REVISED

Milestone 01 – 02/22/2021

SW Engineering CSC648 Spring 2022 Section 02

Team 06

Application Name: "GitJob"

Team: Allison (Team Lead), TJ (Github Master), Joshua (Front End Lead), Sedric (Front End Team Member), Thien (Back End Lead)

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History Table:

Date Submitted	Revision Date	Feedback
02/22/22	3/06/22	

1. Executive Summary:

GitJob is a new platform for pairing SFSU students with their dream jobs in the tech industry. Not only is the application tailored to student job-seekers, but it is also meant to be a great tool for employers/companies/recruiters to post jobs and find the ideal candidate. GitJob helps students with little or no experience understand the potential career paths that exist in technology, as well as learn practical ways to achieve their ideal job. GitJob is beneficial because it can help students kick start their career in tech, connect them to new opportunities, teach them about the different fields/jobs in tech, interact with other users, and provide access to tech-related resources. With the platform providing opportunities in 9 broad fields, the possibilities within the tech realm seem almost infinite. Our hopes for this project are that students get inspired about careers in tech, and ultimately use our platform to form a connection between themselves and their future employer, all while feeling good about going into a field that they are familiar with, or even a field that they enjoy, but have not yet had the opportunity to work in. We also have high hopes that employers/companies/recruiters find this platform to be an easy tool for posting job listings to make the hiring process as smooth as possible. Inspiring the next generation of tech workers will keep the areas of computing and software development exciting.

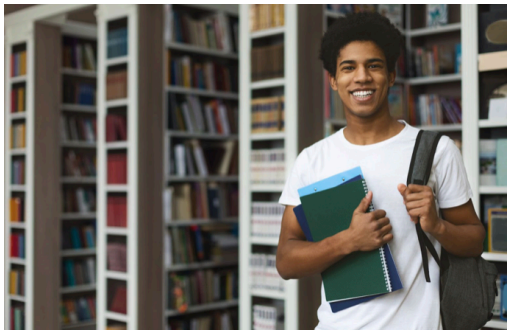
Gitjob is meant to be easy to use, easy to navigate, and is meant to alleviate the career/job-searching process. Students with GitJob accounts can search for jobs, favorite postings, customize their profile page~~, find workshops from employers/recruiters,~~ engage in forum discussions for different career topics, learn about different tech careers/salaries, and, of course, apply for jobs. This is an incredible tool for marketing oneself, and also helps keep track of one's career interests. With GitJob's search feature, students will be able to filter jobs by their field, salary, company, keywords, location, and title. Students

~~can also find workshops~~, forum posts, employer posts, related to their search. The best part about it is when you log in for your next session, all the job positions that you have favorited appear right on the dashboard, and taking off from where you left off last time is as easy as remembering your password. The dashboard will allow users to keep up with job postings they saved or posted, new job postings, forums they follow, and companies/employers they follow.

Our team consists of talented individuals who all share a passion for advancing technology. Team 6 has decided to come together for this special project and at the end of the day, our main goal is to help others succeed in their career/job search. Our blend of knowledge is going to make for a unique experience that sets GitJob apart from the competition. We are excited to come together for this opportunity and we hope to create something helpful, distinctive, and useful.

2. Personas and main Use Cases:

A student with CS degree:



A student ‘X’ has just graduated from college majoring in computer science. The student has goals of getting a job due to the recent loans that have been accumulated. ‘X’ participates in diversity, social justice, and equality events. ‘X’ is very passionate about the new autonomous trends and is unaware of what job to pursue due to the many options available for computer science majors. Currently, ‘X’ works at a part-time job and is ready to find something related to their field.

Company recruiter:

A recruiter ‘Y’ has just been promoted by her company for a Recruiting Manager role. ‘Y’ currently works for a robotics startup company that specializes in engineering prosthetic hands. The CEO told ‘Y’ that they need to hire new employees due to the recent Covid pandemic. ‘Y’ is very busy with her NFT projects and wants to find a tool that will make her recruiting process a lot less complicated. ‘Y’ is interested in finding students who have are about to graduate or have already graduated.

Student just graduated high school:

A student ‘O’ has just graduated high school and has been accepted to attend SFSU. ‘O’ played three sports, football, soccer, and basketball. ‘O’ has completed a course online for the programming language C++. ‘O’ can go to college since he was awarded a scholarship fund. ‘O’ has advanced skills in

C++ and has done a lot of projects during his time at prep school. ‘O’ needs to find an opportunity that accepts students to be able to work part-time. ‘O’ feels overwhelmed when using other job portals and needs to find a tool that has forums and meets ‘O’ needs.

