SW Engineering CSC648/848 Spring 2022 Section 2

10 May 2022

Milestone 5 – Final Demo and Documents for Grading.

Team 2

Team Lead: Zubin Kanga (zkanga@sfsu.edu)

Front End: Cat Tuong Vu, Gurinder Singh, Sebastian Wcislo

Back End: Anudeep Katukojwala, Brandon Butler, Zubin Kanga

GitHub Master: Sebastian Wcislo

History Table

Submitted	19 April 2022
Revised	

Product Summary

Tech Connect

List of Major committed functions

1. Search Jobs
    a. Users are able to search for jobs.
2. Filter Jobs
    a. Users are able tot filter their searched jobs.
3. Company job posting
    a. Companies are able to post jobs and their requirements.
4. Tech Trends of 2022
    a. We display tech trends on the homepage for users to examine.
5. User Registration
    a. User are able to register themselves on our site.
6. User Login
    a. Users are able to log on to our site.
7. Email Notifications
    a. We will send users email notification when they are contacted.
8. Email Confirmations
    a. We will send users emails for confirmation to ensure safety.
9. Resume Upload and Review
    a. We are able to post and review resumes.

What makes Tech Connect unique?

1. Advanced search

   a. Our advanced search allows users to search jobs by its title, job type, tech area, job role, skills required, and company. This gives users better control over the jobs they want.

2. Company set jobs inactive and active
   a. Companies are able to alter their posted jobs making them active or inactive as they see fit.

URL

http://ec2-13-57-202-250.us-west-1.compute.amazonaws.com/

Milestone Documents (M1-M4)

Milestone 1

Executive Summary

Our world is changing. Each day our status quos are evolving and becoming more and more efficient. From the way we consume our media, to the way we interact with medical professionals, to the way we transport our goods and ourselves around the world. It is all changing and here at Tech Connect we intend to keep you evolving with it.

Tech Connect is a revolutionary app that is designed to keep you, those in your industry, and those hiring in your field connected with one another. With our app you will never fall behind the current market trends and trajectory and will be able to get an edge against your competition.

With Tech Connect, you are able to see postings from around the industry and directly connect with those hiring these positions. You are also able to connect with your colleagues and share information about the interview process for different companies. Finally, if you are a startup or a large company you can post job listings to Tech Connect to alert those who qualify to apply.

There are so many uncertainties in our ever-changing world, let’s make staying connected something we’re certain about. Welcome to Tech Connect!

Personas and Main Use Cases

Personas

Key personas that will be using our application include: San Francisco State University students who are part of the Science, Technology, Engineering, and Math fields and are looking to find jobs that they love. Moreover, this application will also help tech companies to post about various jobs and positions that they want to fill.

SFSU students in STEM

In general, students in the STEM field are tech-savvy; they enjoy working on complex problems. Most of them have great problem-solving abilities, which are crucial when trying to solve complex problems. However, everyone has different goals and passions that they want to pursue. For example, some students enjoy learning about Artificial Intelligence, while others are more interested in web development. The point is there are many opportunities to find the job of your dreams in tech. However, sometimes it becomes tough to pinpoint exactly the type of tech field someone wants to go in. They might have some vague idea of the industry they wish to enter, but they are unsure. It's a common problem that students face when looking for jobs in the tech industry.

Tech Companies

It's no secret that every tech company or any company in general wants motivated people to work for them. They want people who are quick learners and are self-motivated. Moreover, they want employees who can adapt to their work environments and adhere to the best practices. Unfortunately, it's sometimes hard for tech companies to find such self-motivated workers. As technology keeps on getting better, the demand for good engineers, programmers, and problem-solvers, in general, will also increase. Many companies want to employ university students and

train them. Tech companies are willing to pay good salaries for self-driven and skilled students who want to join the industry. However, it's sometimes hard for them to look for such talented students because websites currently in use today to find jobs like Indeed, ZipRecruiter, etc., are very broad in terms of their usage. They don't necessarily focus on students who are looking for Internships or Entry-level jobs.

Use Cases

1. **Refined search results**

   A student who is part of SFSU, interested in tech, and wants to look for jobs that match their interests and skills. They are not sure about the type of sub-field they want to be a part of. However, they are passionate about designing cool user interfaces. They search for jobs using their skills as a filter to get relevant and refined search results.

2. **Technology trends of 2022**

   A student who is passionate about tech in general but doesn't know where to focus their attention to benefit the most from the technology trends of 2022. They go to our website and look at various trends in tech and try to find something that they will enjoy learning about. They then decide to look for jobs posted under that category in order to get a gist of job requirements so they can focus on learning appropriate skills.

3. **Tech companies can post jobs**

   A tech company is looking for a motivated and talented student for an entry-level job. They want to hire someone from the SFSU and enjoy the process to be as smooth as possible. They go to our website and post under the appropriate category stating the job title, description, and skills they are looking for.

4. **Register to get notifications**

A student wants to work in the tech industry and is passionate about tech in general. They go to our website and search by skills, but couldn't find a job matching their skills and interests. They want to be notified whenever a job gets posted that matches their abilities and interests. They get prompted to register to be notified of jobs that match their skills.

List of Main Data Items and Entities

Features

1. Search (For the following non specific job postings)
    a. Artificial Intelligence, Machine Learning, Robotic Process Automation, Edge Computing, Quantum Computing, Virtual Reality, Augmented Reality, Blockchain, Internet of Things, 5G, Cyber Security
2. Search Filter
    a. Tech areas, Job Positions, Skills
3. Mobile Device Rendering
4. Register
5. Log In
6. Log Out
7. About the Creators
8. Profile Page Sharing
9. Claim Verification
10. Span Control
11. Alerts
12. User Messaging
13. Interview Prep

Types of Users

1. SFSU Students
    a. This website is designed for students who attend San Francisco State University who wish to find their dream jobs in tech. This website will use their search

filters, along with the perks of attending SFSU to help them with tech career endeavors.

2. Tech Companies
    a. This website will allow tech companies to post job openings with the following mininum job information: Job titles, descriptions, required skills

Technologies

- Stack Revision
    - Using us-west-1
- Server Host
    - t3.micro instance (2 vCpus and 1 GiB) => t2.micro instance (t3.micro does not have the free tier eligible tag)
- Operating System
    - Ubuntu 16.04 Server => Ubuntu Server 20.04 LTS (HVM)
- Database
    - MySQL v 8.0.28
- Web Server
    - Nodejs
- Server-Side Language
    - Javascript
- Web Framework
    - react.js
- IDE
    - Microsoft Visual Studios

- Web Analytics
    - Google Analytics
- SSL Cert
    - Lets Encrypt (Cert Bot)
- SASS
    - 3.5.6
- ADDED
- SSH Terminal
    - MobaXTerm (Windows)

Initial List of Functional Requirements

What Does it Do?

This app allows users to search for job listings posted by companies looking for help. This has an emphasis on STEM careers.

Functions

- Job Searching
    - Users should be able to search through job listings based on their titles and associated companies. The users are also able to use different filters to get more specific results.
- Account Management
    - Easily allows the users to register their accounts with the app, log into and log out of their accounts to gain access and deny access from the app, and manipulate their profiles to give their basic information, job experience, and general information on their personalities for other users and posters can see.
- Profile Sharing
    - Profiles should be allowed to be easily shared through text messages, emails, and through messages on the app with ease.
- Claim Verification
    - There should be a claim verification feature for admins to review as they see fit.
- Spam Control
    - Spam posting and other malicious posts should be mitigated and controlled.
- Notifications

    - Sending the users emails or phone notifications when they get information from the app when they are not directly using the app.

- Messaging
    - Users should be able to easily interact with Users and Posters.
- Interview Prep
    - Users should be able to post advice for the companies interviews and even link videos from YouTube with examples.

Data Description

- Users and Posters
    - Users – people who are using the app to search for jobs and interact with other users to gain insight on the job market.
    - Posters – the companies that post the job listings for the Users to apply for and reach out for better insight on what are the requirements and expectations for the job.
- Key Elements

List of Non-Functional Requirements

Product Requirements

- Usability requirements:
    - An application that will provide SFSU tech students easy access to any specific tech related job based on individual interests. In which will also provide companies an easy tool to reach out for suitable candidates for the job positions.
- Efficiency requirements:
    - Performances requirements:
        - Up-to-date searching tools and data
        - Speed, capacity and reliability
- Dependability requirements:
    - Availability: up-to-date recruitments and candidates information
    - Reliability: accurate and reliable information from company and candidates
- Security requirements:
    - We plan to take this feature seriously to protect both our job seekers and employers from spam by incorporating rigorous onboarding processes onto our portal.
    - We shall incorporate this feature to make sure the job seekers won't be fooled by unverifiable salary claims, and other tactics that employers use to lure the job seekers to their companies.

Organizational Requirements

- Environmental requirements:

    - This is an easy and friendly app for all SFSU tech students that guarantees to make the jobs seeking process more efficient.

- Operational requirements:
    - With an Ubuntu server, the application is guaranteed to offer a wide range of choices, making it very customizable.
- Development requirements:

Competitive Analysis

Features	LinkedIn	Glassdoor	Indeed	Our Product Name
Interview Prep and career advice	+	-	-	++
Apply within portal	++	-	-	++
Pricing	$29.99 per month	Not disclosed but a premium account needed to access all features	Price per click model for Employers who post job ads	Free of charge
Profile page sharing	++	-	-	++
Spam Control	-	-	-	++
Claim Verification	-	-	-	+

+ feature exists; ++ superior; - does not exist;

We envisioned launching this product to provide laser focus help for SFSU students to find jobs in the Tech world. Although every other competitive products as mentioned in the above table have many core features that are needed for both the job seekers and employers, our product shines in few areas such as below:

1. Pricing: We planned to develop a completely free of charge product for our students and employers.
2. Spam control: We plan to take this feature seriously to protect both our job seekers and employers from spam by incorporating rigorous onboarding processes onto our portal.
3. Claim Verification: We shall incorporate this feature to make sure the job seekers won't be fooled by unverifiable salary claims, and other tactics that employers use to lure the job seekers to their companies.

4. Targeted Help: Since our product is exclusively being built for SFSU students, we can help our students with their job search and career advising on a deeper level.

Team and Roles

Team Lead: Zubin Kanga

Front End: Cat Tuong, Gurinder Singh, Sebastian Wcislo

Back End: Anudeep Katukojwala, Brandon Butler, Zubin Kanga

GitHub Master: Sebastian Wcislo

Checklist

- ✓ Team found a time slot to meet outside of the class
- ✓ GitHub master chosen
- ✓ Team decided and agreed together on using the listed SW tools and deployment server
- ✓ Team ready and able to use the chosen back and front-end frameworks and those who need to learn are working on learning and practicing
- ✓ Team lead ensured that all team members read the final M1 and agree/understand it before submission
- ✓ GitHub organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.)

Milestone 2

1. Functional Requirements – prioritized

What Does it Do?

This app allows users to search for job listings posted by companies looking for help. This has an emphasis on SFSU students interested in tech.

Functions on the basis of priority

The numbering is based on how the following requirements appeared in milestone 1's functional requirements. There were eight functional requirements in milestone 1, and so we added some additional requirements that we thought were required and would help make our website unique.

1 – must have

The following requirements detail the essential (must have) functionality required in our website as listed in the final project description.

Actor – Users:

1. Job Searching

    1.1 - Users shall be able to search for jobs based on their skills and passion.

    1.2 - Users shall be able to search and filter through job listings based on tech areas, job positions, and skills.

2. Account Management

    2.1 - Users shall be to register their accounts with the app, log into and log out of their accounts to gain access and deny access from the app, and manipulate their profiles to give their basic information, job experience, and general information on their personalities for other users and posters can see.

9. Technology Trends For 2022

9.1 - Users shall be able to find technology trends for 2022.

10. Specific to SFSU Students

10.1 - Website shall be specific to SFSU students looking for a job in tech.

10.2 - It shall minimize their job-search-related struggle by providing them with easy-to-use website with capabilities that are created specifically for SFSU students.

11. Support for Tech Companies

11.1 - Tech companies shall be able to post in 9 areas: Artificial Intelligence and Machine Learning, Robotic Process Automation (RPA), Edge Computing, Quantum Computing, Virtual Reality and Augmented Reality, Blockchain, Internet of Things (IoT), 5G, and Cyber Security.

11.2 - Tech companies shall be able to specify Job titles, descriptions, and skills required for a certain job.

Actor – Admin:

6. Notifications

6.1 - Users shall be able to register and get alerts for matching job interests.

6.2 - Application shall send the users emails or phone notifications when they get information from the app when they are not directly using the app.

12. Administrator Capabilities

12.1 - Website shall be able to trigger the matching job alerts to the corresponding users.

13. Email Confirmation

13.1 - Application shall require users to verify their email address upon registration.

2 – desired

The following requirements detail the functionality that makes our website unique and helps separate us from the competition.

Actor – Users:

3. Profile Sharing

    3.1 - Profiles should be allowed to be easily shared through text messages, emails, and through messages on the app with ease.

7. Messaging

    7.1 - Users should be able to easily interact with Users and Posters.

Actor – Admin:

4. Claim Verification

    4.1 - There should be a claim verification feature for admins to review as they see fit.

5. Spam Control

    5.1 - Spam posting and other malicious posts should be mitigated and controlled.

3 – opportunistic

The following requirement details the functionality that would be great to have but is not required.

Actor – Users:

8. Interview Prep

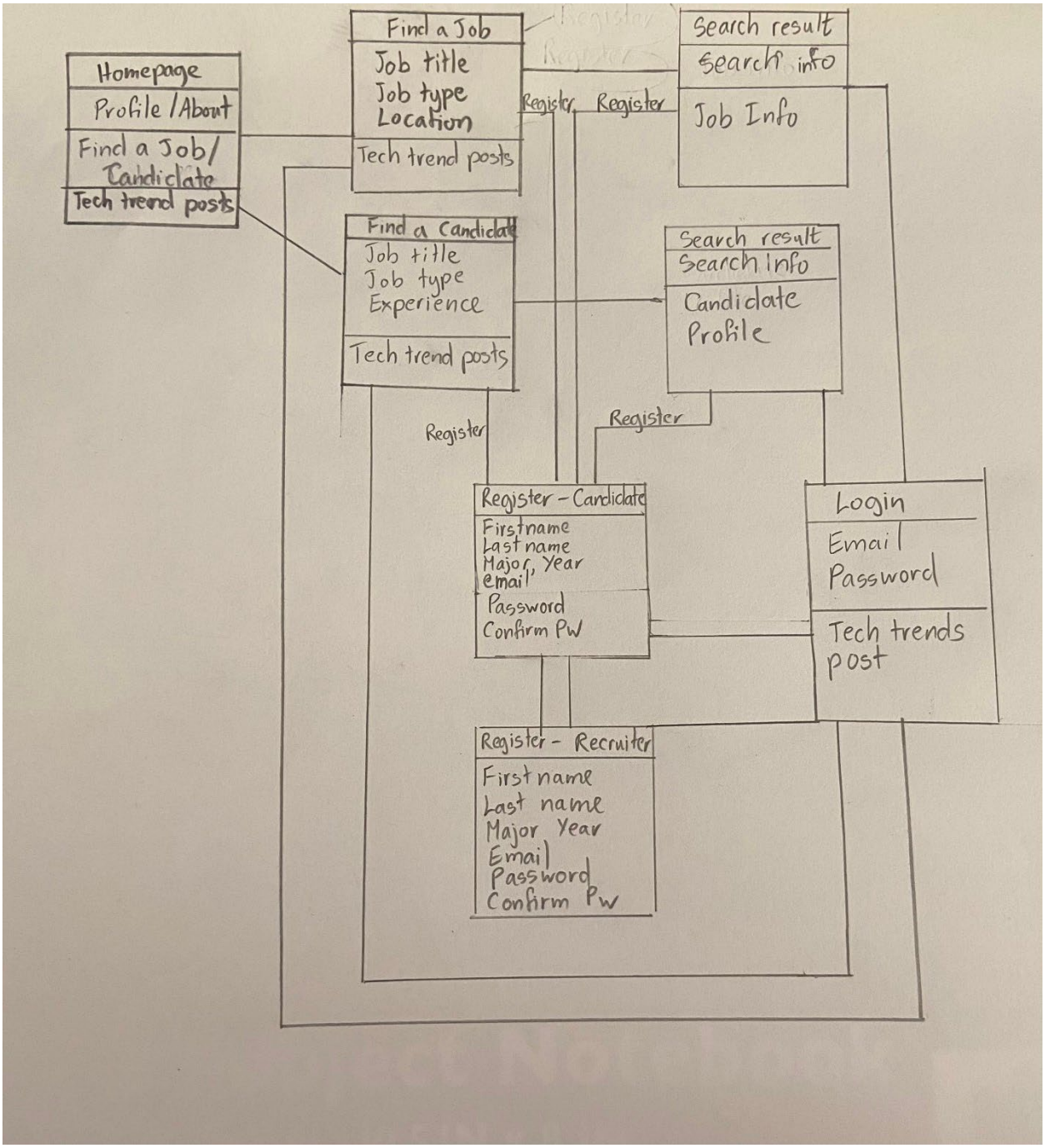
    8.1 - Users should be able to post advice for the companies interviews and even link videos from YouTube with examples.

