Deliverable 2

Part 1: Software Architecture

1. What external data sources will your system be accessing?

- **APIs:**
  a. Indeed Job Search
  b. Github Job
  c. Adzuna
  d. CareerJet
  e. NewsAPI

  The team has decided to use multiple APIs for the website to collaborate all the possible jobs available and give the user the best options from a wide range of options. Our system will be accessing Indeed Job Search, Github Job, Adzuna and CareerJet to sort through all options and find the most suited job for the user. The website will also be using NewsAPI which will allow the website to show the latest news relevant to job intake and give the user a great amount of insight on what's happening in regards to getting hired.

2. Software components: the selected Web stack showing major software components that comprise your solution. These will include both components that need to be developed and third-party components (e.g. web browser).

- **Web browser:** Chrome, Safari, Firefox, Opera and Edge
- **Frontend:** The front end will be developed with vanilla javascript with bootstrap framework and JQuery as well in addition to HTML and CSS.
- **Backend:** Our backend server will be developed through the use of the Flask framework, as such python would be the language for the backend. The backend server will be hosted through AWS.
- **Web Hosting:** Our webpage will be done with dedicated web hosting via HostGator.
- **Database:** Database will be hosted on AWS and be accessed via sqlite3 in python.

3. Relating choices to components: decide which language should be used for which component of the software architecture.
- **Frontend**: HTML, CSS, JS, JQuery
- **Backend server**: Python
- **Database**: Python and SQL

4. The choice of a platform: decide on machine or machines requirements (Linux, Windows etc.) for the final system
- Windows
- Mac OS
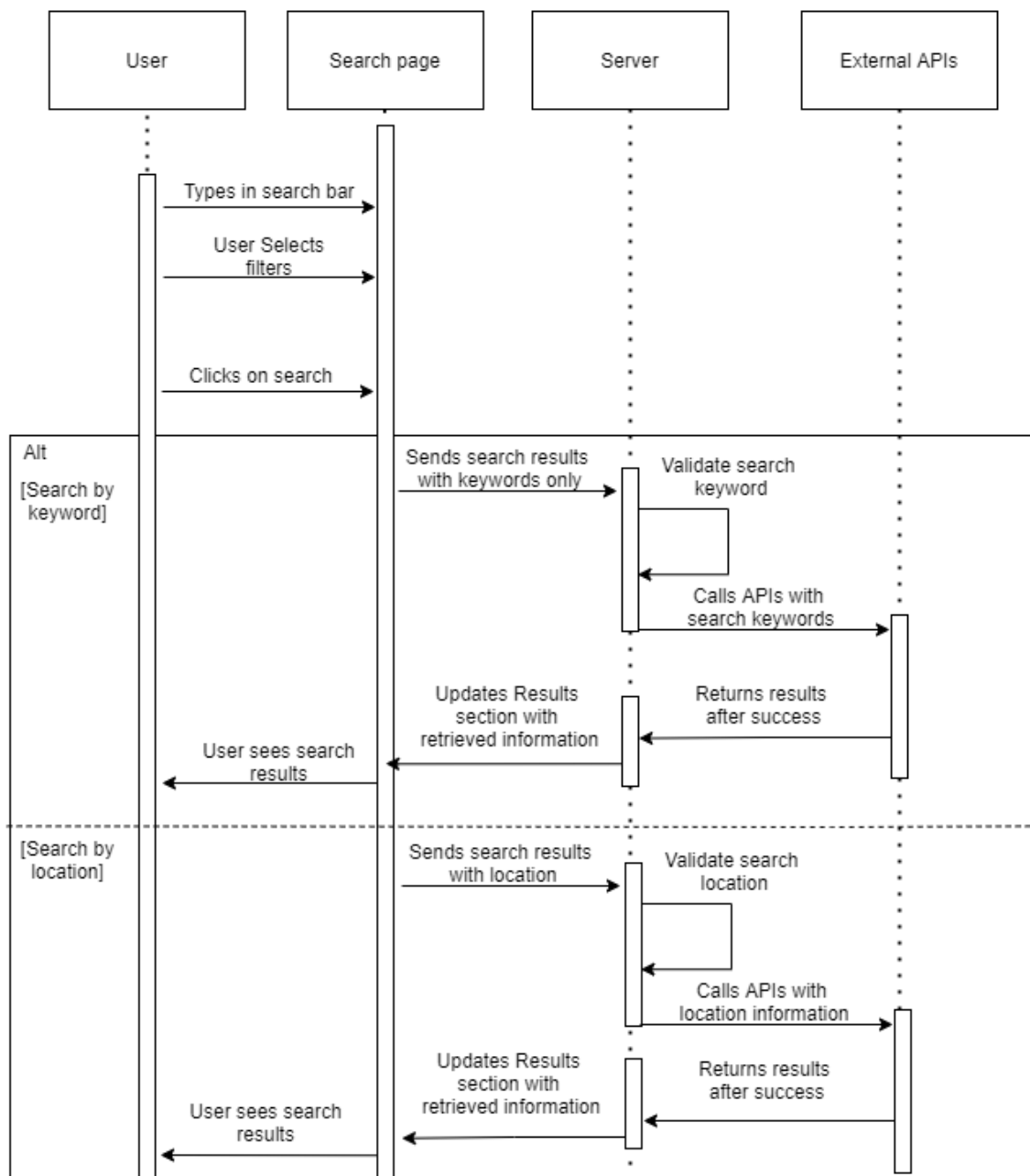- Database and backend server hosted on AWS