Employed engineer looking for a new job:

A robotics engineer ‘Z’ has been at his company for 5 years and has not received a pay raise. ‘Z’ has a bachelor's degree in Mechanical Engineering and currently spends his free time taking classes CS classes at the College of Extended Learning at SFSU. ‘Z’ is not happy with his company because he feels under-appreciated. ‘Z’ wants to use a website that shows the pay rate on the job listing. ‘Z’ is currently 45 years old and wants to find a new job that pays more. ‘Z’ has learned to be a leader from the recent years spent at his company.

Main Use Cases:

1. ‘X’ wants to search for an entry tech job involving autonomous integration. They use the career section on the site to explore the different jobs that one can attain with a CS degree in tech. Once ‘X’ clicks a job they are interested in. ‘X’ can use GitJob’s search feature to filter for jobs that contain keywords in their description related to their interests in social justice. They are prompted to register or log in, to access the job’s information/content. ‘X’ saves job listings they are interested in and follows companies they are interested in applying in. ’X’ can now view the saved job postings and easily apply.

2. ‘Y’ wants to search for candidates that meet the company’s requirements involving a robotics startup. ‘Y’ goes to our site and clicks on the Posts button. Before being able to create a post, she is prompted to register as an employer to be able to create a job post. Once logged in/ registered, ‘Y’ can fill out a form with the start-up’s job description and what is required for the position. ‘Y’ will get applications for the start-up. ‘Y’ will email back to the candidate that they want to interview. ‘Y’ can then delete the post if they have found a candidate.

3. ‘O’ wants to search for a tech job that accepts interns or part-time employees. ‘O’ goes to our site and filters out the searches by “internship” and “part-time”. ‘O’ has found a job and clicks on the job posting and has read the description and realizes that he needs to learn some new technologies for the position. ‘O’ can now view the job posting even though he is not registered, wants to save the post, so they are prompted to register. ‘O’ takes advantage of the forum to find resources on how to brush up on his coding skills ~~and finds workshops related to improving his resume~~. ’O’ can see the forum and can leave a comment. ‘O’ has improved his skills and has come back to apply to the job. ‘O’ eventually gets an internship.

4. ‘Z’ wants to leave his former job to get a pay raise.’ Z’ is a part-time student at SFSU. ‘Z’ wants to look for a senior role in a tech company. ‘Z’ goes to our GitJobs Salary section and can compare salaries for “Senior Robotics Engineer” in different locations and different companies. ‘Z’ can view the pay rate for positions at specific companies and can see several job postings for “Senior Robotics Engineer” from different companies. He saves these job postings to compare them later. Before being able to save or click apply to the job, ‘Z’ is prompted to register or log in. ‘Z’ can now view and apply to the job posting once registered. Now that ‘Z’ has created an account, he is eager to get hired so he customized his profile page by uploading his resume, adding a description about himself, adding his skills and interests. ‘Z’ applies to 5 jobs that pay $10k+ more than his current salary.

3. List of main data items and entities:

User in the system:

Students (String): Will be able to provide resumes, interests, and contact information on their accounts. They will also be able to connect with other students or recruiters.

Employers/Companies/Recruiters (String): Shall be able to post and delete job posts/listings in our data table.

Data Structures:

Data table for User entities: User registration information necessary to create an account: email (String), name (String), password (String).

Data table for User attributes: Users can edit their accounts and attributes. Key Data Elements that pertain to a user:

PDF resumes (BLOB)

Interests (String)

Contact information (String)

Jobs saved (Object)

Posts saved (Object)

Jobs applied to (Object)

Data table for Job Listings: Listings posted specifically by recruiters/employers from companies. Allow users to search and filter jobs based on tech areas (String), job positions (String), and skills (String).

4. Initial list of functional requirements:

1. Employers (companies, recruiters) shall be able to post job listings within these 9 fields: 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. Students shall be able to search for jobs within these fields.

2. Users shall be able to search and filter through job posts, through filters such as location, field (tech area), job position/title, skills, education level. Users shall also be able to find posts, ~~workshops,~~ forums, related to their search.

3. Employers shall be able to post (and delete) job listings that must contain a job title, description of position, qualifications, and skills necessary.

4. Registration form: required for users to register. Contains name and e-mail, and optionally address, phone, affiliation, optionally location. Stored in the database.

5. Users shall have a profile page that is viewable by other users or just employers (users decision). Users shall be able to upload the following to their profile page: previous job experience, contact information (optional), resume (optional), description of the user themselves, skills, and interests.

6. ~~Workshops: companies, recruiters, and employers shall be able to host/post virtual workshops on topics to help users understand specific fields in tech, job hunting strategies, resume workshops, etc.~~

7. Forums: exist for users who wish to discuss anything tech-career-related, post questions about tech-careers, reply to questions, and have discussions in the forums. Will allow anyone to answer questions, post, and communicate through the forum. The forum is meant to be informal, sort of like Reddit. Allows users to follow forum topics, which they can view on their dashboard as the topic updates with posts/replies.