Data Description

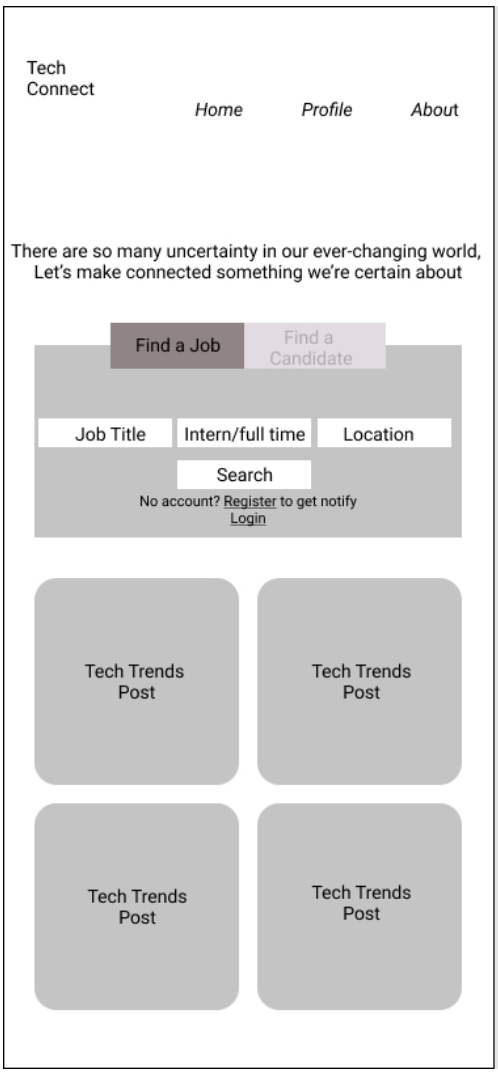
Users and Posters

a. Users – people who are using the app to search for jobs and interact with other users to gain insight on the job market.
b. Posters – the companies that post the job listings for the Users to apply for and reach out for better insight on what are the requirements and expectations for the job.

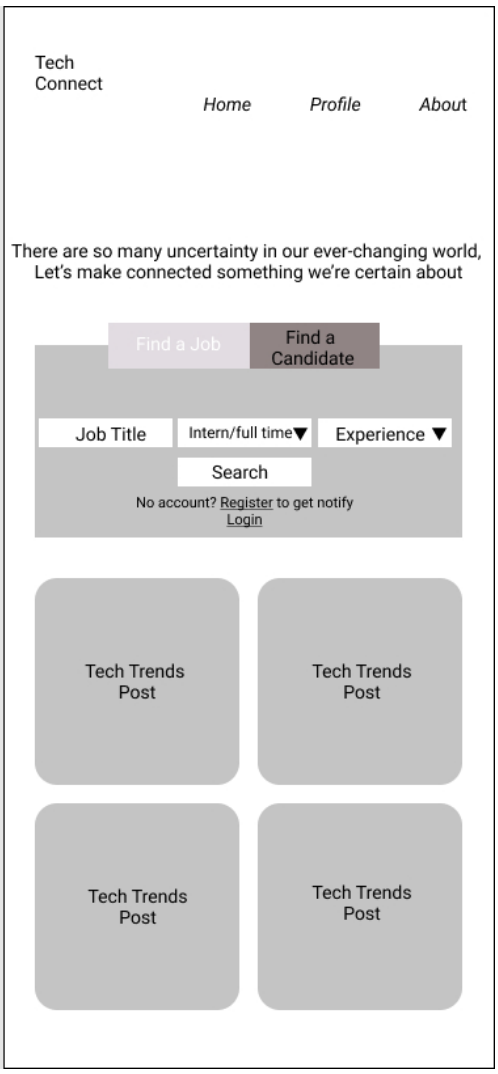
2. UI Mockups and Storyboards (High Level Only)



Homepage



Candidate



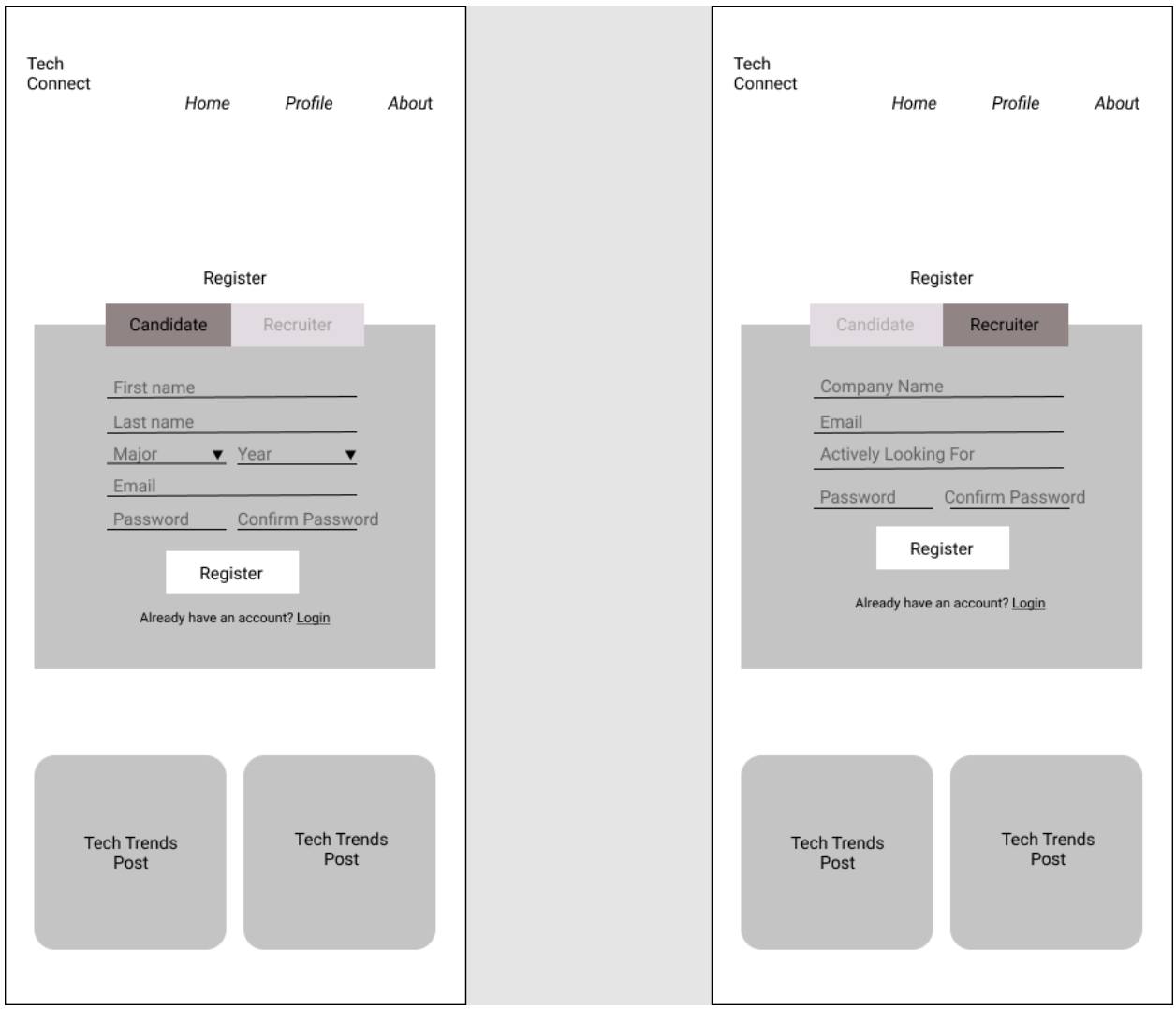
Recruiter

Search Result Page

Candidate

Recruiter

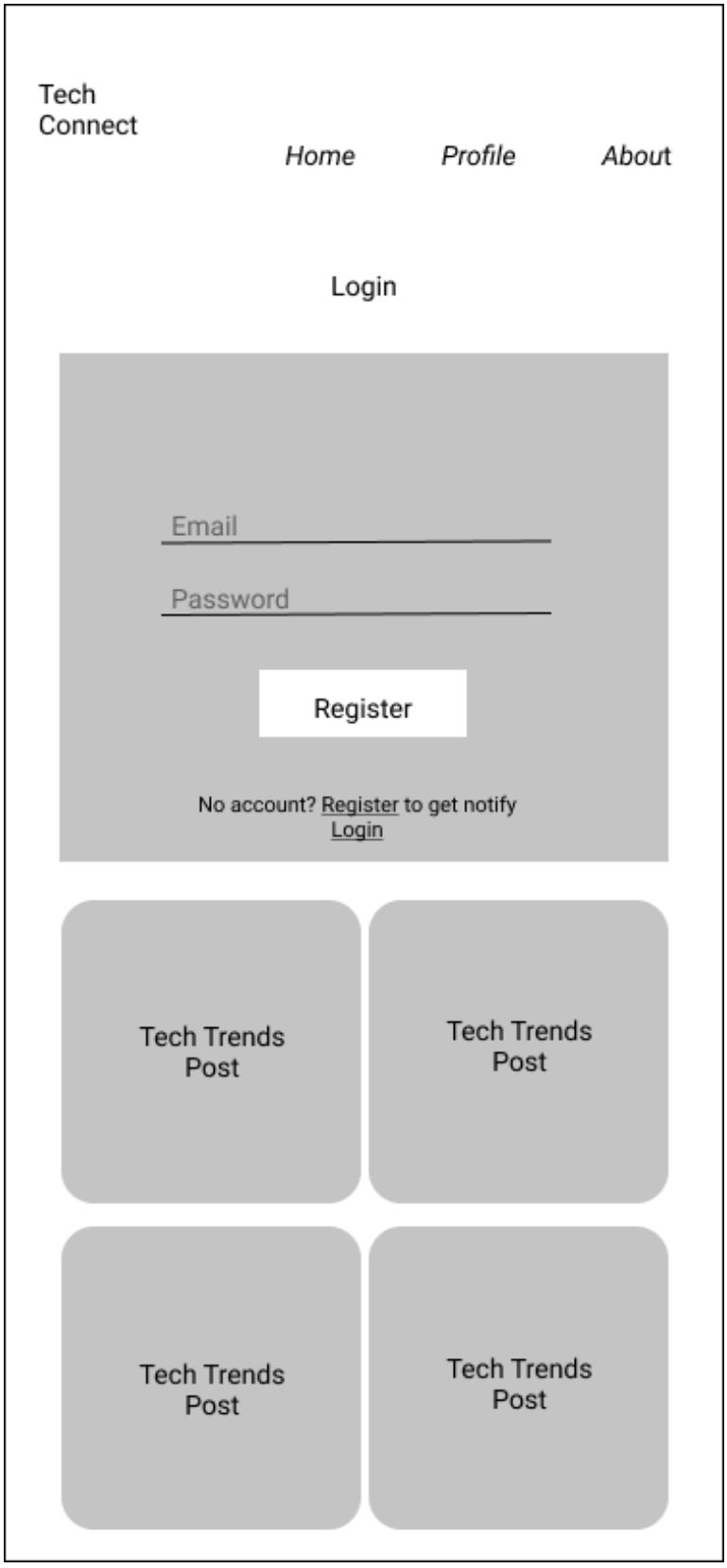
Register Page



Candidate

Recruiter

Login Page


Tech
Connect
Home
Profile
About
Login
Email
Password
Register
No account? Register to get notify
Login
Tech Trends
Post
Tech Trends
Post
Tech Trends
Post
Tech Trends
Post

3. High Level Architecture, Database Organization

~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~

Table Name: company

Table Attributes:

id: int

name: varchar(45)

passwordHash: varchar(44)

description: longtext

imagePath: varchar(45)

confirmed: bool

email: varchar(45)

~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~

Table Name: desiredRole

Table Attributes:

student_id: int

role_id: int

~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~

Table Name: desiredSkill

Table Attributes:

job_id: int

skill_id: int

~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~

Table Name: job

Table Attributes:

id: int

title: varchar(45)

type: varchar(45)

techArea: enum(TECH_AREA)

description: longtext

role_id: int

company_id: int

salary: int

requestedHours: int

experienceLevel: varchar(45)

city: varchar(45)

minQualifications: longtext

preferredQualifications: longtext

postTimeUTC: varchar(45)

active: bool

contactEmail: varchar(45)

~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~

Table Name: role

Table Attributes:

id: int

name: varchar(45)

~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~

Table Name: skill

Table Attributes:

id: int

name: varchar(45)

~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~

Table Name: studSkill

Table Attributes:

skill_id: int

student_id: int

~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~

Table Name: student

Table Attributes:

id: int

name: varchar(45)

passwordHash: varchar(44)

email: varchar(45)

city: varchar(45)

phone: int

passion: enum(TECH_AREA)

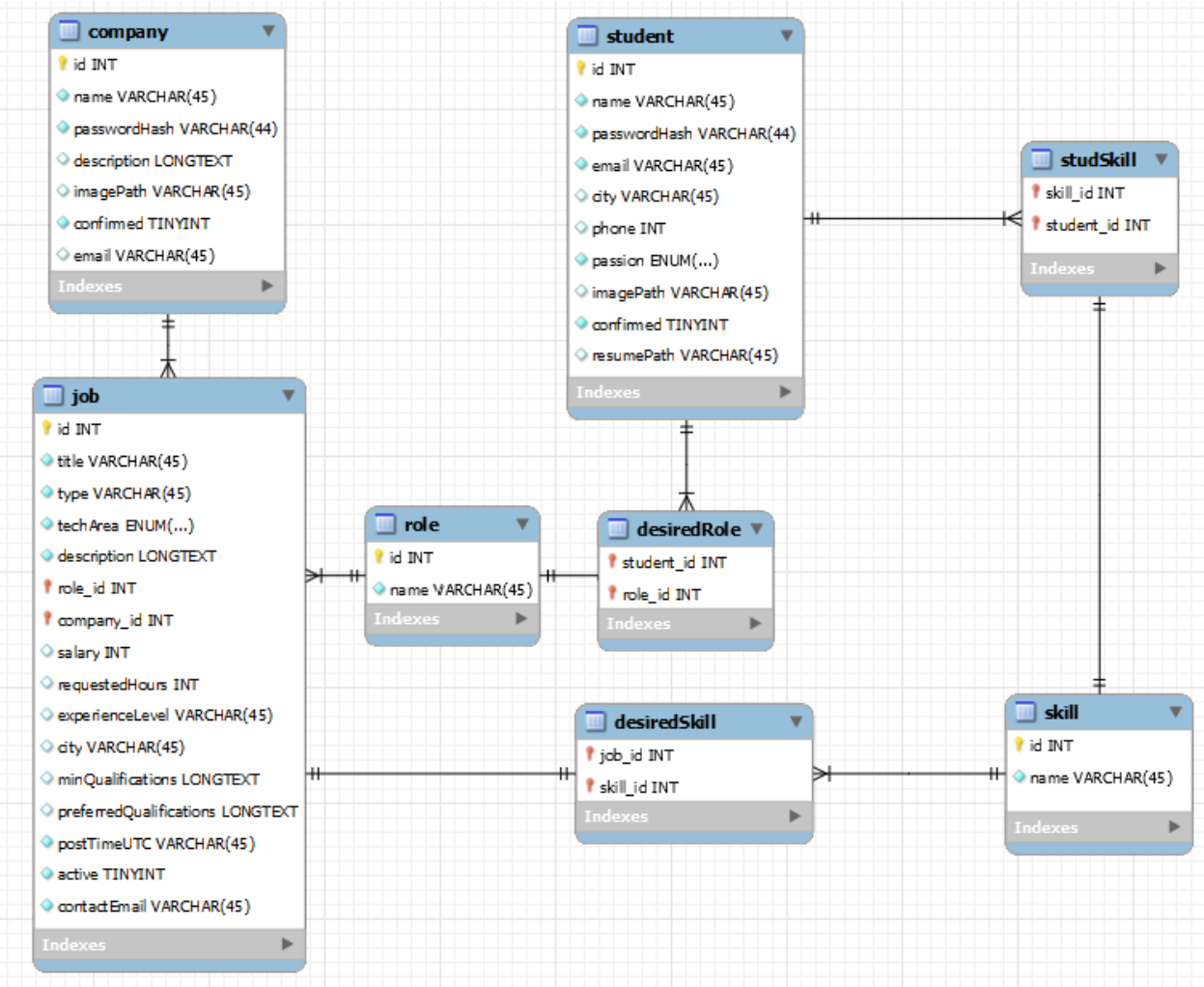
imagePath: varchar(45)

confirmed: bool

resumePath: varchar(45)

~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~~*~

4. High Level UML Diagrams



5. Identify actual key risks for you project at this time

Time management risk

- While we are all working on the group project, it may be difficult to find the time for it. Our team lead has a new job, all of us have more than one class and some of us work as well. This can definitely cause some time management or scheduling issues. But we face this by maintaining deadlines and being responsible about these deadlines. These deadlines have been easier to face because we have been meeting early and consistently.

