

SW Engineering CSC648/848

EzJobs

Section 01, Team 01

Team members

Name	Role
Rishita Meharishi	Team Leader
Luai Almaznai	Frontend Lead
L Chow	Backend Lead
Zaw Win Tun	Scrum Master
Yee Yang	Github Master

Milestone 1

09/23/2024

History Table

Revision #	Date	Description
1	09/23/2024	Initial document for milestone 1

Executive Summary: EzJobs

Motivation and Importance: Job hunting can be a complex and nerve-wracking experience. Candidates needing employment must juggle multiple applications, interviews, and follow-ups while remaining organized - often leading to missed opportunities or delays in job acquisition. EzJobs provides job seekers with a single-stop solution where they can manage every aspect of their search from submitting applications through tracking responses, scheduling interviews, and planning the next steps - so they can stay focused on landing their dream job without losing track of important tasks along the way.

What EzJobs Does: EzJobs is an easy-to-use job search management tool created to assist job hunters in streamlining their job hunt. The platform serves as a central hub where job applicants and recruiters can organize, track, and schedule interviews or follow-ups; categorize activities (applied for, interviewed for, and waiting for feedback on) while accessing useful tools to build resumes, prepare for interviews, and set career goals. EzJobs ensures job seekers never miss an opportunity by providing an accurate view of progress throughout every stage of search activity.

Key Value and Novelty: What sets EzJobs apart is its ability to adapt to the user's search process. With its personalized, data-driven approach, EzJobs offers tailored recommendations for users based on their skills, search history, and interests. The platform also integrates with popular job boards and networking sites, allowing users to import job listings directly into their dashboard for easy tracking. EzJobs combines an intuitive interface with smart notifications, making it a powerful yet user-friendly tool for job seekers at any stage of their career. Its value lies in **saving users time**, reducing the stress of **managing a job search**, and increasing the chances of **landing the right role**.

The Team: EzJobs is the result of a team of student innovators passionate about improving the job search experience. By understanding both technical and human challenges associated with job hunting, our team has dedicated itself to developing a platform that meets job seekers' needs and addresses their requests effectively. As an upstart startup focused on continuous improvement driven by user feedback, EzJobs stands as an indispensable solution for anyone attempting to manage a successful job hunt.

Personas and User Stories

Key personas

1. **The Active Job Seeker** (Freshman, sophomore, junior in college)
- **Behaviors:** Actively applying for internships, new grad roles, or entry-level positions across various platforms.
 - **Interests:** Streamlining the job application process to save time and energy.
 - **Skills:** Familiar with job portals and application processes but looking for tools that reduce repetitive tasks, such as filling in the same information repeatedly.
 - **Pain Points:** Struggling to keep track of numerous applications, deadlines, and interview prep while feeling frustrated by the tedious process of creating accounts for each company.
2. **The Recent Graduate** (A person who just graduated college and is actively looking for new grad roles)
- **Behaviors:** New to the job market and feeling overwhelmed by the job search process.
 - **Interests:** Learning how to navigate job portals, craft effective resumes/cover letters, and prepare for interviews to land their first full-time role.
 - **Skills:** Moderate technical skills from coursework and internships but limited real-world experience in job hunting.
 - **Pain Points:** Finding it difficult to manage multiple job applications and keep track of responses, often frustrated by the lack of responses or rejections after submitting applications.
3. **The Career changer** (Someone who is looking to switch roles, pivot into a different direction)
- **Behaviors:** Transitioning to a new industry or role, applying selectively to roles that align with their new career goals.
 - **Interests:** Researching job opportunities in a new field and preparing for interviews to highlight transferable skills.
 - **Skills:** Strong expertise in their previous industry but struggling to demonstrate relevant skills for their new career.
 - **Pain Points:** Managing multiple applications in a new field, preparing for interviews that require different skill sets, and dealing with uncertainty about whether their past experience will be valued.
4. **The Passive Job Seeker** (Someone who might have a job but is also looking for what is out there from time to time)
- **Behaviors:** Not actively applying but browsing for opportunities for internships or full-time roles that catch their interest.
 - **Interests:** Finding a better job with minimal effort, possibly switching companies for better growth prospects.
 - **Skills:** Experienced in job portals and familiar with job applications but prefers simplicity in applying for new roles.
 - **Pain Points:** Balancing the demands of current work with job searching and applying, preferring an easy and quick process without having to re-enter the same information repeatedly.