5. Make a summary of the key benefits/achievements of your architectural choices
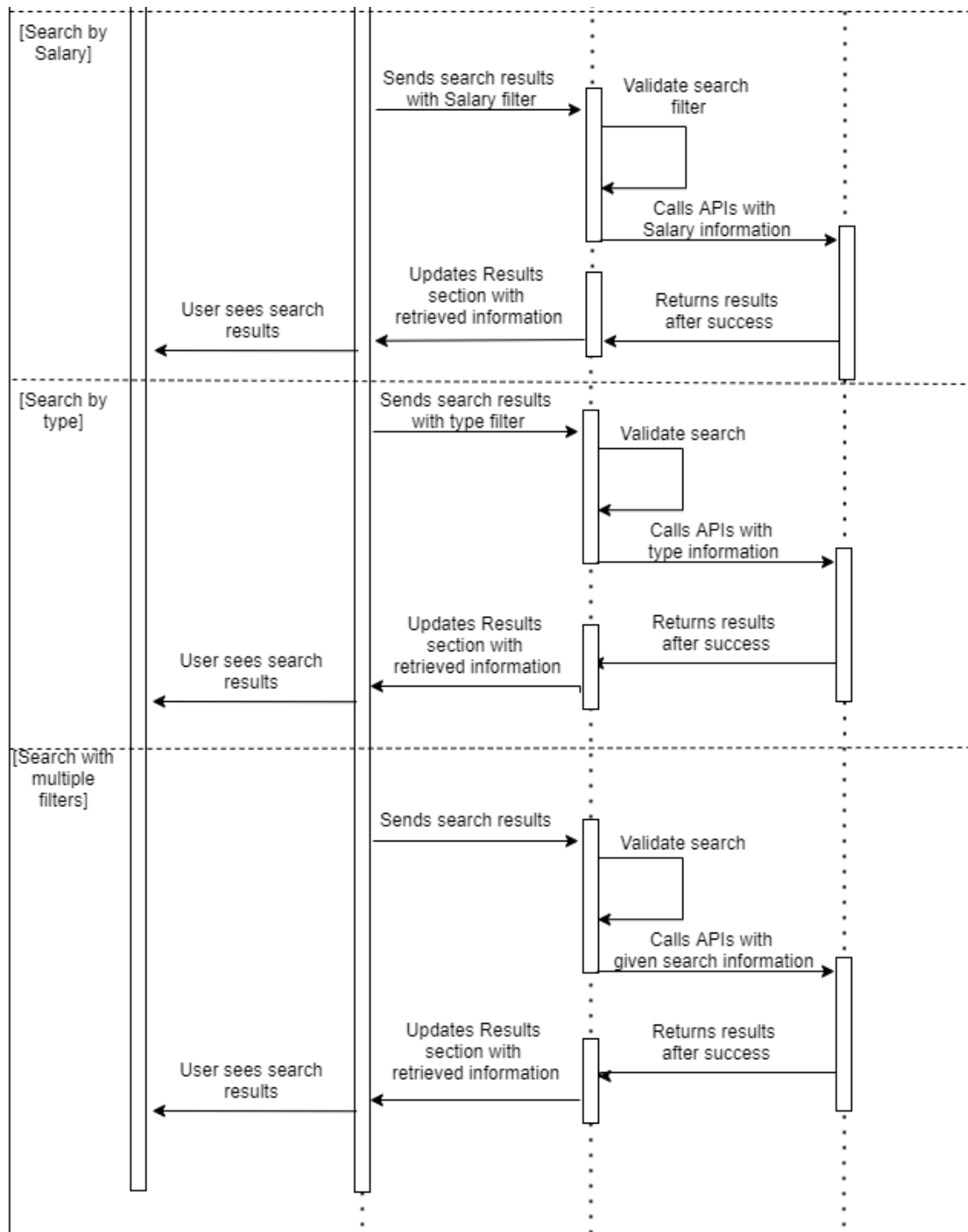
- **Python** → Python is used as it is a simple programming language that is easy to learn and utilise. Additionally, most of our chosen APIs have a python wrapper that will allow us to more easily integrate them into our web-app.
- **HTML + CSS + JS (With bootstrap framework)**→ Required for front-end web dev. We chose vanilla javascript over react and other options as a team, we are not familiar with react and others. We've also decided to use bootstrap for some of our UI components as well as bootstrap provides many templates that will be very useful for creating the front-end.
- **APIs** → Picked API's that were relevant to our website and were the easiest to integrate into our platform with python.
- **SQL(sqlite3) database** → We chose to use the sqlite3 db-api to store our information as it allows us to easily access and update the database through python.
- **Database hosted on AWS** → We chose to host our database on AWS over hosting it on a home server as AWS allows us to use Amazon's massive infrastructure including their computing and storage power. It also allows to scale our website based on current demand as AWS includes auto scaling
- **Flask** →We chose Flask over Django because it is designed for more complex web-apps, therefore python was our choice. Flask gives us more control over our project, since you can choose which components to use and how you interact with them.
- **MacOS/ Windows** → We chose to design/create our web app around these popular, mainly used systems as it allows us to reach a wide user base.