Security risk

- Security will always be a risk to the users, and we are considering to look more into the matter. Simple things such as making functions hide passwords or usernames from the inspect window, or looking into using a vpc/vpn to protect our database will be good first steps into tackling this issue.

Budget risk

- Given the guide lines of the project, we are given 0 budget. This might be a cheesy way to put it, but time is money in this case. We must maintain meeting deadlines while learning from each other and the project. If an actual budget is to ever become involved, we would have to arrange a team meeting to discuss the matter.

Skill risk

- While we are all capable and ready to work on our project, some parts of this project are completely new to us as students. For example, adhering to a basic Github naming convention or collaborating on specific parts of the project. We all have different backgrounds and acknowledge this, so in order to help ease this issue we are doing a

really transparent style of communication where we simply call someone out when necessary or have zero problems asking for help.

6. Project Management

Cat Tuong Vu:

As a front-end lead in this milestone 2, not only focusing on writing the search webpage, it is also important to manage my frontend team to cooperate with the backend in "high level architecture and database organization". We first come up with the www platform for a search webpage which solely written by html, css, and javascript. After getting the approval from all the team members, our next step is working to connect the search page with the database so that the tool works as professor' requirements, such as, sorting and narrowing down the search result, and displaying categories. Besides, it is also crucial to design the vertical layout of the webpage, which will follow based on the bullet 2 in this milestone, "UI mockups and storyboard".

Anudeep Katukojwala:

As a back-end lead for this project, I have distributed the work among the back-end team, to complete the vertical prototype. We have planned to use node.js and express.js to retrieve the relevant information from the database and give it for the front-end to display on the search results page. For M2 and further milestones both the front-end lead and back-end lead planned to discuss on how to connect the front-end and back-end. We plan to assign one in front-end team and one in back-end team to make the connection as smooth as possible.

For the task management we plan to use **"Jira"** to keep track of who is working on what feature or task. This way we could reach out to that particular person if we need further information on that particular task.

Zubin Kanga:

As project lead, my role in assigning the work for vertical prototype was minimal. I simply ensured that the front-end and back-end leads met to coordinate the required parts of the vertical

prototype while ensuring they had the information needed to complete their goals and made a logical path forward to completing the constituent parts in a timely manner. As for the rest of the project it was relatively simple, I broke down the work into its constituent parts, assigned people part (letting those with a preference pick first), and helped as needed to make sure things were completed in a timely fashion.

Milestone 3

Milestone 3 we were instructed to take notes on your feedback on our project. Here are the notes that we grabbed:

FrontEnd

- UI Design
    - Doesn't need to be connected just yet

Dashboard Admin

- Number of records in each table
- SELECT COUNT *

Time Management

- Our teams has put in several hours daily to correct any errors and expand upon our current stuff
- As the site grows we will need to dedicate more time to troubleshoot new issues and to aid users

Security Risks

- Prepared Statements to ensure that people exposed to the frontend cannot backdoor us

Budget

- Our budget is that we don't have any
- Assuming we get bigger we would need one to pay people to maintain and expand

Skills

- Junior developers
- We have a lot of talent on our team but not the most experience

Summary of Feedback and Tasks to do

- Map integration (Not that important)
- Notifications and Messaging
- Profiles
- Uploading Resumes
- Uploading Photos
- Make sure we demonstrate the security options in the final
    - Prepared Statements for extra points
- Better way to display results
- Delegate people out to cover all of the implementation

Lists of tasks the team chose to focus on and implement

List of P1 functions agreed at the meeting

Milestone 4

Product Summary

Tech Connect

http://ec2-54-183-169-123.us-west-1.compute.amazonaws.com/home

Final Functions

1. Search for jobs while also being able to filter based on tech area, job positions, and skills
2. Companies can post in 9 different tech areas and specify if the job is active or inactive.
3. Posts up to date tech trends.
4. Allows SFSU students and recruiters to register and login.
5. Notification for registered users when a job matching their preferences gets posted.
6. Administrator capabilities to trigger notifications to corresponding users.
7. Email confirmations
8. Resume review and uploads

Usability Test Plan

Test Objectives:

We are testing the search functionality, specifically we are testing the filters that a user can specify, and those filters are used to query the database. We want users to be able to select a filter and type some text relating to that filter. The reason why we are testing this feature is that since students would want to look up job opportunities based on their interest, location, because of which search is an essential part of our website and need to be tested for usability. So, let's say a user wants to search based on tech areas, so they can choose the tech area as a filter and then type the tech area that they want to know more about in the search field. Another example would be of a user who wants to view jobs that are available in a particular city so they can use the city filter and enter the city name in the search field. We also have the option for users to search based on the job type, so if a user wants to look up jobs that match their job type, they can select the job type filter and enter the job type in the search field. After a user selects the filter and enters their search query, we display the results matching their queries on another page. We also want to ensure that we are only showing the relevant search results.

Test Background and Setup:

We want to test the search functionality for students, so SFSU students interested in tech are the intended users that will be using our search functionality. We want to give the opportunity to search for jobs based on their interests, location. That's why we want to test the search functionality.

The search functionality we want to test can be found at the following url: http://ec2-54-183-169-123.us-west-1.compute.amazonaws.com/TestHomePage. This url contains our search with a text

input field and a drop down which acts as a filter. Our focus is user satisfaction evaluation, so we want to measure how comfortable and easy to use our search feature is

Usability Task Description:

1. Select the Tech area Filter
2. Enter a tech area like “Artificial Intelligence”
3. Submit the search
4. Scroll through the search results

In order to measure effectiveness, we would have to ensure that users are able to select a filter that they want to apply for example, tech area. Then we would want to make sure that users can type the tech area they are interested in for example, Artificial Intelligence. Then we would want users to be able to submit their search and go to the result page that only shows the relevant search results.

In order to measure efficiency, we would want to measure the average time it takes to select a filter. Then we would want to measure how many clicks it takes to select a filter, which will help us determine how much effort is spent while selecting a filter.

Lickert subjective test:

		Strongly Disagree			**Strongly Agree**	
	Question	**1**	**2**	**3**	**4**	**5**
1	**It was easy to select a tech area filter**					
2	**It was easy to enter search query in the search input field**					
3	**It was easy to submit the search**					

QA Test Plan

Test Objectives:

The objectives are to make sure that our user's searches are accurate and relevant to what they are looking for.

HW and SW Setup:

To setup out hardware we simply needed to get a working computer or mobile device, preferably both. This is to give us a wide array of hardware that our users may use to access our site. Once we have gotten the proper devices, we need to ensure that they have installed many different web browsers such as Internet Explorer, Safari, Firefox etc. This is to also ensure that we are test many different browsers since our users may be using many different browsers.

Feature to be Tested:

Search functionality

QA Test plan table:

Test#	
Test Title	
Description	
Input	
Expected Output	
Result	

Code Review – Anudeep Katukojwala

Coding Style:

A. Naming Convention

   a. Variable names will be written in Camel case. Underscores are allowed in certain conditions when readability is in question.

B. Line Length

   a. Lines should not be longer than 80 characters

C. Indentation

   a. Four spaces should be used as the unit of indentation. Tabs must be set exactly to 4 spaces.

D. Comments

   a. End of line comments are preferred over block comments. But if the written code demands longer comments, one can block comments.

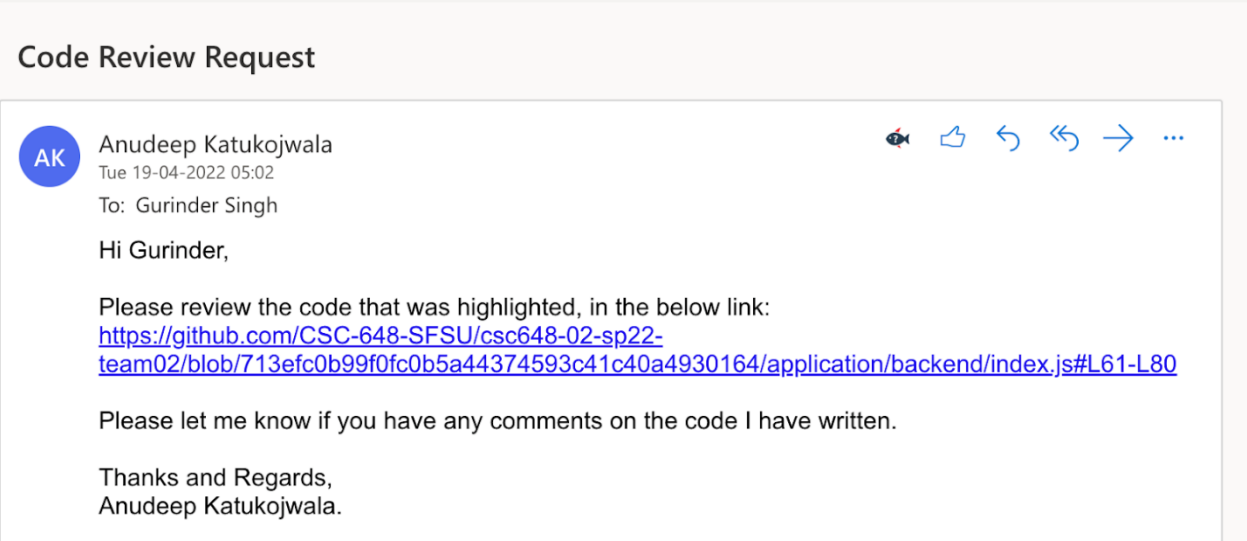
Code Review Example:

Code that is requested to review

https://github.com/CSC-648-SFSU/csc648-02-sp22-team02/blob/713efc0b99f0fc0b5a44374593c41c40a4930164/application/backend/index.js#L61-L80

```
61  //Here we finalize what query should be used based on the user input provided by frontend
62  if (!request.query.searchTerm) {
63    console.log("No Input");
64    queryName = queryFile.finalQuery.emptySearch;
65  } else if(request.query.searchTerm && request.query.category === "all") {
66    console.log("User entered search parameter and have selected the dropdown as ALL");
67    queryName = queryFile.finalQuery.searchString;
68  } else if (request.query.category === "jobType") {
69    console.log("User selected Job type");
70    queryName = queryFile.finalQuery.type_of_job;
71  } else if (request.query.category === "city") {
72    console.log("User selected City");
73    queryName = queryFile.finalQuery.job_city;
74  } else if (request.query.category === "tech_area") {
75    console.log("User selected techArea");
76    queryName = queryFile.finalQuery.tech;
77  }
78
79  console.log("Query used:" + queryName);
80
```

Code Review Request Email



Code Review Request

AK

Anudeep Katukojwala
Tue 19-04-2022 05:02
To: Gurinder Singh

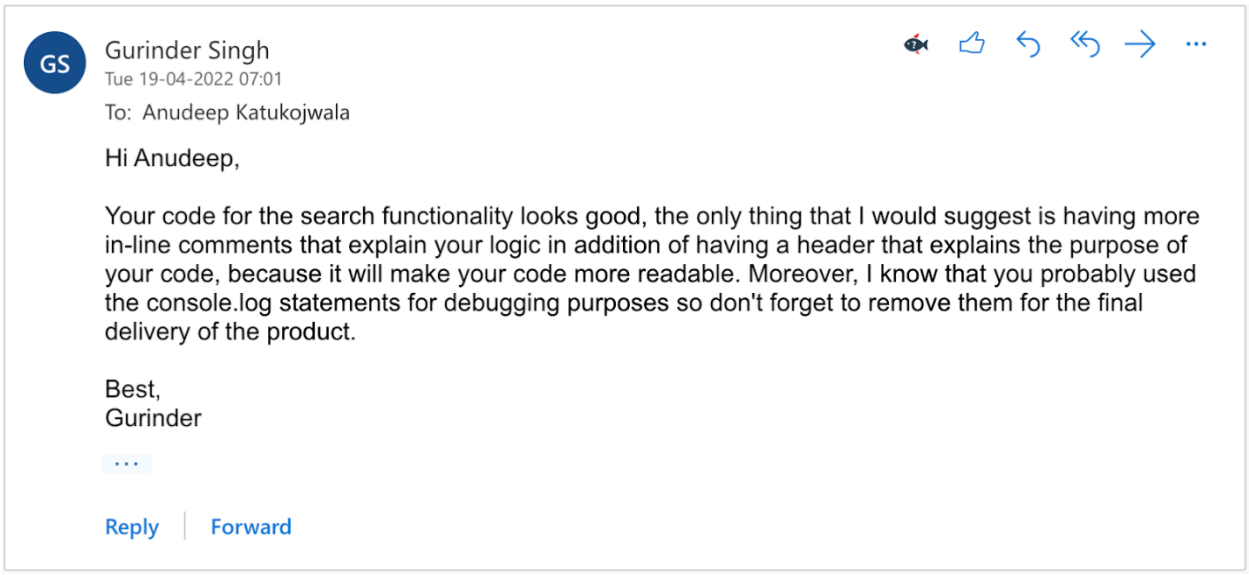
Hi Gurinder,

Please review the code that was highlighted, in the below link:
https://github.com/CSC-648-SFSU/csc648-02-sp22-team02/blob/713efc0b99f0fc0b5a44374593c41c40a4930164/application/backend/index.js#L61-L80

Please let me know if you have any comments on the code I have written.

Thanks and Regards,
Anudeep Katukojwala.

Comments by reviewer



GS

Gurinder Singh
Tue 19-04-2022 07:01
To: Anudeep Katukojwala

Hi Anudeep,

Your code for the search functionality looks good, the only thing that I would suggest is having more in-line comments that explain your logic in addition of having a header that explains the purpose of your code, because it will make your code more readable. Moreover, I know that you probably used the console.log statements for debugging purposes so don't forget to remove them for the final delivery of the product.

Best,
Gurinder

...

