	Non-Functional	Incomplete	TBD
			The system should store confidential data					
6.2.1	N/A	N/A	securely	Expected	High	Non-Functional	Incomplete	TBD
			Capacity Needs					
			- the project will need to handle 1000					
6.3.1	NA	NA	- the project will need to handle 1000 resources	Required	High	Non-Functional	Incomplete	TBD
	NA	NA		Required	High	Non-Functional	Incomplete	TBD

Business Constraints

Parameter	Summary
Time	Project must be completed by April 7th, project deliverables to be completed based on the timeline outlined in the Project Plan
Resources	Resources are limited to our team of seven. These will be adequately delegated for each phase and section of the project
	Integration with third party applications
Cost	Costs should be zero, but unexpected expenses could conceivably arise

Assumptions

Item	Details
	Resources are created and imported from a 3rd party database
Resources	Resources can be added to a project even if they are overutilized
(Users)	Resources are reserved and assigned to a project, but only confirmed closer to project start date
	Resources cannot have skills for discipline they do not have
Project Manager	Project Managers can only delete their own projects
Projects	Projects can be created by the PM/RM or imported from a 3rd party database
Fiojects	When a project is created, there are initially no resources assigned to that project
	All users are able to see a resource's utilization
Utilization	Utilization is automatically computed when a resource is confirmed
	When a resource is reserved, the utilization does not get updated
Skills	Skills are associated with specific disciplines

Appendix

Glossary of Terms

Terms/Abbreviations	Description
IC	Individual Contributor - (also known as a resource.) An employee of AE
PM	Project Manager
RM	Resource Manager

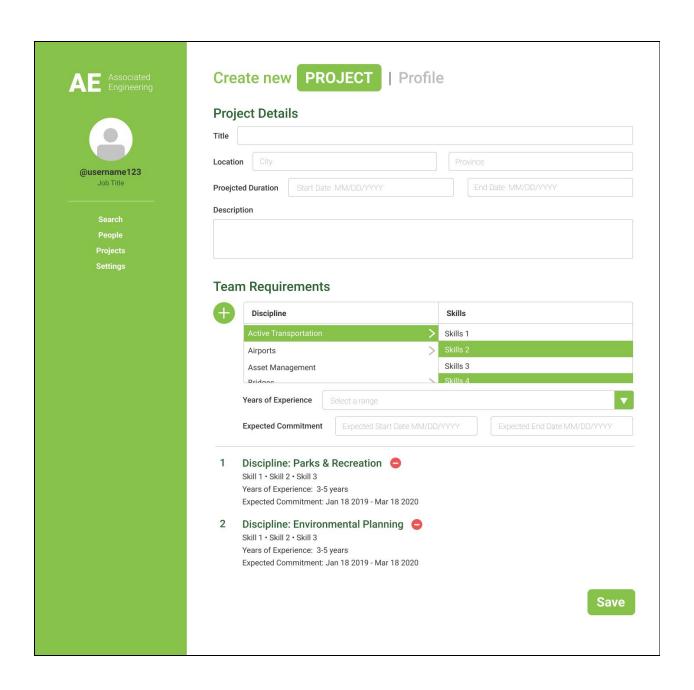
UX-UI Design and Prototypes

Below are screenshots of the main pages in our application. For an interactive prototype, please view this <u>link</u>. For the workflows covered, please review the use case section above.

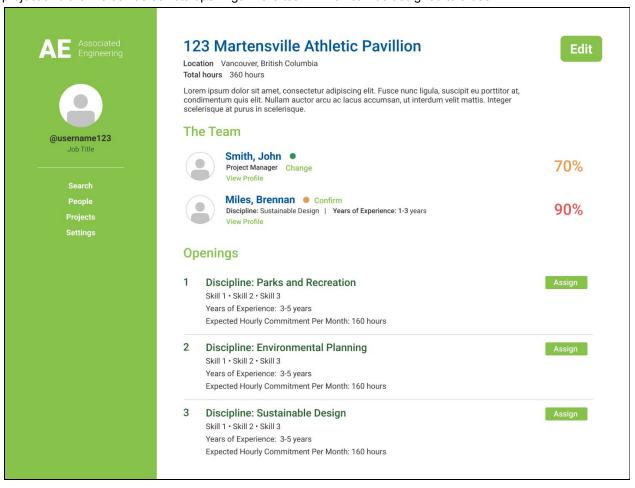
This is the homepage viewed by the admin user and the PM/RM. Note that the setting option will not be visible by the PM/RM.



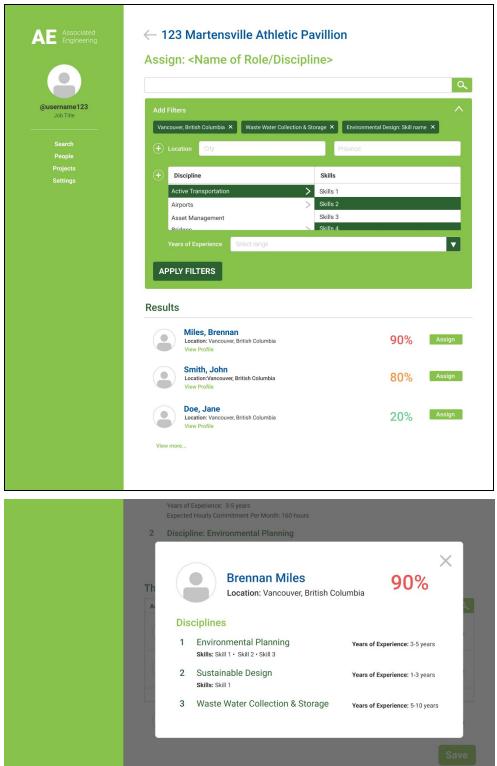
This is the project creation page where a PM is able to enter a new project and specify the disciplines and skills that they need.



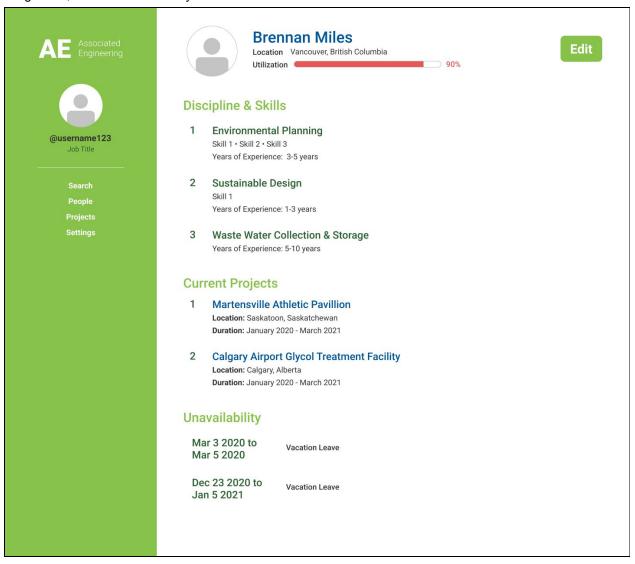
Once a project has been created, the project view allows the PM to view human resources assigned to the project and their roles. It also lists openings in the team which can be assigned to a user.



The search assignment page allows the user to add filters in order to view a list of resources that match the criteria. Clicking on the name of the user shows a brief view of their profile. Once the user clicks the assign button, they are taken back to the project view.



This is the profile page of a user which shows the list of discipline and skills, the current projects that they are assigned to, and the unavailability of the user.



The settings page is only visible to the admin. This page is where admins can add items to the different disciplines or skills for the forms in the application.