User Stories

Below are the user stories for each key persona based on the customer interviews that our team conducted. The link to our interview questions and answers can be found below:
<https://docs.google.com/document/d/16u6ll5SVrivk6XQu3S9GEouDjr060hF88IPXsB-vOmQ/edit?usp=sharing>

These user stories are organized by key persona, focusing on the activities they would engage in while using the job tracking application. The **color red means high priority**, **orange is medium** and **green is low** or could also mean easy to fulfill without much help.

1. Key Persona: The Active Job Seeker

- ID: 1

As an active job seeker, I want to be able to track all my job applications in one place, so I can easily stay organized and avoid missing any deadlines.

Priority: High
- ID: 2

As an active job seeker, I want the app to autofill my job application forms, so I can save time and avoid re-entering the same information repeatedly.

Priority: High
- ID: 3

As an active job seeker, I want reminders about upcoming deadlines or follow-ups, so I can stay on top of my job search and not lose track of important applications.

Priority: High
- ID: 4

As an active job seeker, I want interview preparation tools and tips specific to the role I’m applying for, so I can feel more confident going into interviews.

Priority: Medium

2. Key Persona: The Recent Graduate

ID: 5

As a recent graduate, I want guidance on how to craft my resume and cover letter for each application, so I can stand out to employers.
Priority: High

ID: 6
As a recent graduate, I want to be able to track the status of my applications and receive notifications when there is a change, so I can stay informed without having to manually check every day.
Priority: Medium

ID: 7
As a recent graduate, I want access to mock interview questions and practice sessions, so I can prepare effectively for my first full-time role.
Priority: Medium

3. Key Persona: The Career Changer

ID: 8
As a career changer, I want the app to help me highlight transferable skills in my resume and job applications, so I can better position myself for roles in a new field.
Priority: High

ID: 9
As a career changer, I want to track applications to different industries and roles, so I can stay organized while applying to multiple fields.
Priority: High

ID: 10
As a career changer, I want suggestions for jobs based on my past experience and new interests, so I can find roles that fit my skills and career goals.
Priority: Medium

4. Key Persona: The Passive Job Seeker

ID: 11
As a passive job seeker, I want the ability to browse job opportunities and save them for later, so I can apply when the time is right without the pressure of actively searching.
Priority: Medium

ID: 12
As a passive job seeker, I want a simplified application process with autofill, so I can easily apply to jobs without having to fill out repetitive forms.
Priority: Medium

ID: 13
As a passive job seeker, I want occasional notifications about roles that match my interests, so I can stay informed about opportunities without feeling overwhelmed.
Priority: Low

Data Definitions

Primary Data Name	Definition	Usage	Sub-Data
application_status	The current stage or progress of the job application in the recruitment process.	Tracks the different stages a job application goes through.	<ul style="list-style-type: none">interested: User shows interest in the job.pending: Awaiting response or decision.in-progress: Application is being processed.offer: Job offer has been extended.declined: Job offer has been declined.ghosted: No further communication from employer.follow_up: Following up on the application status.
job_application	Information related to a specific job application, including details about the job and its status.	Stores the details of each job application and its progress.	<ul style="list-style-type: none">current_status: Tracks current application phase.company_name: Name of the hiring company.job_position: Title of the job applied for.job_salary: Salary information for the position.job_type: Nature of the work (remote, hybrid, onsite).job_location: Physical location of the job.job_link: Link to the job posting.job_description: Details about job roles and responsibilities.date_applied: Date the application was submitted.date_scheduled: Date of scheduled interviews or meetings.user_note: Personal notes or reminders.
contacts	This data stores relevant information about professional contacts such as recruiters, hiring managers, or networking connections.	It helps users keep track of people related to job applications for networking or follow-up purposes.	<ul style="list-style-type: none">name: Name of the contact person.position: Job title of the contact.company: Company associated with the contact.email: Contact's email address.phone_number: Contact's phone number.linked_jobs: Jobs linked to the contact.notes: Additional details about the contact.
documents	This data stores user-uploaded or generated files relevant to job applications, such as resumes, cover letters, and other supporting documents.	It allows users to upload, manage, and retrieve documents they need when applying for jobs or preparing for interviews.	<ul style="list-style-type: none">uploaded_files: User-uploaded documents (resumes, etc.).generated_files: AI-generated documents (resumes, etc.).linked_jobs: Job applications associated with the documents.
ai_resume_builder	Inputs for generating a resume based on AI, capturing user details, skills, and experience.	Generates tailored resumes for job applications based on user input.	<ul style="list-style-type: none">personal_information: User's name, contact, and profile details.skills: Relevant skills for the resume.education: Academic background and qualifications.experience: Professional work history.projects: Details of projects completed.