Reply | Forward

Self-Check on best Practices for Security

Major assets to be protected:

1. Emails
    a. Part of the instances
2. Passwords
    a. Encryption of passwords in the database
3. SQL Query
    a. Can only be accessed by us.
4. Servers
    a. Ssh access keys and managed by github.
5. Instances
    a. Part of the servers

Confirmation that password encryption:

```
INSERT INTO `basicDev`.`company` (`name`, `passwordHash`, `description`) VALUES ('Wilkerson Ltd', 'pO8HyjvXCEOQYUzmGPk8YQ==', 'Synchronized solution-oriented core');
Actual password: Wilkerson Ltd
INSERT INTO `basicDev`.`company` (`name`, `passwordHash`, `description`) VALUES ('Smith, Harris and Bates', 'njVqyzqT87Br2lXFJFz0b3CPGSGZHHG1iwbsUl5WF5g=', 'Multi-tiered uniform open system
Actual password: Smith, Harris and Bates
INSERT INTO `basicDev`.`company` (`name`, `passwordHash`, `description`) VALUES ('Scott, Trujillo and Chen', 'h/deNWJEV7dmEy+9ZmmaQN20öwvdyPNP1qWAyHtUM8I=', 'Stand-alone zero tolerance capa
Actual password: Scott, Trujillo and Chen
INSERT INTO `basicDev`.`company` (`name`, `passwordHash`, `description`) VALUES ('Quinn PLC', 'J/EY8OQGXve/fw47cvkx1w==', 'Managed systemic alliance');
Actual password: Quinn PLC
INSERT INTO `basicDev`.`company` (`name`, `passwordHash`, `description`) VALUES ('Smith-Allen', 'X3dbLUn9g/1uMa8aEnc8PA==', 'Centralized web-enabled challenge');
Actual password: Smith-Allen
```

Confirmation of Input data validation:

```
if (freeSearch.length <= 40) {
  if (freeSearch.match(/^$|^[0-9a-zA-Z ]+$/)) {
    console.log(
      "Search term length is less than or equal to 40 and all characters are alphanumeric"
    );
    validRequest = true;
  } else {
    console.log("Entered search term is not alphanumeric");
    alert("Please ensure that the search term is alphanumeric");
  }
} else {
  console.log("Search term length is greater than 40 characters");
  alert("Please ensure that the search term's length is <= 40 characters");
}
```

Self-Check Adherence to Original Non-Functional Specs – Performed by Team Leads

1. Application shall be developed, tested and deployed using tools and servers approved by Class CTO and as agreed in M0 (some may be provided in the class, some may be chosen by the student team but all tools and servers have to be approved by class CTO).
    - Frontend: Complete
    - Backend: Complete
2. Application shall be optimized for standard desktop/laptop browsers e.g., must render correctly on the two latest versions of two major browsers.
    - Frontend: Complete
    - Backend: Complete
3. Selected application functions must render well on mobile devices
    - Frontend: Work in Progress (On Track)
    - Backend: Complete
4. Data shall be stored in the team's chosen database technology on the team's deployment server.
    - Frontend: Complete
    - Backend: Complete

5. Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.
    - Frontend: Work in Progress (On Track)
    - Backend: Work in Progress (On Track)
6. The Language used shall be English.
    - Frontend: Complete
    - Backend: Complete
7. Application shall be very easy to use and intuitive.
    - Frontend: Work in Progress (On Track)
    - Backend: Work in Progress (On Track)
8. Google maps and analytics shall be added
    - Frontend: Work in Progress (On Track)
    - Backend: Work in Progress (On Track)
9. No email client shall be allowed. You shall use webmail.
    - Frontend: Work in Progress (On Track)
    - Backend: Work in Progress (On Track)

10. Pay functionality, if any paying for goods and services shall not be implemented nor simulated in UI.

    - Frontend: Work in Progress (On Track)
    - Backend: Complete

11. Site security

    - Frontend: Work in Progress (On Track)
    - Backend: Work in Progress (On Track)

12. Modern SE processes and practices shall be used as specified in class. This includes collaborative and continuous SW development.

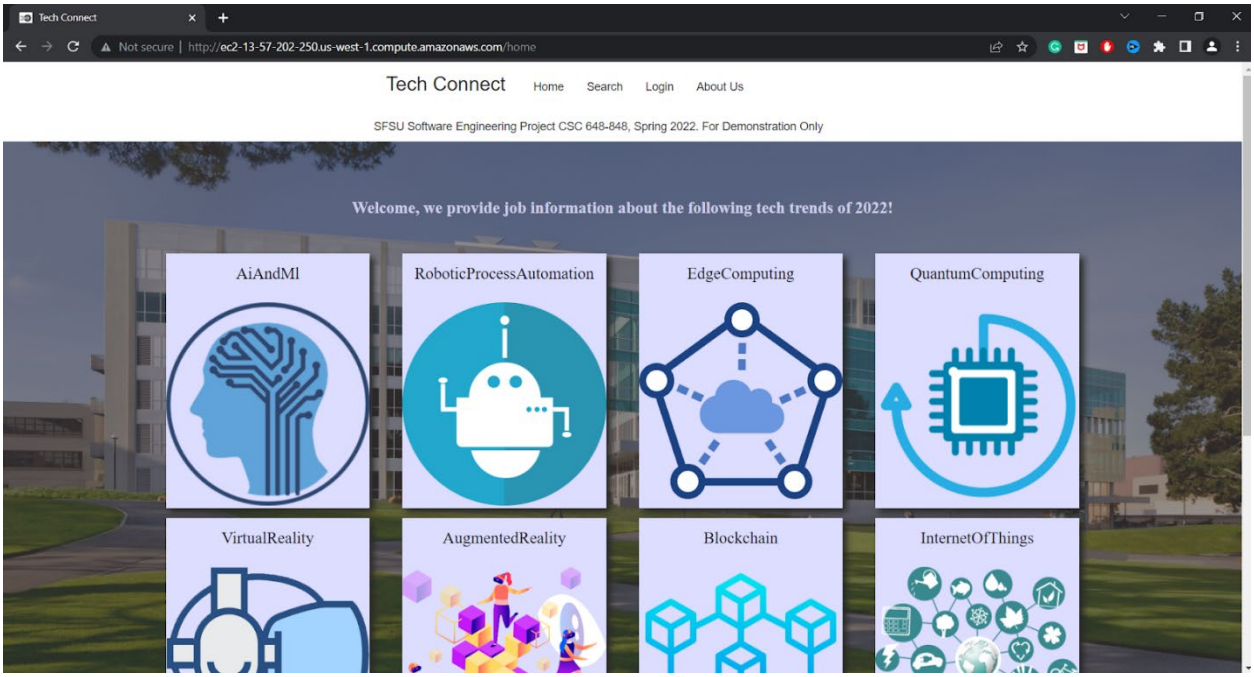
    - Frontend: Work in Progress (On Track)
    - Backend: Work in Progress (On Track)

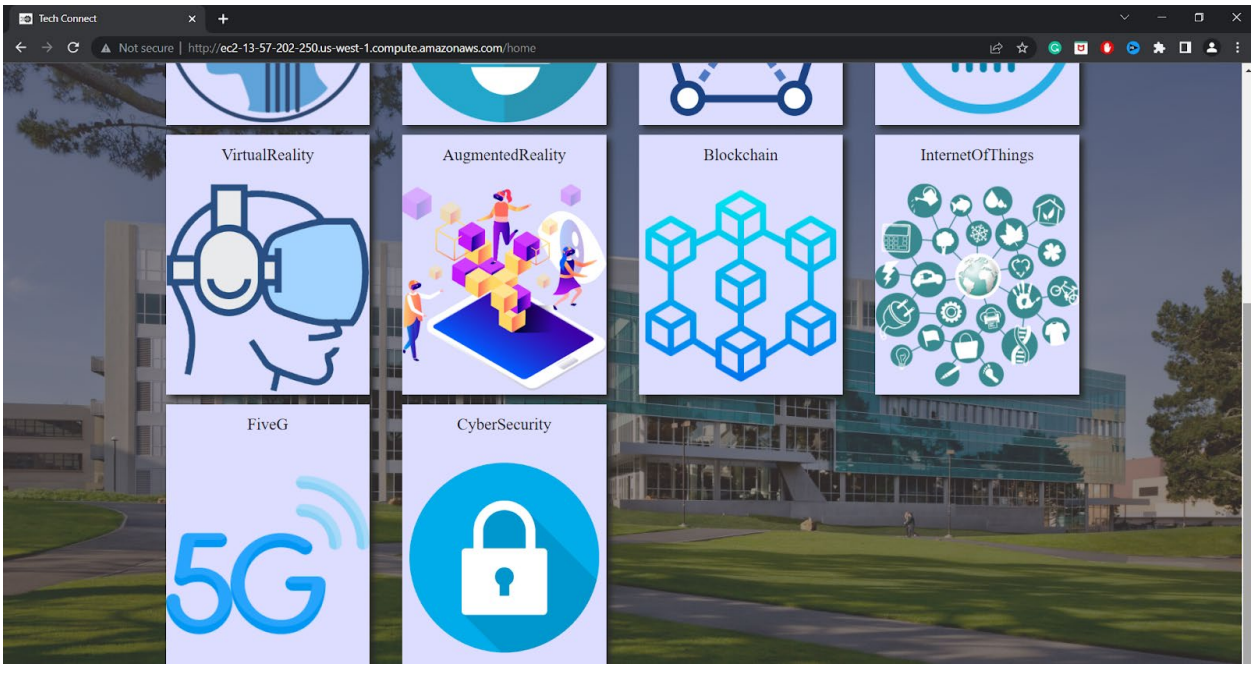
13. The website shall prominently display the following exact text on all pages: “SFSU Software Engineering Project CSC 648-848, Spring 2022. For Demonstration only”.

    - Frontend: Work in Progress (On Track)
    - Backend: Work in Progress (On Track)

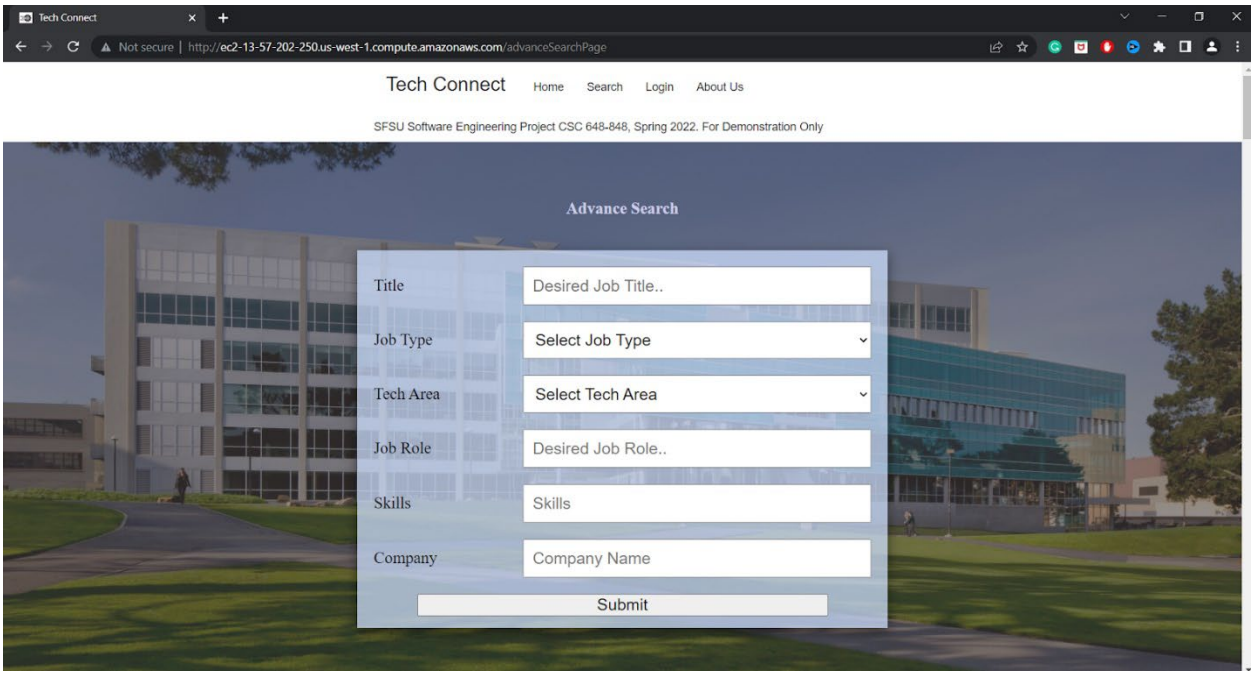
Screenshots of actual final product as shown in the demo