Part 2: Initial Software design

1. Search bar that filters by location, salary, job type, and keyword.

   a. As a jobseeker, I want a search bar so that I can find specific job postings based on keywords.

   - **Search job postings by keyword:** Given that I am on the homepage, when I fill in "retail" in the search bar and click "search" then I can view the most relevant job postings that are specified as "retail"

   b. As a jobseeker, I want a filter so that I can find specific job postings based on location.

   - **Search job postings by location**: Given that I am on the homepage, when I type "Sydney" under the location filter then I can view the most relevant job postings that are located in or around "Sydney".

   c. As a jobseeker, I want a filter so that I can find specific job postings based on salary.

   - **Search job posting by salary:** Given that I am on the home page, when I click "100 000K" under the salary filter then I can view the most relevant job postings that has a salary of at least 100 000K pa

   d. As a jobseeker, i want a filter so that i can find specific job postings based on job type.
   - **Search job postings by job type:** Given that I am on the homepage, when I click "part-time" under the job-type filter then I can view the most relevant job postings that are specified as looking for part-time workers

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Search results(Home page, results page)

User	Search page	Server	External APIs

User → Search page: Types in search bar

User → Search page: User Selects filters

User → Search page: Clicks on search

Alt

[Search by keyword]

Search page → Server: Sends search results with keywords only

Server: Validate search keyword

Server → External APIs: Calls APIs with search keywords

External APIs → Server: Returns results after success

Server → Search page: Updates Results section with retrieved information

Search page → User: User sees search results

[Search by location]

Search page → Server: Sends search results with location

Server: Validate search location

Server → External APIs: Calls APIs with location information

External APIs → Server: Returns results after success

Server → Search page: Updates Results section with retrieved information

Search page → User: User sees search results
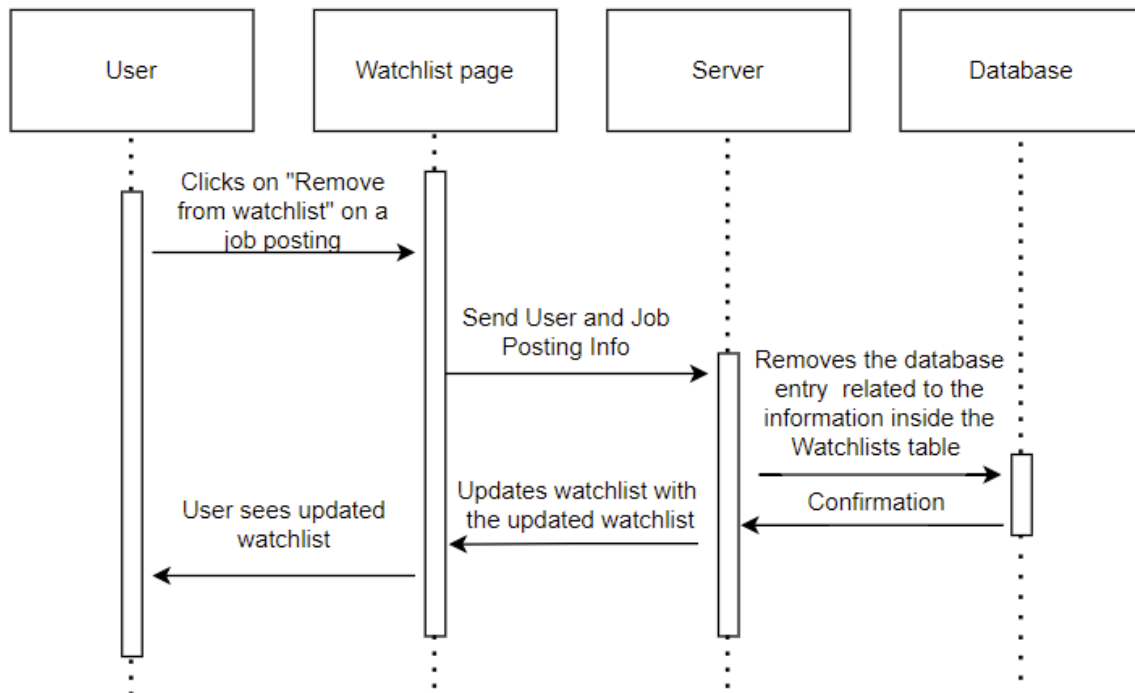
2. Watchlist for job postings