Primary Data Name	Definition	Usage	Sub-Data
ai_interview_prep	AI-generated interview preparation based on the job position, description, and company research provided by the user.	Helps users prepare for interviews by generating custom questions and example responses.	<ul style="list-style-type: none">job_position: Position for which interview prep is required.job_description: Details of job responsibilities.company_research: Research on the company.
user	Represents a person using the job kanban app, including credentials and email.	Manages user login, registration, and email addresses that are used to reset passwords.	<ul style="list-style-type: none">username: User's account name.email: Email address for account and notifications.passwords: User's login password.

Initial list of functional requirements

NOTE:

- *Requirement IDs are the numbers before the functional requirements (eg. Sign Up has requirement ID 1)
- *Priority Scale is from 1 to 3 (High, Medium, Low)
- *User story to be referenced will be from IDs 1-13 to reflect their respective user story.
- *Assuming multiple user stories can be referenced for each requirement.

Sign-Up

1. The user should be able to sign up.

Description:

Just a simple sign-up way for users new to the website/app. Sign-up is mandatory to start using our website/app.
A possible email integration with Gmail.

Priority: 1

User Story To Be Referenced: All 13 since you need an account to do what is listed.

Login

2. The user should be able to log in using email/username and password, and possibly through email integration such as Gmail.

Description: Another simple way for users to log in using their email/username and password.

Has a “Forgot Password” option that users can use to recover their forgotten password through the use of their email.
Possibly with text too in the future if time permits.

Priority: 1

User Story To Be Referenced: All 13 since you need an account to do what is listed.

Add Jobs

3. The user should be able to add job(s) that ask for specific important information such as the job’s name, the job’s position, and etc.

Description:

A feature that allows users to add jobs to their job screen overview with specific fields asked beforehand, such as the job’s name or the job’s position.

Priority: 1

User Story To Be Referenced: 1, 9 (Both are more about tracking jobs, but you need to be able to add jobs to then track, no?)

Job Movement

4. The user should be able to drag their job(s) around to several categories that are broken down individually as their own columns, as follows: Interested, Offer, Pending, In-Progres, Accepted, Declined, Ghosted and Follow-Up.

Description:

A feature that allows users to drag and drop their jobs around the overview screen into different columns that represent different statuses of the jobs.

Priority: 1

User Story To Be Referenced: 1, 9 (helps with tracking), 11 (save jobs for later)

Job Sort

5. The user should be able to sort through jobs with either a drop-down menu that offers several choices. (eg. Position, Location, etc) or through their own specified manual filter. (eg. User types a job name)

Description:

A feature that allows users to either search through a filter to find specific jobs relevant to them or through a dropdown menu with a selector for several choices like by Company, by Location and etc.

Priority: 1

User Story To Be Referenced: 1, 9 (helps with tracking)

Custom Message

6. The user should get appropriately curated message(s) for when the job(s) are moved from one column to another. (eg. When a job is moved from Interested to Offer, a message could pop up saying, “Good job on landing a job offer!” or when a job is moved from Pending to Declined, a message could pop up saying, “Aw, that’s too bad. Don’t give up and keep trying!”)

Description:

A feature that allows users to get their own curated or sort of customized message(s) for when they move job(s) around. Can be simple motivational phrases, general reactions to even tips/encouragements. These can be turned on/off in the Settings or perhaps customized to better meet user needs/wants/

Priority: 3

User Story To Be Referenced: Not specific user story to reference, but think we want this feature still.

AI Help

7. The user should be able to utilize AI to help with job search.

Description:

A feature that uses AI to help users out with their job search through various recommendations/tips given by AI with job-related functionalities and/or job searches in general.

Priority: 1

User Story To Be Referenced: 4, 5, 7, 8

View Profile

8. The user should be able to both view and update their profile with basic information such as name, email, and address.

Description:

This allows users to view their profile and lets them edit and save their basic information, as well as being able to add or change their profile picture.

Priority: 2

User Story To Be Referenced:

Job Notifications

9. The user should be able to view updates to any job-related functionalities via notifications and have some control over what sort of notifications. **(eg. notifications for when they get job offers, when jobs they applied for gets either accepted or rejected and what notifications they would like on and off)**

Description:

This allows users to keep track of various notifications regarding their job statuses or possible messages from companies/recruiters.