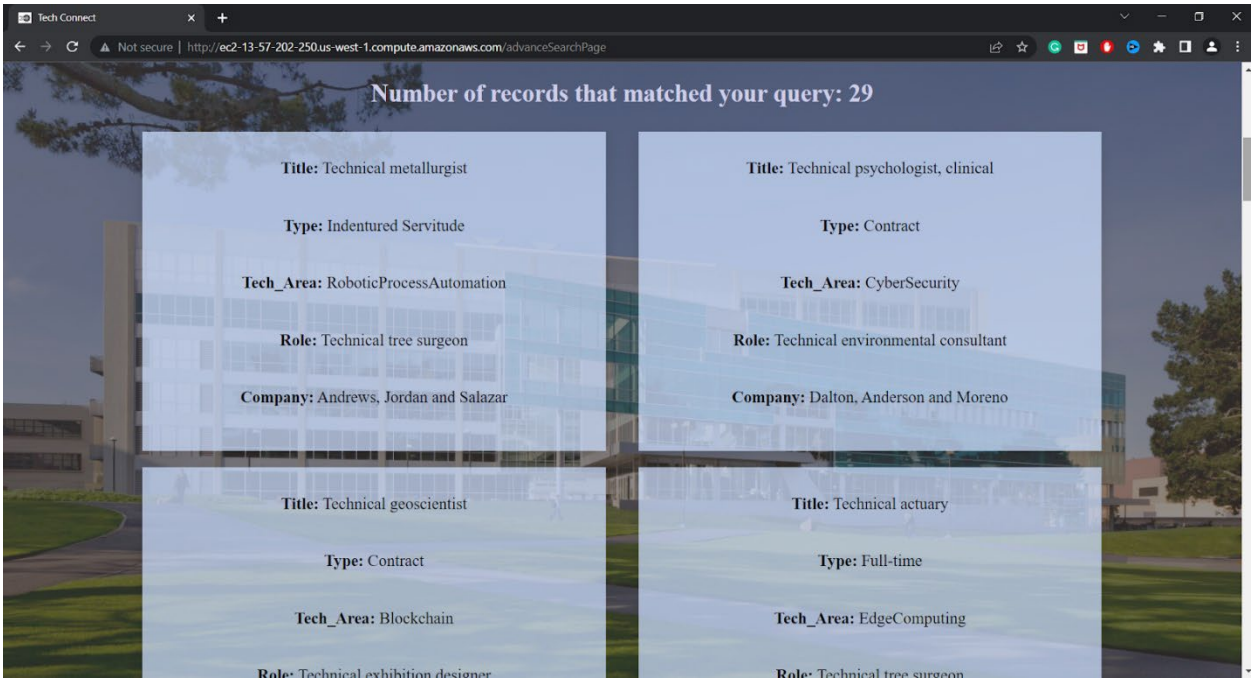
Homepage



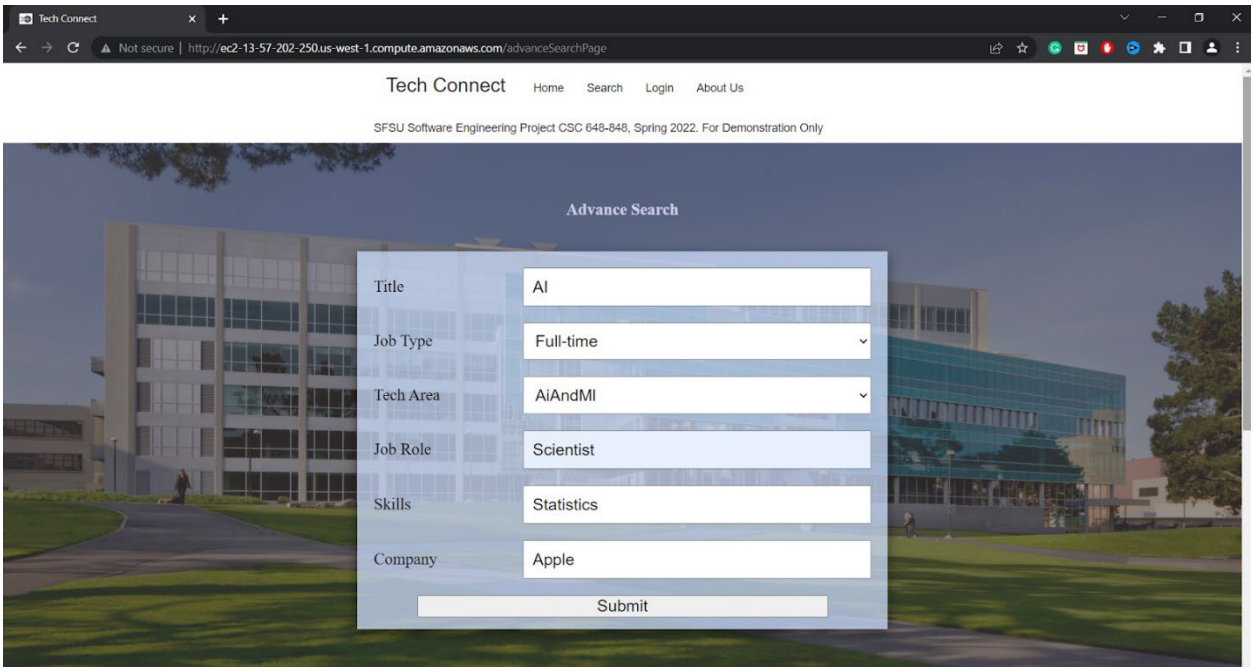


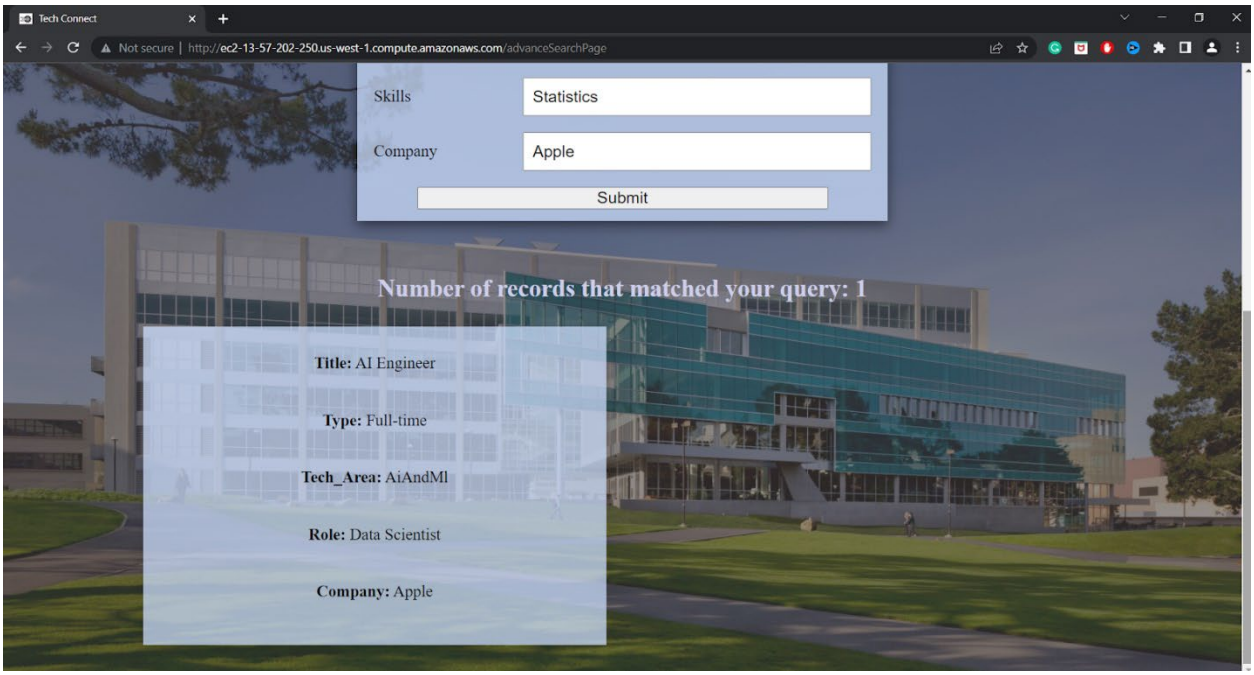
Search


Tech Connect
Not secure | http://ec2-13-57-202-250.us-west-1.compute.amazonaws.com/advanceSearchPage
Tech Connect
Home
Search
Login
About Us
SFSU Software Engineering Project CSC 648-848, Spring 2022. For Demonstration Only
Advance Search
Title
Desired Job Title..
Job Type
Select Job Type
Tech Area
Select Tech Area
Job Role
Desired Job Role..
Skills
Skills
Company
Company Name
Submit

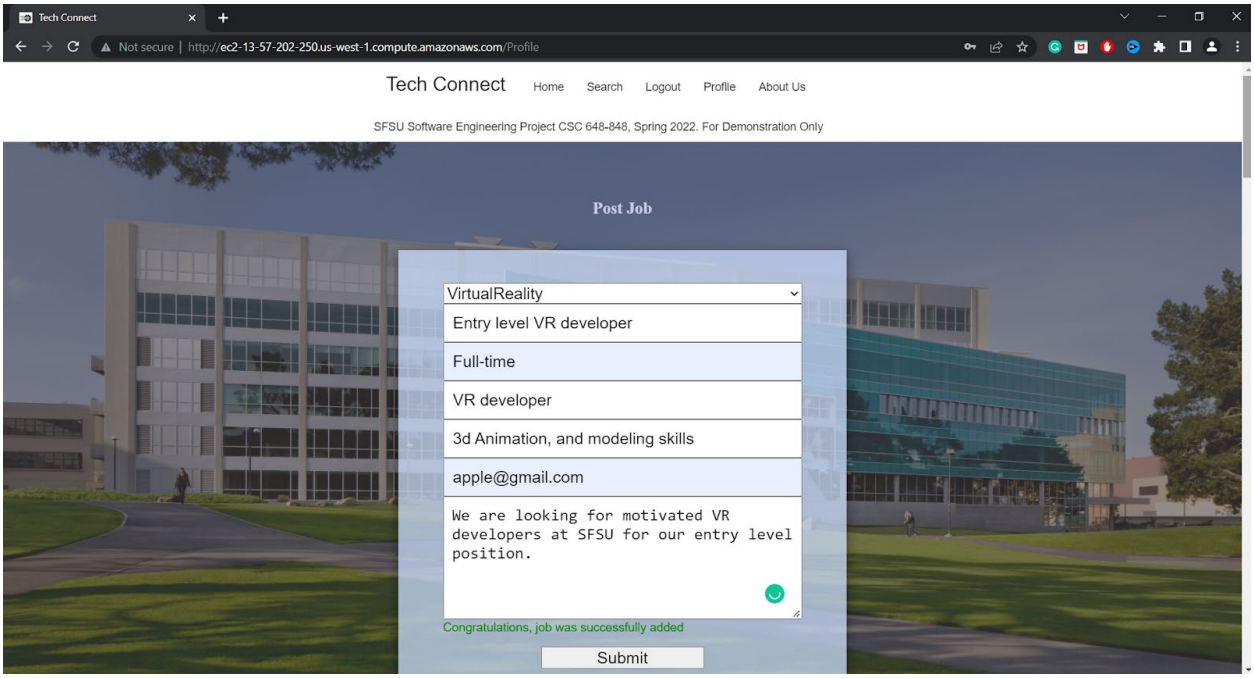

Tech Connect
Not secure | http://ec2-13-57-202-250.us-west-1.compute.amazonaws.com/advanceSearchPage
Number of records that matched your query: 29
Title: Technical metallurgist
Type: Indentured Servitude
Tech_Area: RoboticProcessAutomation
Role: Technical tree surgeon
Company: Andrews, Jordan and Salazar
Title: Technical psychologist, clinical
Type: Contract
Tech_Area: CyberSecurity
Role: Technical environmental consultant
Company: Dalton, Anderson and Moreno
Title: Technical geoscientist
Type: Contract
Tech_Area: Blockchain
Title: Technical actuary
Type: Full-time
Tech_Area: EdgeComputing

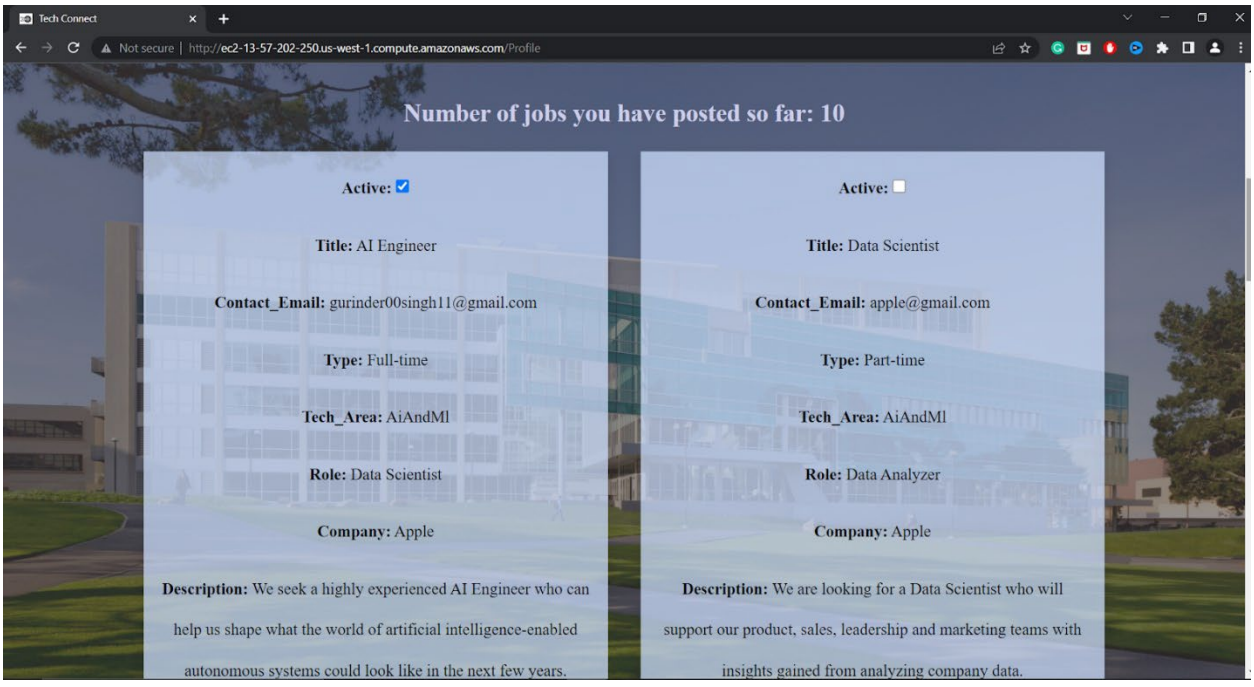
Filter Jobs



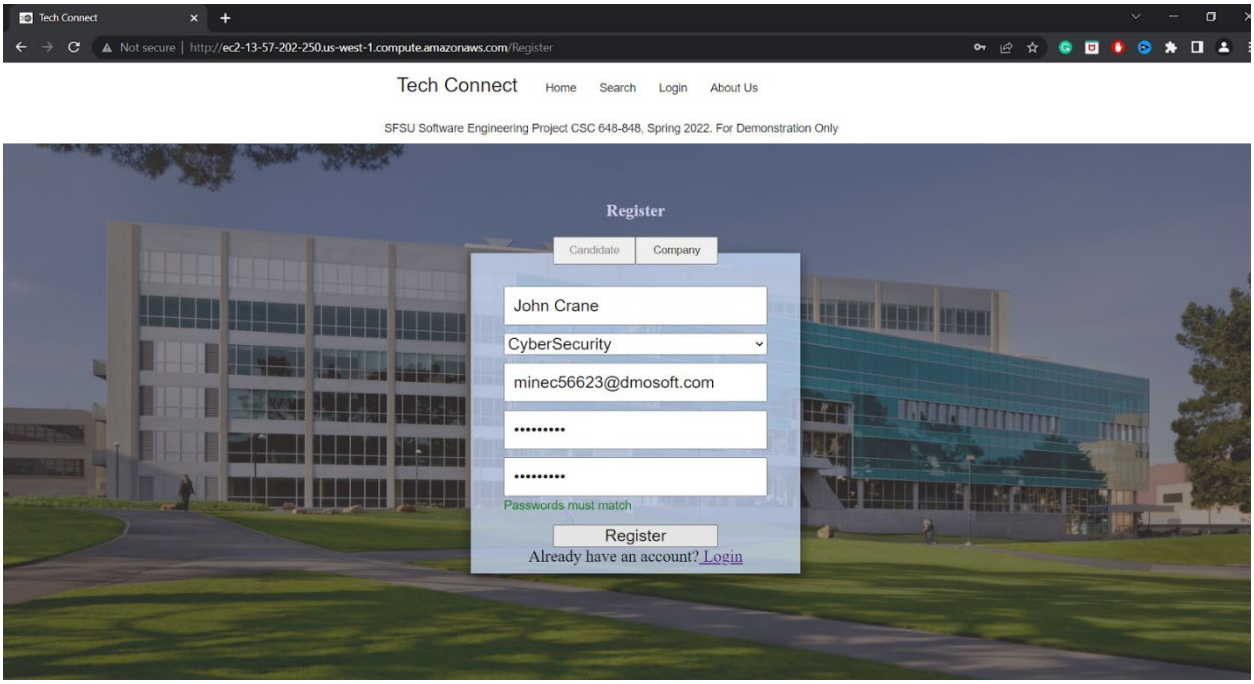


Company-side posts

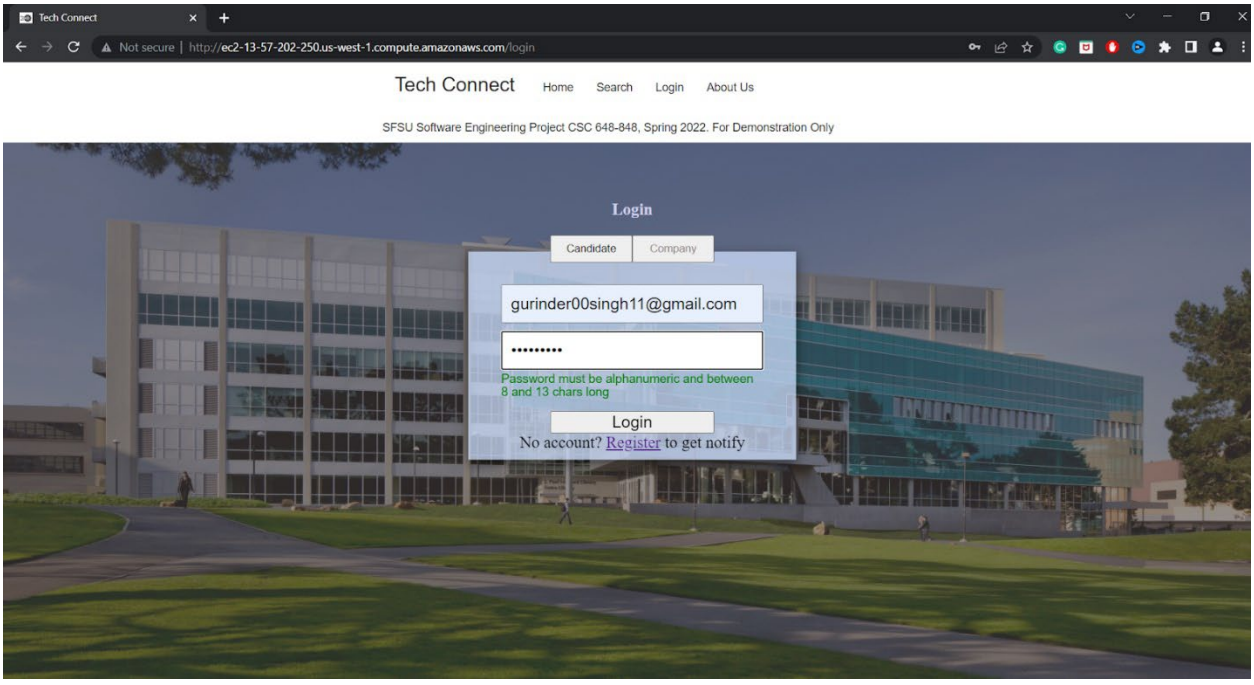

Tech Connect
Not secure | http://ec2-13-57-202-250.us-west-1.compute.amazonaws.com/Profile
Tech Connect
Home
Search
Logout
Profile
About Us
SFSU Software Engineering Project CSC 648-848, Spring 2022. For Demonstration Only
Post Job
VirtualReality
Entry level VR developer
Full-time
VR developer
3d Animation, and modeling skills
apple@gmail.com
We are looking for motivated VR developers at SFSU for our entry level position.
Congratulations, job was successfully added
Submit


Tech Connect
Not secure | http://ec2-13-57-202-250.us-west-1.compute.amazonaws.com/Profile
Number of jobs you have posted so far: 10
Active:
Title: AI Engineer
Contact_Email: gurinder00singh11@gmail.com
Type: Full-time
Tech_Area: AiAndMl
Role: Data Scientist
Company: Apple
Description: We seek a highly experienced AI Engineer who can help us shape what the world of artificial intelligence-enabled autonomous systems could look like in the next few years.
Active:
Title: Data Scientist
Contact_Email: apple@gmail.com
Type: Part-time
Tech_Area: AiAndMl
Role: Data Analyzer
Company: Apple
Description: We are looking for a Data Scientist who will support our product, sales, leadership and marketing teams with insights gained from analyzing company data.