8. Users will have a dashboard that comprises saved job listings, forum topics followed by the user, new job listings, and posts from companies/employers followed.

9. Users shall be able to explore the site without creating an account, but must create an account if they want to apply to jobs, post a job listing, reply to forums, ~~attend workshops,~~ and use other specific features.

10. Users shall be able to save job listings, company profile pages, forum posts/topics, and posts from other users.

11. Users shall be able to ‘like’ forum posts, posts from employers, ~~workshop~~ posts, forum replies.

12. The application shall have sections on the navigation bar for dashboard, forums, ~~workshops~~, profile page, so these features do not overlap.

13. Users shall scroll through the dashboard to see new posts, forum updates, and ~~workshops~~.

14. The application shall always have a search bar at the top of the page for users to search for jobs, companies, ~~workshops~~, posts, etc..

15. Users who are registered shall be able to opt in for Alert Notifications (for job postings, ~~workshop~~ postings, forum replies/responses, etc.)

16. Content Restriction: the developers shall ensure that no inappropriate material (text or images) is presented on the site, forums, posts, etc..

17. User shall be able to edit and correct the data after it is submitted

18. Application shall not allows messaging between users.

19. User shall be able to see the job listings they applied to under a section called 'Applications'.

20. System shall store job listings, user forum posts/replies, resume upload, into database.

5. List of non-functional requirements:

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).

2. Application shall be optimized for standard desktop/laptop browsers e.g., must render correctly on the two latest versions of two major browsers

3. Selected application functions must render well on mobile devices

4. Data shall be stored in the team's chosen database technology on the team's deployment server.

5. Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.

6. The language used shall be English.

7. Application shall be very easy to use and intuitive.

8. Google maps and analytics shall be added

9. No e-mail clients shall be allowed. You shall use webmail.

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

11. Site security: basic best practices shall be applied (as covered in the class)

12. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development.

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"* at the top of the WWW page. (Important so not to confuse this with a real application).

6. Competitive analysis:

Feature	GitJob	Glassdoor	Microsoft Career Coach	LinkedIn
Search w/ filters	+	+	+	+
Dashboard	+	-	+	++
Job Listings	+	+	+	+
Forum	+	-	-	-
Profile Page	+	+	+	++
Careers Section	+	++	+	+
Salary Section	+	++	-	+
~~Workshops/Courses~~	+	-	+	+

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

Compared to our competitors, GitJob has a fairly similar objective: to help students achieve their career goals and be paired with their ideal jobs posted by employers. LinkedIn is probably the most popular competitor, with Microsoft Career Coach in last place. GitJob plans to be more niche, however, since it aims to help users who are specifically pursuing careers in technology. We believe that the niche-ness will allow for an application that will let users be career-focused and have the best resources (related only to tech) at hand; whereas competitors have a variety of job-seekers interested in a multitude of industries, which would make someone seeking a job in tech have to sift through a multitude of resources, posts, jobs, employers that have nothing to do with their career goal. Gitjob is aimed to be the to go-to-place for anything related to careers in tech. The forum feature is unique, something that none

of the competitors have, and we believe the forum will be an extremely candid tool where users will learn from each other in an environment that feels comfortably informal, with no no-pressure. The career sections and salary sections from Glassdoor seem to be best developed among competitors, and GitJob aims to have a similar section, where users can explore the salaries for a variety of tech jobs, and a brief overview of the job. We hope to use GitJob competitors as a learning tool to improve GitJob and improve its functionalities.

7. **High-level system architecture and technologies used:**

   Operating System: Ubuntu 20.04 Server

   Sever Host: AWS CLI2 (EC2 instance)

   Database: MySQL 8.0.28

   Web Server: NGINX

   Server-Side Language: Javascript

   Additional Technologies: VS Code, React Native, HTML/CSS, Node node-v16.13.2

   High Level Architecture: Client-server, because we have a front-end folder which contains all the code in react and JS which makes up the UI. Then we have a separate back-end folder which contains the server file which extracts contents from the SQL database. The frontend uses Axios to communicate with the server.

8. **Team and roles**:

   Allison: Team lead + Document Master

   TJ: Github Master

   Sedric: Front End Team Member

   Thien: Back End Lead

   Joshua: Front End Lead

9. **Checklist**:

The team found a time slot to meet outside of the class : **DONE**

Github master chosen : **DONE**

Team decided and agreed together on using the listed SW tools and deployment server : **ON TRACK**

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 : **ON TRACK**

Team lead ensured that all team members read the final M1 and agree/understand it before submission : **DONE**

Github is organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.) : **DONE**