Priority: 3

User Story To Be Referenced: 1, 3, 6, 13

Portfolio Tab

10. The site should have a Portfolio tab.

Description:

This tab allows users to upload one's resumes/cover letters to be able to use for their job search.

Priority: 1

User Story To Be Referenced: 5 (related to resume/cover letter, but 5 is more about guidance on them, so not sure if it fits here)

Connections Tab

11. The site should have a Connections tab.

Description:

This tab allows users to keep track of companies that the user has applied for and/or is interested in.

Priority: 1

User Story To Be Referenced: 1, 9 (helps with tracking)

Task Alerts Tab

12. The site should have a Task Alerts tab.

Description:

This tab allows users to add reminders for important dates, times, and their own personal notes.

Priority: 2

User Story To Be Referenced: 3, 6

Analytics Tab

13. The site should have an Analytics tab.

Description:

This tab allows users to get a summary of their job search progress. **(eg. graphs, charts, etc)**

Priority: 1

User Story To Be Referenced: 1, 9 (A summary of job search progress has to do with tracking, ya? Else, unsure what to put here)

Settings Tab

14. The site should have a Settings tab.

Description:

This tab allows users to make basic and simple adjustments to the site based on their own preferences.

Priority: 2

User Story To Be Referenced: No specific user story about this here, but we would still want one.

Mode Selector

15. The site should have a simple Dark/Light mode selector.

Description:

This allows users to quickly and easily switch between the two modes of Light/Dark to fit their preference.

Priority: 2

User Story To Be Referenced: No specific user story about this here, but we would still want one.

User Support

16. The site should have a place to get support and/or ask for help.

Description:

This allows users to get information for support/help, such as displaying our names, an email (either personal or company email) and possibly a phone number. **(Possible AI chat box integration to help with this)**

Priority: 3

User Story To Be Referenced: No specific user story about this here, but we would probably still want one.

FAQ

17. The site should have a FAQ that answers common questions.

Description:

This allows users to have a sort of reference page where common questions are answered.

Priority: 3

User Story To Be Referenced: No specific user story about this here, but we would probably still want one.

User Feedback

18. The site should have a place where users can give feedback.

Description:

This allows users to provide feedback on the website and/or any of the feature(s).

Priority: 3

User Story To Be Referenced: No specific user story about this here, but we would probably still want one.

LinkedIn Integration

19. The site should have a LinkedIn integration of sorts for resumes and jobs.

Description:

This feature gives users a convenient way to connect to and stay connected to LinkedIn while being able to utilize some of LinkedIns' features, such as jobs on their site.

Priority: 3

User Story To Be Referenced: No specific user story about this here, but we would probably still want one.

Form Autofill

20. The site should have an autofill feature for job forms like what Simplify has.

Description:

This feature allows users to save time and tediousness by having the autofill fill out the forms for them, which lets them focus their attention elsewhere, such as looking for more jobs to apply.

Priority: 3

User Story To Be Referenced: 2, 12

List of non-functional requirements

1. **Performance:** The site should be fast and handle up to 10,000 users at the same time, with no more than a 2-second wait for any page to load.
2. **Storage Space:** The system should have at least 1 TB of storage for things like user data and resumes, with the option to expand to 10 TB if needed.
3. **Usability:** The site should be easy to use, allowing people to input text or use voice commands. Users should be able to do common tasks quickly and without confusion.
4. **Security:** Users must be able to log in securely using two-factor authentication, and all personal information should be encrypted both when it's sent and stored.
5. **Availability:** The site should be up and running almost all the time (99.9% of the time), with backups ready to keep it online if there are any issues.
6. **Fault Tolerance:** The site should be able to keep working even if something breaks, with at least 90% of users unaffected. If there is downtime, it should be fixed in less than 5 minutes.
7. **Compatibility:** The site should work on all major web browsers (like Chrome, Firefox, Safari, and Edge) on both computers and mobile devices.
8. **Development Requirement:** The team should use a reliable, scalable database (like PostgreSQL or Amazon RDS) that can store up to 100 million records.
9. **Accessibility:** The site should follow accessibility standards (like WCAG 2.1) so that people with disabilities can use it easily, including those using screen readers or keyboard navigation.
10. **Logging and Auditing:** All user activity should be logged and stored securely for at least a year so the site can be audited if needed.
11. **Scalability:** The system should be able to automatically adjust to handle more traffic during busy periods.
12. **Continuous Integration:** The team's GitHub repository should always have code that's tested, working, and ready to be deployed with automated tools to help.