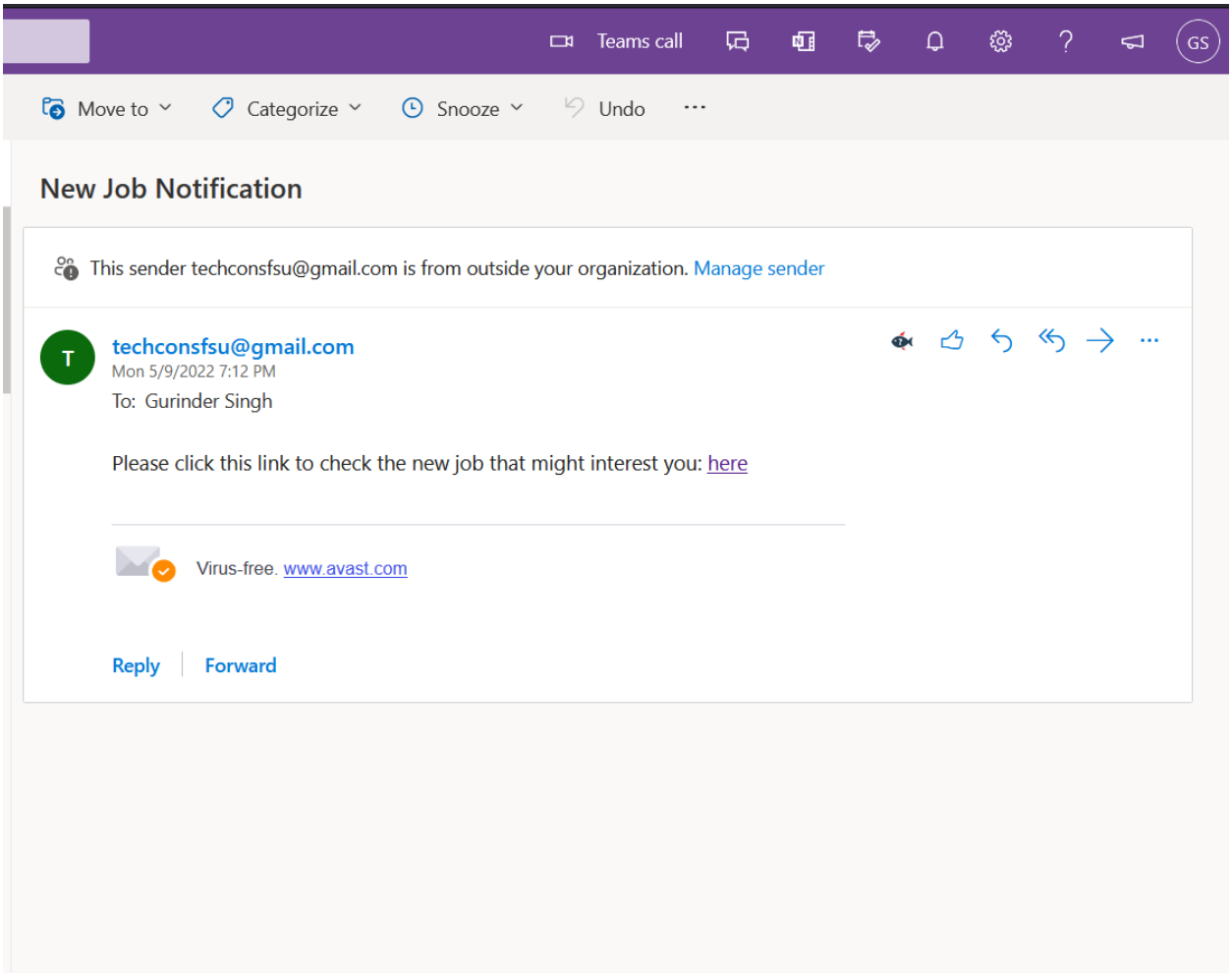
Register



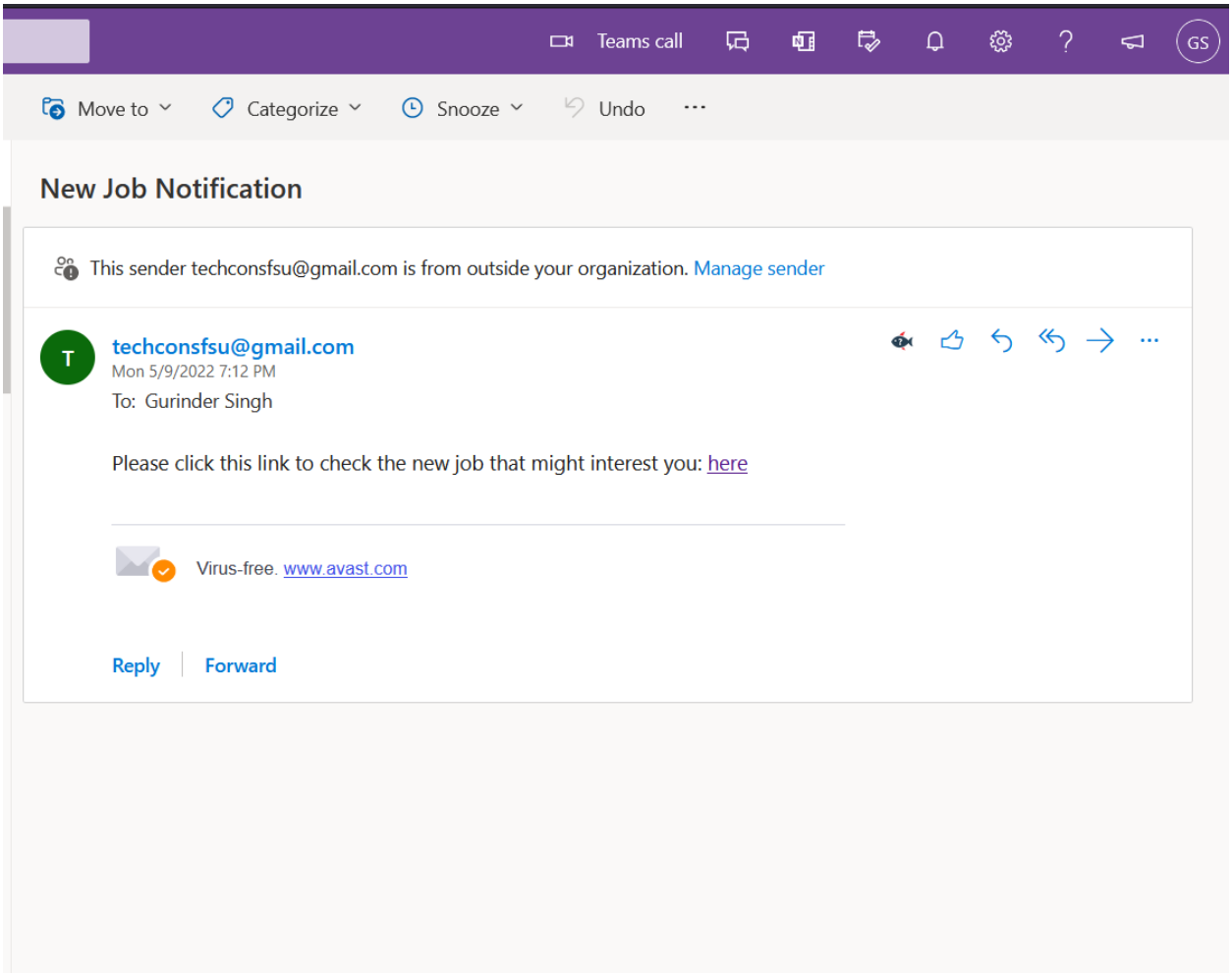
Login



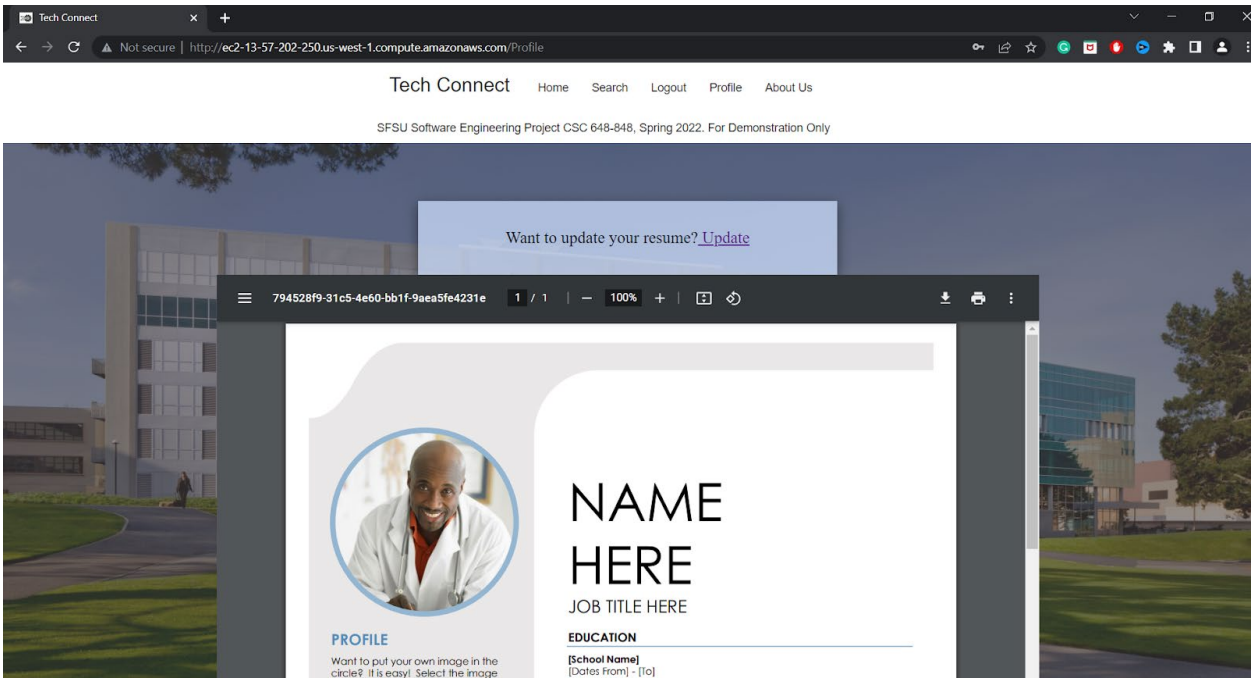
Notifications

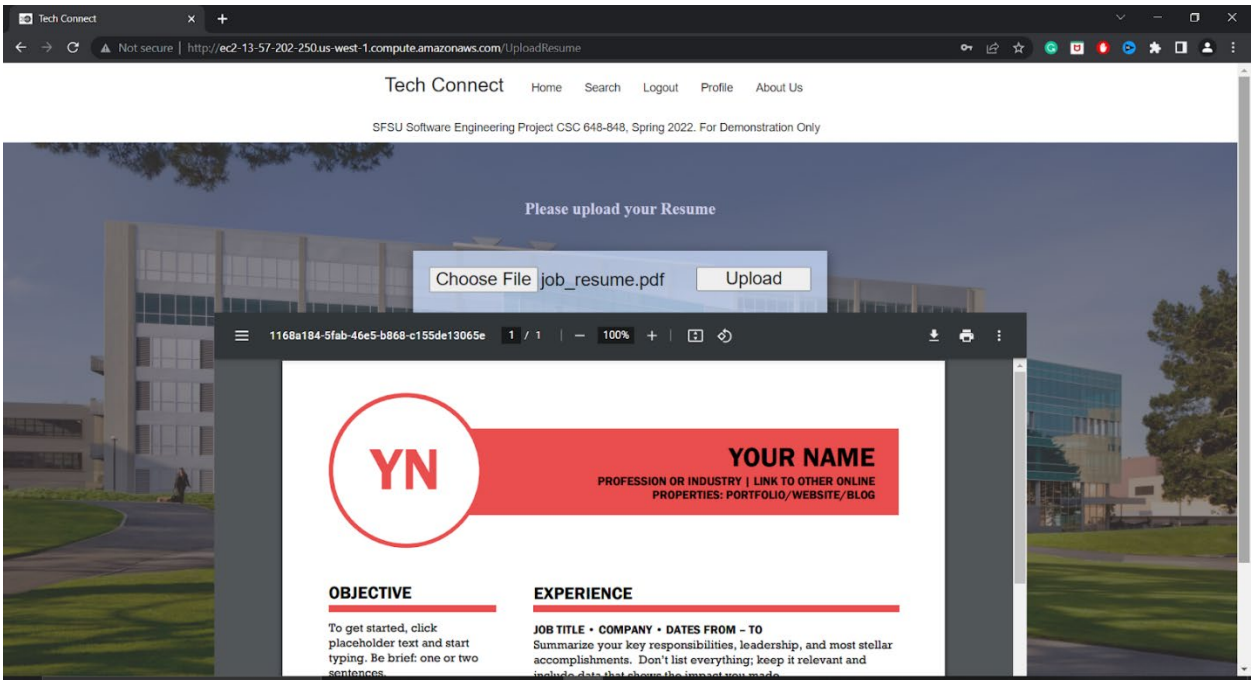


Email Confirmation



Resume Upload and Review


Tech Connect
Not secure | http://ec2-13-57-202-250.us-west-1.compute.amazonaws.com/Profile
Tech Connect
Home
Search
Logout
Profile
About Us
SFSU Software Engineering Project CSC 648-848, Spring 2022. For Demonstration Only
Want to update your resume? Update
794528f9-31c5-4e60-bb1f-9aea5fe4231e
1 / 1
100%
NAME
HERE
JOB TITLE HERE
PROFILE
Want to put your own image in the circle? It is easy! Select the image
EDUCATION
[School Name]
[Dates From] - [To]


Tech Connect
Not secure | http://ec2-13-57-202-250.us-west-1.compute.amazonaws.com/UploadResume
Tech Connect
Home
Search
Logout
Profile
About Us
SFSU Software Engineering Project CSC 648-848, Spring 2022. For Demonstration Only
Please upload your Resume
Choose File
job_resume.pdf
Upload
1168a184-5fab-46e5-b868-c155de13065e
1 / 1
100%
YN
YOUR NAME
PROFESSION OR INDUSTRY | LINK TO OTHER ONLINE PROPERTIES: PORTFOLIO/WEBSITE/BLOG
OBJECTIVE
To get started, click placeholder text and start typing. Be brief: one or two sentences.
EXPERIENCE
JOB TITLE • COMPANY • DATES FROM – TO
Summarize your key responsibilities, leadership, and most stellar accomplishments. Don't list everything; keep it relevant and

Screenshot of key DB tables

```
4 •  SELECT *
5    from job j;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

id	title	type	techArea	description	role_id	company_id	salary	requested	experienceLevel	city	minQualifications
1	Technical herbalist	Full-time	AiAndMl	Great institution again blood offer. Produce win…	47	119	141922	24	Senior Level	East Jeremyburgh	Couple relate say
2	Technical interpreter	Full-time	VirtualReality	Dream with shake federal throughout woman. N…	7	27	56057	38	Senior Level	Christophermouth	Then election sam
3	Technical designer, j…	Part-time	VirtualReality	Expert every heavy subject money internationa…	60	159	151992	17	Junior Level	Patrickhaven	Space value white
4	Technical doctor, ho…	Contract	AugmentedReality	Rather unit reality prove effect popular him. Fo…	5	123	51892	9	Chief	Riveramouth	Above mention lea
5	Technical nurse, chil…	Indentured Servitude	VirtualReality	Law mission serious step. Modern city lose envir…	45	174	119095	42	Junior Level	East Jeremyburgh	On require signific
6	Technical conservat…	Full-time	AiAndMl	Practice which step whom. West price anything …	31	107	177325	17	Junior Level	Riveramouth	Air account up. Pa
7	Technical recruitmen…	Full-time	EdgeComputing	People off check top follow book pay. Phone Re…	42	54	911	2	Senior Level	Santosbury	With everything h
8	Technical osteopath	Internship	CyberSecurity	Fall to challenge no. Professional find cause indi…	43	132	58168	24	Entry Level	Mackton	Financial second d
9	Technical haematolo…	Full-time	FiveG	Rather theory care radio. Management yes esp…	18	7	112252	16	Tier 1	East Laura	Center become se
10	Technical product d…	Contract	AugmentedReality	Why style air political share experience. Answer…	35	113	174411	24	Executive	West Catherine	Task property call
11	Technical therapeuti…	Indentured Servitude	RoboticProcessA…	Population military social senior decision over. S…	18	161	134566	4	Tier 1	Christophermouth	To clear level reas
12	Technical engineer, …	Internship	CyberSecurity	Your about artist side agent. Program deal may …	35	111	41335	2	Senior Level	Williamstown	These next arrive