Competitive analysis

<div>Web App</div> <div>Feature</div>	Trello	Monday.com	simplify. jobs	EzJobs
Pre-built columns for job status	✗	✗	✓	✓
Customizable Kanban board	✓	✓	✗	✓
Detailed job application information	✗	✗	✗	✓
Search by company, location, etc.	✗	✓	✓	✓
Job application statistics	✗	✗	✓	✓
AI Resume Generator	✗	✗	✗	✓

Our EzJob app has several advantages compared to existing competitors like Trello, Monday.com, and Simplify. jobs. While some competitors offer customizable Kanban boards and job tracking features, our app stands out by providing pre-built columns specifically for job status, detailed job application tracking, search functionality, and job application statistics. Additionally, the integration of an AI resume generator is a unique feature that offers added value, which none of the other competitors currently provide. This combination of features makes our product more specialized and efficient for job tracking.

High-level system requirements

Cloud Server Provider	Render
Cloud Deployment for frontend	Render static site service
Cloud Deployment for backend	Render web service, 512 MB RAM, 0.5 CPU
Database	PostgreSQL 16.4
Database Management Tool	pgAdmin 4
Backend Framework	Express & Node.js 20.17.0
Backend Build Tool	ESBuild
Backend Unit Test	Jest
Frontend Framework	React
Frontend Component Library	Material UI
Frontend HTTP Request Library	Axios
Frontend Build Tool	Vite
Frontend Unit Test	Vitest
External API	OpenAI API
IDE	Visual Studio Code
Operating System	Ubuntu 22.04 LTS
Programming Language	TypeScript
Supported Browsers	Google Chrome, Firefox, Opera, Edge, Safari

Team

Name	Role	Study Group	Study Plan
Rishita Meharishi	Team Leader	Frontend Team Rishita Luai Zaw	Detailed study plan below
Luai Almaznai	Frontend Lead		
Zaw Win Tun	Scrum Master		
L Chow	Backend Lead	Backend Team L Yee	
Yee Yang	Github Master		

Checklist

Task	Status
The team found a time slot to meet outside of the class	DONE
Scrum Master shares meeting minutes with everyone after each meeting	DONE
GitHub master chosen	DONE
Everyone sets up their local development environment from the team’s git repo	
The team decided and agreed together on using the listed SW tools and deployment server Detailed study plan below	
The team lead ensured that all team members read the final M1 and agree/understand it before submission	

Milestone 1 Study Plan

Tech Stack	Who Will Lead	Expected Goal within one month from the M1	Learning Resources
React	Rishita	<ul style="list-style-type: none">- Set up project structure using React with Vite by Week 1.- Implement basic routing and state management for the application by Week 3.- Have at least 2-3 components (e.g., header, job listing component) fully implemented by Week 4.	React Docs Vite + React Guide
Material UI	Luai	<ul style="list-style-type: none">- Integrate Material UI for project styling by Week 2.- Implement basic UI components (Button, Grid, Form) by Week 3.- Ensure responsive design across multiple devices by Week 4.	Material UI Docs Material UI Tutorial
TypeScript	Zaw	<ul style="list-style-type: none">- Familiarize yourself with TypeScript fundamentals by Week 1.- Convert key parts of the codebase from JavaScript to TypeScript by Week 2.- Implement type-safe models and API calls using TypeScript by Week 4.	TypeScript Handbook TypeScript for React
PostgreSQL	Yee	<ul style="list-style-type: none">- Set up PostgreSQL database on local or cloud by Week 1.- Implement DB schema for the main data items (job applications, users, etc.) by Week 2.- Write SQL queries for CRUD operations (Create, Read, Update, Delete) by Week 3.- Integrate PostgreSQL with the backend by Week 4.	PostgreSQL Tutorial
Render	Yee	<ul style="list-style-type: none">- Deploy the backend server on Render by Week 1.- Set up automatic deployments from GitHub by Week 2.- Ensure connection between the frontend and backend on Render by Week 4.	Render Deploy Guide
Express	L	<ul style="list-style-type: none">- Set up an Express server with basic routes by Week 1.- Implement authentication (e.g., JWT) and main routes by Week 3.- Integrate routes with PostgreSQL database by Week 4.	Express Docs Express with TypeScript