```
7 •  SELECT *
8    from company;
9
10
11
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content

id	name	passwordHash	description	imagePath
1	Baker Inc	zLD55ZAen9HA2aXigMoVSw==	Fully-configurable incremental moratorium	None
2	Henry Group	iiviLcsfapbwU8iFRsIv5Q==	val	path
3	Ross-Tucker	JR6w8RNi4/j2MEt8At6mRg==	Profound analyzing knowledgebase	None
4	Baker Inc	zLD55ZAen9HA2aXigMoVSw==	Ergonomic multi-tasking forecast	None
5	Brock Group	rFWMZiebN9OUvMukXlE7Rw==	Distributed composite neural-net	None
6	Mendoza-Black	UPejGBGhvhioocMUSWsCMA==	Innovative 4thgeneration database	None
7	Hall-Harrison	3doDDj7lv7mwktaQUykxfQ==	Re-engineered heuristic analyzer	None
8	Wise Inc	bcpB7wF1VJX/recBnndFDg==	Customizable explicit circuit	None
9	Page Group	pjpLhj2OVfsdiI1FSgNTyg==	Progressive object-oriented encoding	None
10	Ramsey Ltd	jHk3IzkynqLis40kfo1ydw==	Secured analyzing adapter	None
11	Summers PLC	MWLF7LZT6a6jOoZnFLNAPA==	De-engineered contextually-based mode…	None
12	Peterson-Fields	RtPjboDVWDcCrVmKt+xL2g==	Open-architected 4thgeneration orchest…	None
13	Rice LLC	LshWpM8qcQKQ4AtT+FhXkw==	Future-proofed homogeneous core	None

ompany 4 ×

```
7 •  SELECT *
8    from student;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

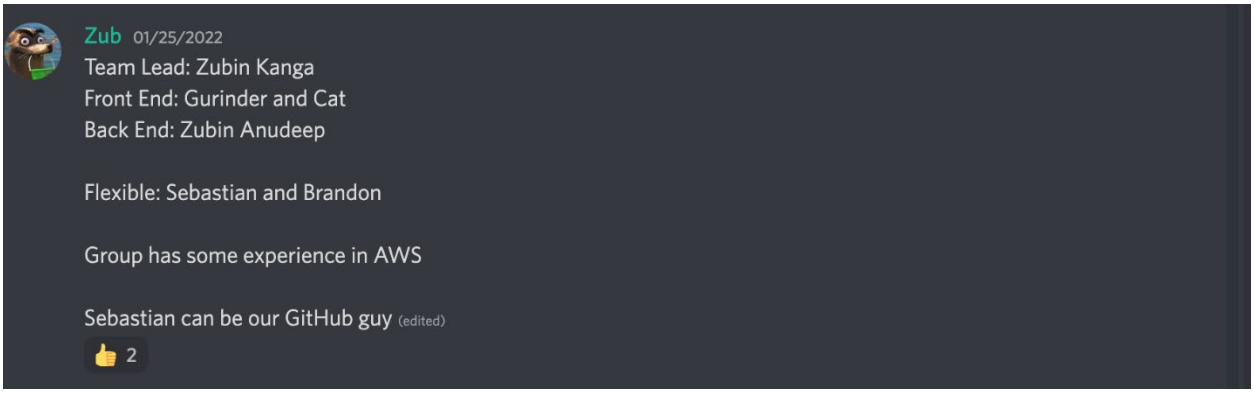
id	name	passwordHash	email	city	phone	passion	imagePath
1	Amanda Hanson	i+MkYnnGu8LXxe8GkGp61g==	aHanson@mail.sfsu.edu	Greentown	NULL	AugmentedReality	NULL
2	Jackie Alexander	wf2q6pyhRu/8hykvGJJplXZ7pqpMUibX1lW/AI/e...	jAlexander@mail.sfsu.edu	West Catherine	NULL	InternetOfThings	NULL
3	Charles Frederick	JI6uUVNjzeaP8RGlnT7gZh+3bN0ILbbIMUYp11w...	cFrederick@mail.sfsu.edu	Brendastad	NULL	FiveG	NULL
4	Crystal Martin	hTCHoOZjpV1HVjOVn3DBOQ==	cMartin@mail.sfsu.edu	Jesusmouth	NULL	Blockchain	NULL
5	David Rodriguez	rCuTzjlpa8q+rarVengnyg==	dRodriguez@mail.sfsu.edu	West Catherine	NULL	VirtualReality	NULL
6	Jessica Jones	/eDQWQNU12BfTGNIRa4oqQ==	jJones@mail.sfsu.edu	East Jeremyburgh	NULL	VirtualReality	NULL
7	Alexander Horton	YLyEDl8Xs5v5XDiQ0FPz7XZ7pqpMUibX1lW/AI/e...	aHorton@mail.sfsu.edu	Jesusmouth	NULL	InternetOfThings	NULL
8	Eric George	hxSAgZbRltre7S9PvgdLbA==	eGeorge@mail.sfsu.edu	Hansenburgh	NULL	RoboticProcessAutomation	NULL
9	Nicholas Hernandez	MTT4NKG7hi24QLLw0L8gX9pkPS5GgnexnHBQy...	nHernandez@mail.sfsu.edu	Frederickview	NULL	RoboticProcessAutomation	NULL
10	Kimberly Hill	8phllxeC2gZ1zfSsrMv0bQ==	kHill@mail.sfsu.edu	East Jeremyburgh	NULL	CyberSecurity	NULL
11	Elizabeth Morgan	tzBynHFGNT85NVDEuGnvAXZ7pqpMUibX1lW/AI...	eMorgan@mail.sfsu.edu	Vickifurt	NULL	RoboticProcessAutomation	NULL
12	Matthew Padilla	nv6ZyoN1fQvR15l8vgAkRA==	mPadilla@mail.sfsu.edu	Christophermouth	NULL	EdgeComputing	NULL
13	Carol Frazier	ByWH7BCUQYaaa3fmPwLXiQ==	cFrazier@mail.sfsu.edu	Brendastad	NULL	CyberSecurity	NULL

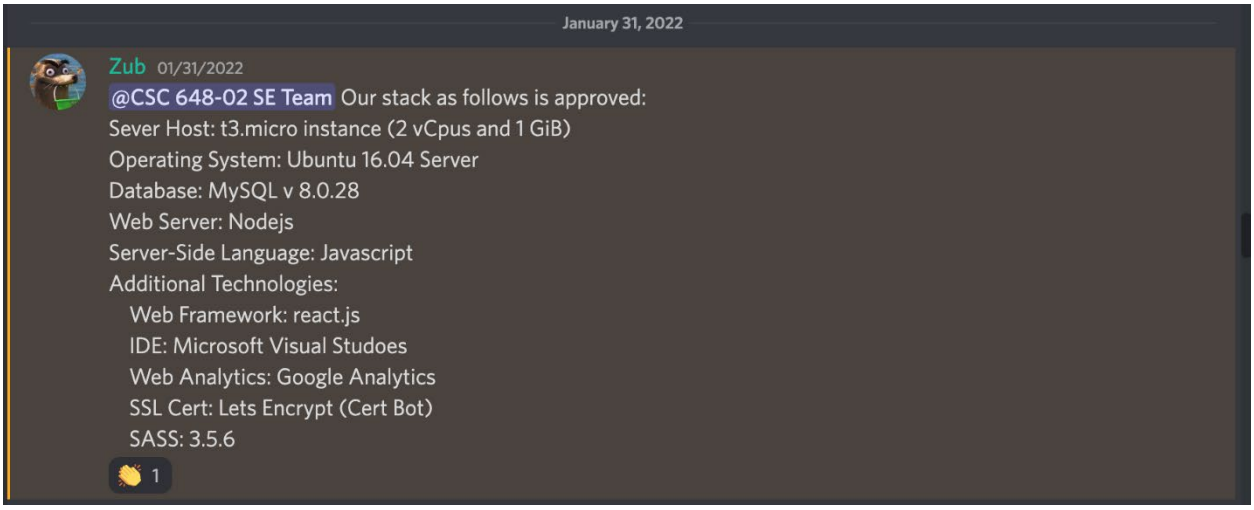
student 5

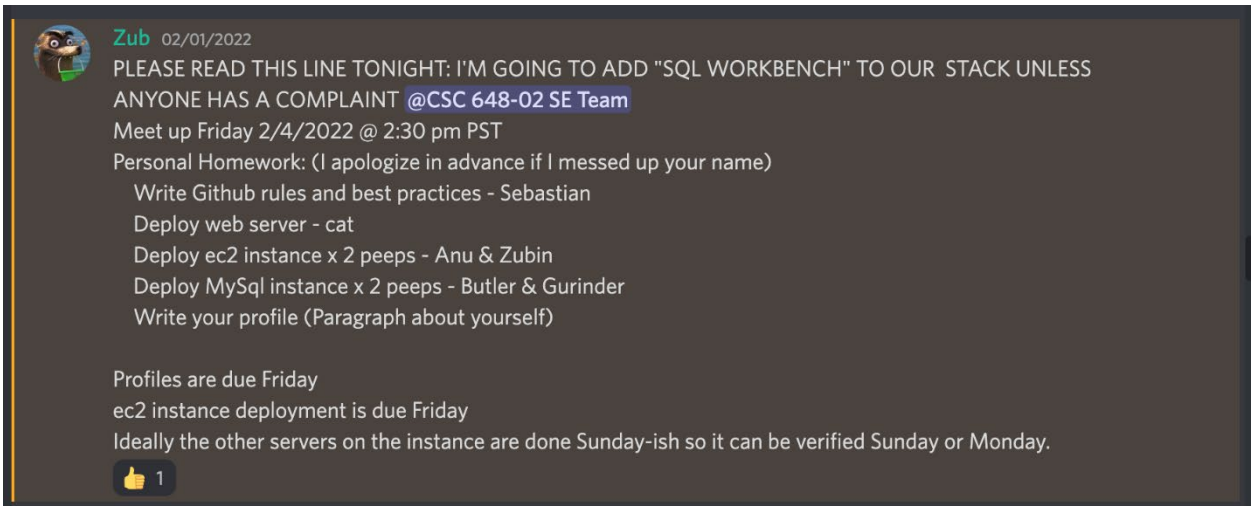
Google analytics plot for your WWW site

Since Google analytics wasn't one of our core features, we prioritized other features first. Now that we have more time to this task, we will develop this feature at a later date and send it out to our users. We apologize for the delay and thank you for your patience.

Screenshots of your task management system

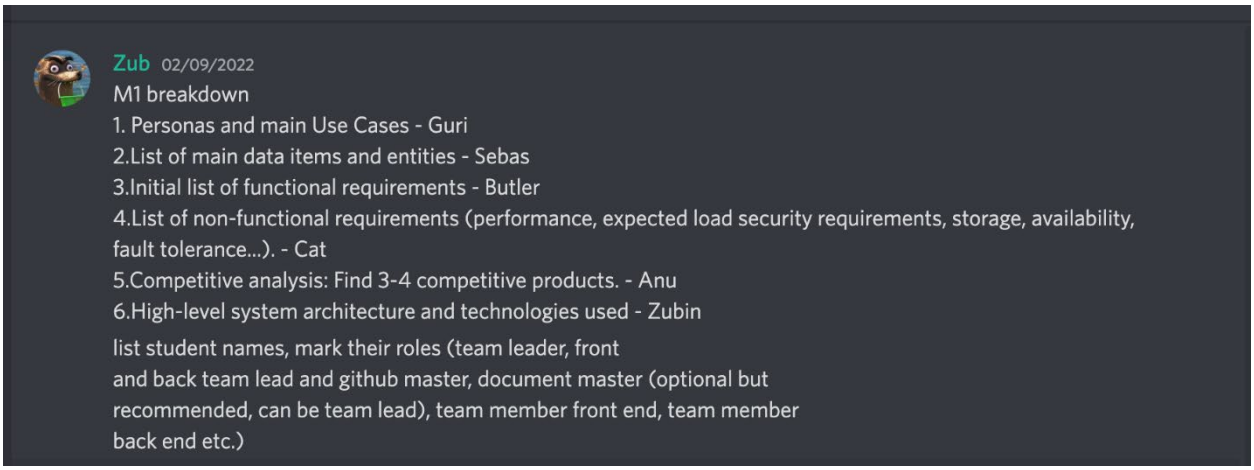






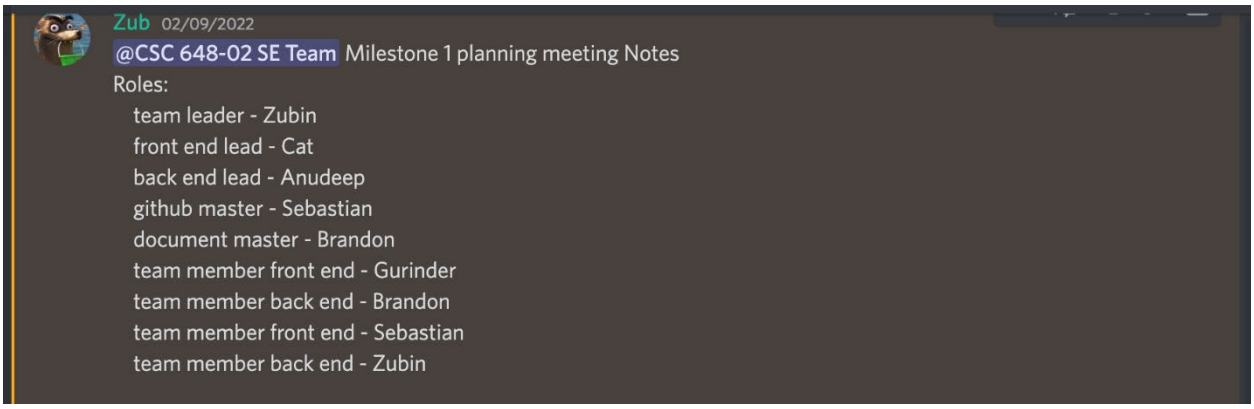
Zub 02/01/2022
PLEASE READ THIS LINE TONIGHT: I'M GOING TO ADD "SQL WORKBENCH" TO OUR STACK UNLESS ANYONE HAS A COMPLAINT @CSC 648-02 SE Team
Meet up Friday 2/4/2022 @ 2:30 pm PST
Personal Homework: (I apologize in advance if I messed up your name)
Write Github rules and best practices - Sebastian
Deploy web server - cat
Deploy ec2 instance x 2 peeps - Anu & Zubin
Deploy MySql instance x 2 peeps - Butler & Gurinder
Write your profile (Paragraph about yourself)

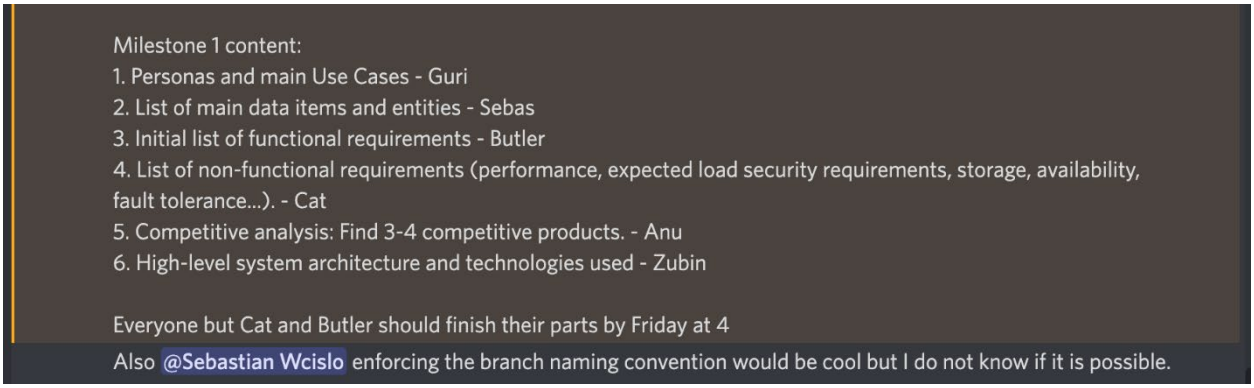
Profiles are due Friday
ec2 instance deployment is due Friday
Ideally the other servers on the instance are done Sunday-ish so it can be verified Sunday or Monday.
1

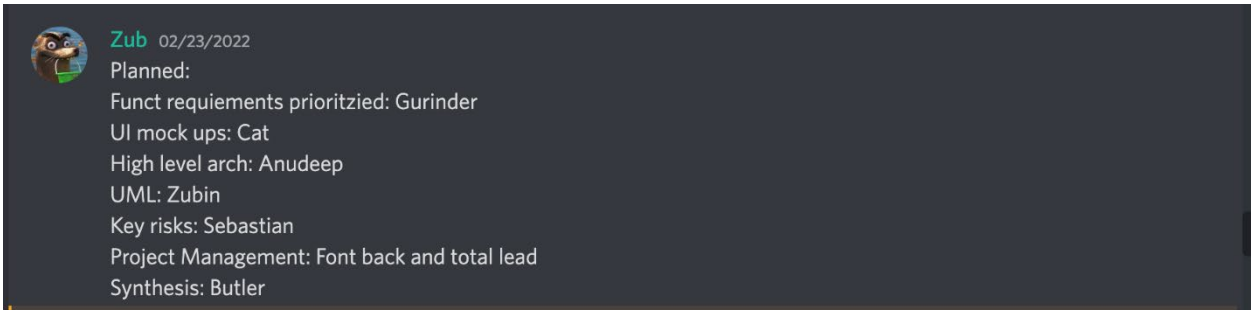


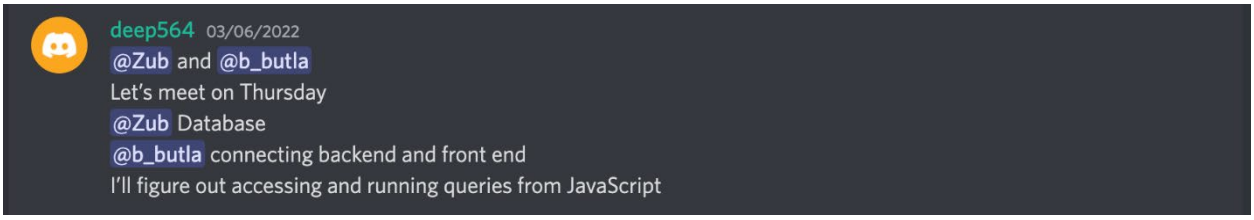
Zub 02/09/2022
M1 breakdown
1. Personas and main Use Cases - Guri
2.List of main data items and entities - Sebas
3.Initial list of functional requirements - Butler
4.List of non-functional requirements (performance, expected load security requirements, storage, availability, fault tolerance...). - Cat
5.Competitive analysis: Find 3-4 competitive products. - Anu
6.High-level system architecture and technologies used - Zubin
list student names, mark their roles (team leader, front and back team lead and github master, document master (optional but recommended, can be team lead), team member front end, team member back end etc.)

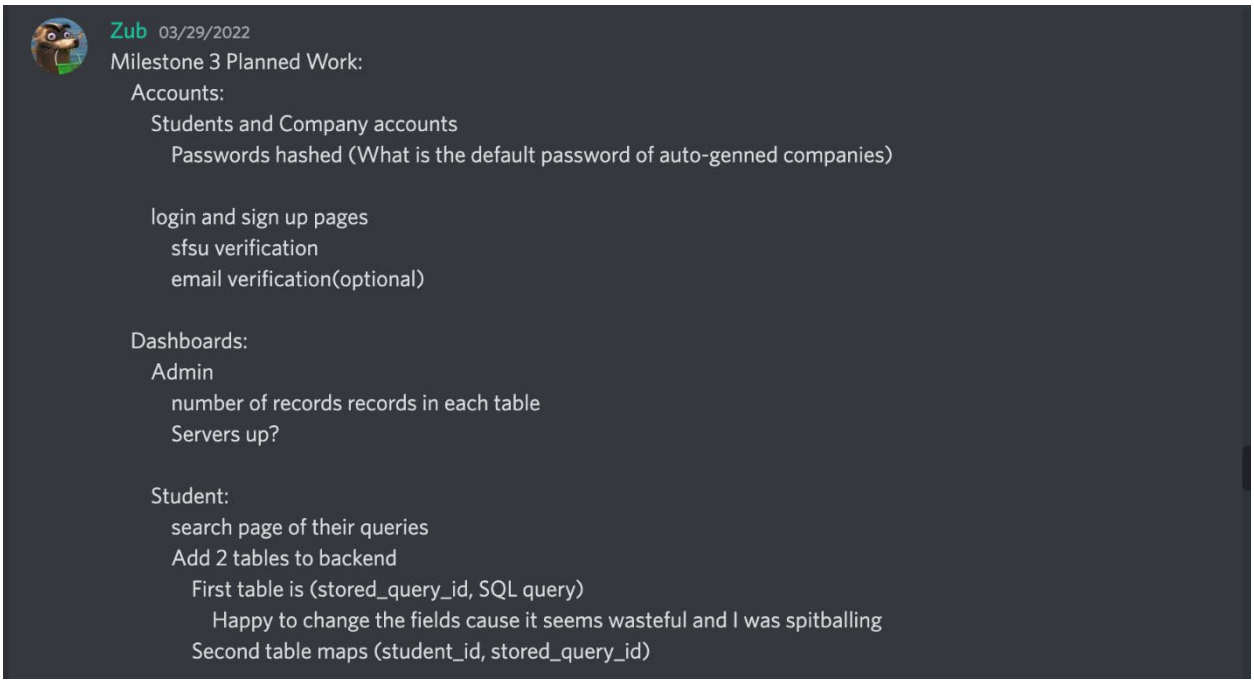
team leader - Zubin
front end lead - Cat
back end lead - Anudeep
github master - Sebastian
document master - Brandon
team member front end - Gurinder
team member back end - Brandon
team member front end - Sebastian
team member back end - Zubin


Zub 02/09/2022
@CSC 648-02 SE Team Milestone 1 planning meeting Notes
Roles:
team leader - Zubin
front end lead - Cat
back end lead - Anudeep
github master - Sebastian
document master - Brandon
team member front end - Gurinder
team member back end - Brandon
team member front end - Sebastian
team member back end - Zubin


Milestone 1 content:
1. Personas and main Use Cases - Guri
2. List of main data items and entities - Sebas
3. Initial list of functional requirements - Butler
4. List of non-functional requirements (performance, expected load security requirements, storage, availability, fault tolerance...). - Cat
5. Competitive analysis: Find 3-4 competitive products. - Anu
6. High-level system architecture and technologies used - Zubin
Everyone but Cat and Butler should finish their parts by Friday at 4
Also @Sebastian Wcislo enforcing the branch naming convention would be cool but I do not know if it is possible.


Zub 02/23/2022
Planned:
Funct requiements prioritzied: Gurinder
UI mock ups: Cat
High level arch: Anudeep
UML: Zubin
Key risks: Sebastian
Project Management: Font back and total lead
Synthesis: Butler

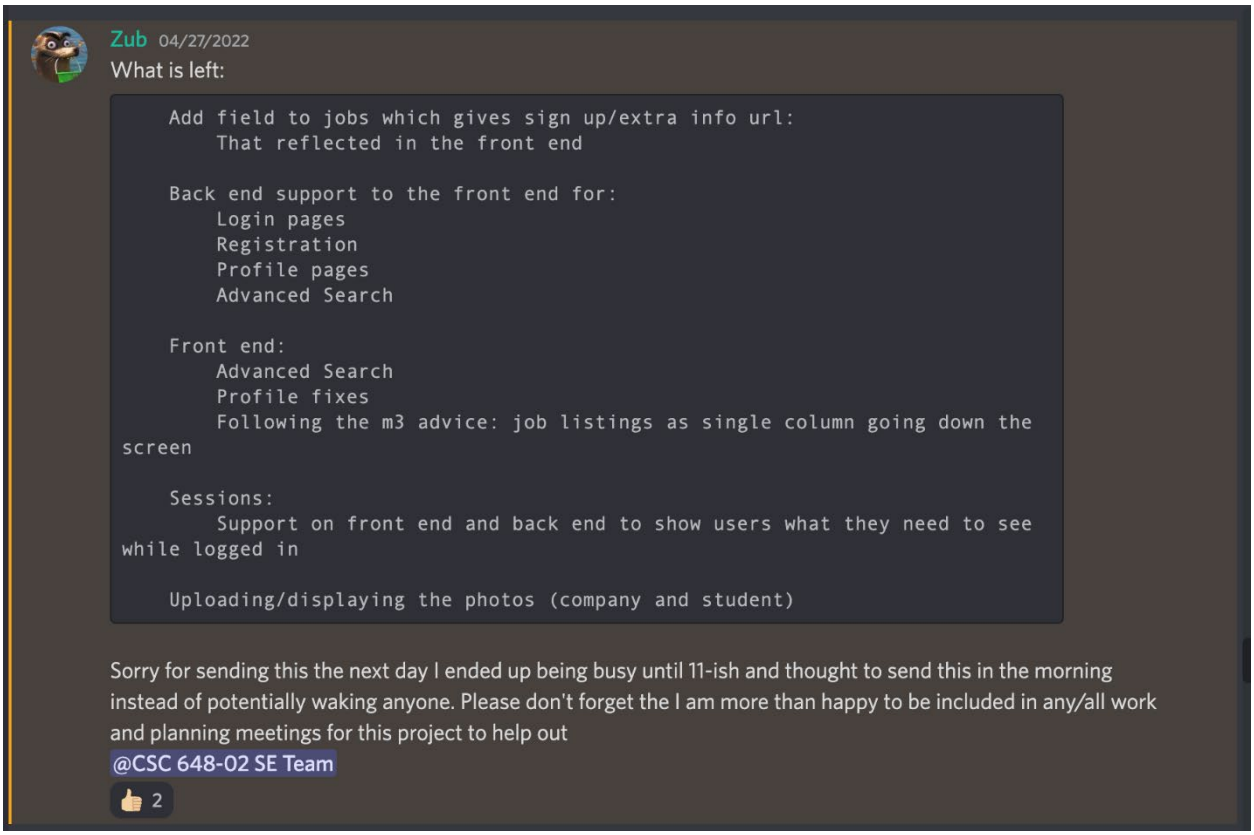

deep564 03/06/2022
@Zub and @b_butla
Let's meet on Thursday
@Zub Database
@b_butla connecting backend and front end
I'll figure out accessing and running queries from JavaScript



Zub 03/29/2022

Milestone 3 Planned Work:

- Accounts:
  - Students and Company accounts
    - Passwords hashed (What is the default password of auto-genned companies)
  - login and sign up pages
    - sfsu verification
    - email verification(optional)
- Dashboards:
  - Admin
    - number of records records in each table
    - Servers up?
  - Student:
    - search page of their queries
    - Add 2 tables to backend
      - First table is (stored_query_id, SQL query)
        - Happy to change the fields cause it seems wasteful and I was spitballing
      - Second table maps (student_id, stored_query_id)



Zub 04/27/2022

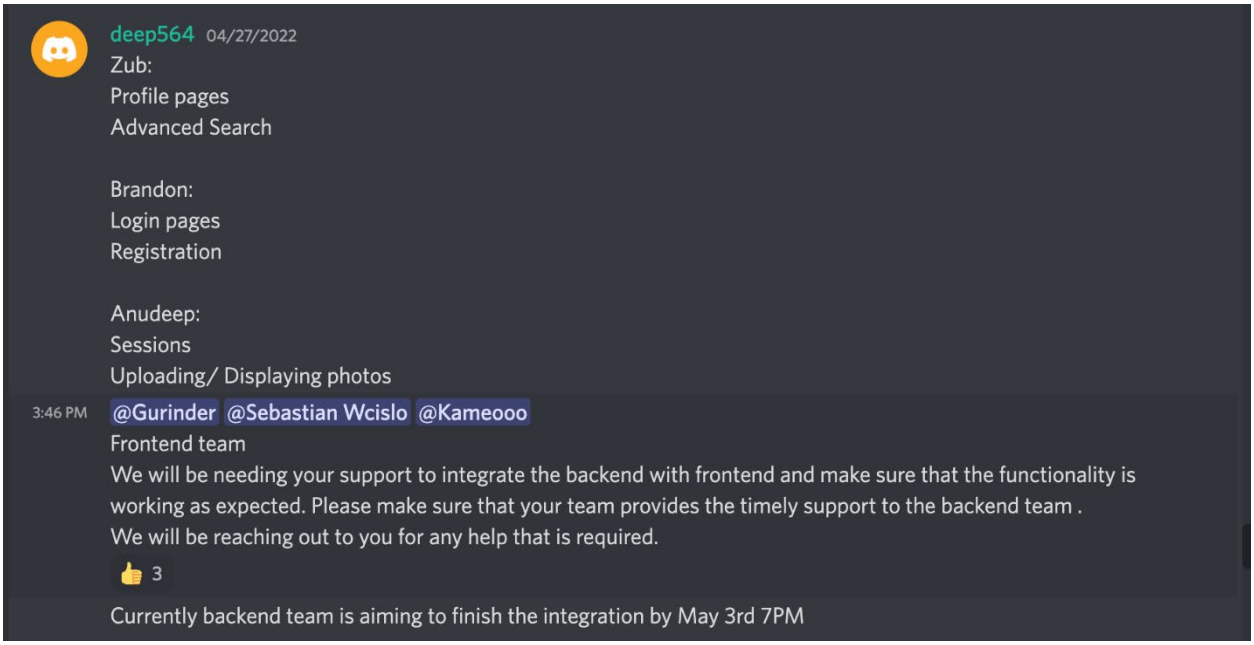
What is left:

```
    Add field to jobs which gives sign up/extra info url:
        That reflected in the front end

    Back end support to the front end for:
        Login pages
        Registration
        Profile pages
        Advanced Search

    Front end:
        Advanced Search
        Profile fixes
        Following the m3 advice: job listings as single column going down the
screen

    Sessions:
        Support on front end and back end to show users what they need to see
while logged in

    Uploading/displaying the photos (company and student)
```

Sorry for sending this the next day I ended up being busy until 11-ish and thought to send this in the morning instead of potentially waking anyone. Please don't forget the I am more than happy to be included in any/all work and planning meetings for this project to help out

@CSC 648-02 SE Team

👍 2


deep564 04/27/2022
Zub:
Profile pages
Advanced Search
Brandon:
Login pages
Registration
Anudeep:
Sessions
Uploading/ Displaying photos
3:46 PM
@Gurinder @Sebastian Wcislo @Kameooo
Frontend team
We will be needing your support to integrate the backend with frontend and make sure that the functionality is working as expected. Please make sure that your team provides the timely support to the backend team .
We will be reaching out to you for any help that is required.
3
Currently backend team is aiming to finish the integration by May 3rd 7PM

Team Members contributions

Zubin Kanga (Team Lead)

- 34 Commits
- Lead entire team and worked on the backend.
- Worked on Dynamic Database generation
- Supported frontend
- Worked on SQL Queries.

Cat Tuong Vu (Frontend Lead)

- 4 Commit
- Lead the frontend
- Deployed react.js into the website
- Worked on the About page (Frontend)
- Worked on the Login/Register page (Frontend)
- Developed the overall web page frames
- Designed web page wireframes

Anudeep Katukojwala (Backend Lead)

- 17 commits
- Lead the backend
- Worked on search field validation feature
- Worked on search feature
- Worked with frontend to make handshake with backend
- Testing

Brandon Butler (Documentation)

- 14 Commits
- Collected team documentation and work on the backend
- Worked with frontend to make handshake with backend.
- Relayed information around team.
- Worked on the Login/Register page (Backend)

Sebastian Wcislo (GitHub Head)

- 4 Commits
- GitHub Master, developed rules and enforced them for the GitHub.
- Worked on the Dashboards (Frontend)
- Worked on the Homepage (Frontend)
- Worked on the Login/Register page (Frontend)

Gurinder Singh

- 91 Commits
- Worked on setting up the handshake between the frontend and backend.
- Debugged React.js related issues.
- Worked on email confirmations.

Post analysis – lessons learned

All things considered; the project went very well despite out minimal amount of real-world development experience. I was beyond amazed at how well out team dug deep and rose the challenge to move outside of their confirm zones and learn brand new skills to ensure the team's success.

When asked what I would do differently a couple things come to mind. A significant problem was our collective level of expertise going into the project was fairly minimal and in hindsight it would've been better to assign each person a very specific part of the project which they own and are in charge of ensuring it integrates correctly with others. We had a few people with a few similar and overlapping roles and it led to confusion and discrepant design styles but allowing each person to work on a hyper specific part would've kept everyone busy and able to truly master their portion rather than knowing how to do a few portions at a lower level.

Our frontend learned that it is very important to be upfront about all the plans and changes with the whole team. This would ensure the entire team is on the same track instead of just their team. As a project lead I found ensuring the project was staying on track while managing to do my own work was difficult and I spent a lot more time thinking about how the work should be split up and pursued rather than the actual work I needed to complete myself. The work in my specific role wasn't conceptually difficult as I have done similar things before but the volume of it and supporting people in roles I am very unfamiliar with made the project on the whole a good challenge and learning experience.

With all of that considered, I wouldn't change my team. We grew a lot together and have learned many different lessons from one another. These relating to programming and beyond. I

thank you for giving us the oppurtunity do this and look forward to working with these excellent developers in the future.