    a. As a job seeker, I want to add job postings to a watchlist so that I can check the availability and details of the job posting.

    - **Add a job posting to the watchlist via job posting page:** Given that I am logged in viewing a job posting, when I click the "Add to Watchlist" button, then I have that job posting added to my watchlist and then the "Add to

Watchlist" button's text will change to "Remove from Watchlist" giving a clear indication that I have added the Job.

Watchlist (Add job posting to watchlist through job posting page)
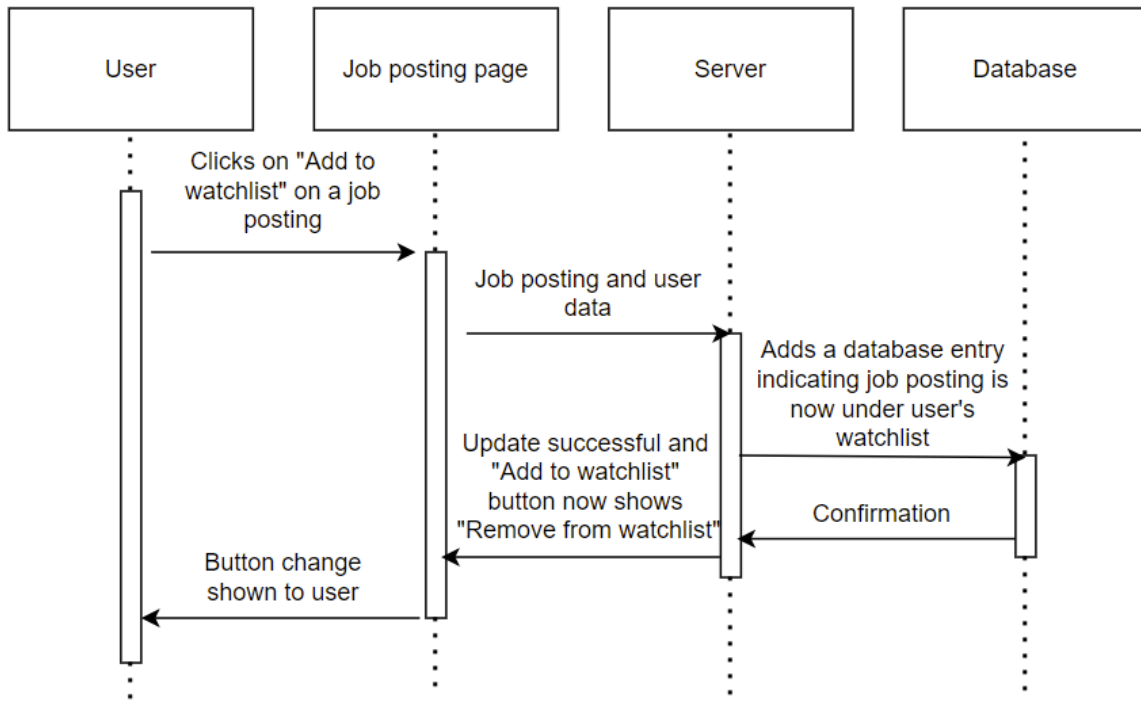
b. As a jobseeker, I want to remove job postings from my watchlist so that I only have a list of job postings that I am still interested in.

- **Remove a job posting from the watchlist via watchlist page**: Given that I am logged in and on my watchlist page, when I am viewing the watchlist, then I can see the job postings ordered by my most recent add, and each job posting will have a "Remove from watchlist" button on its right, when i click the the "Remove from Watchlist" button then I have that job posting removed from my watchlist

Watchlist(Remove a job posting on Watchlist page)

- **Remove a job posting from the watchlist via job posting:** Given that I am logged in and viewing a job posting, when I click the "Remove from Watchlist" button, then I have that job posting removed from my watchlist and then the "Remove from Watchlist" button's text will change to "Add to Watchlist" giving a clear indication that I have removed the Job.

Watchlist (Remove job posting from watchlist through job posting page)
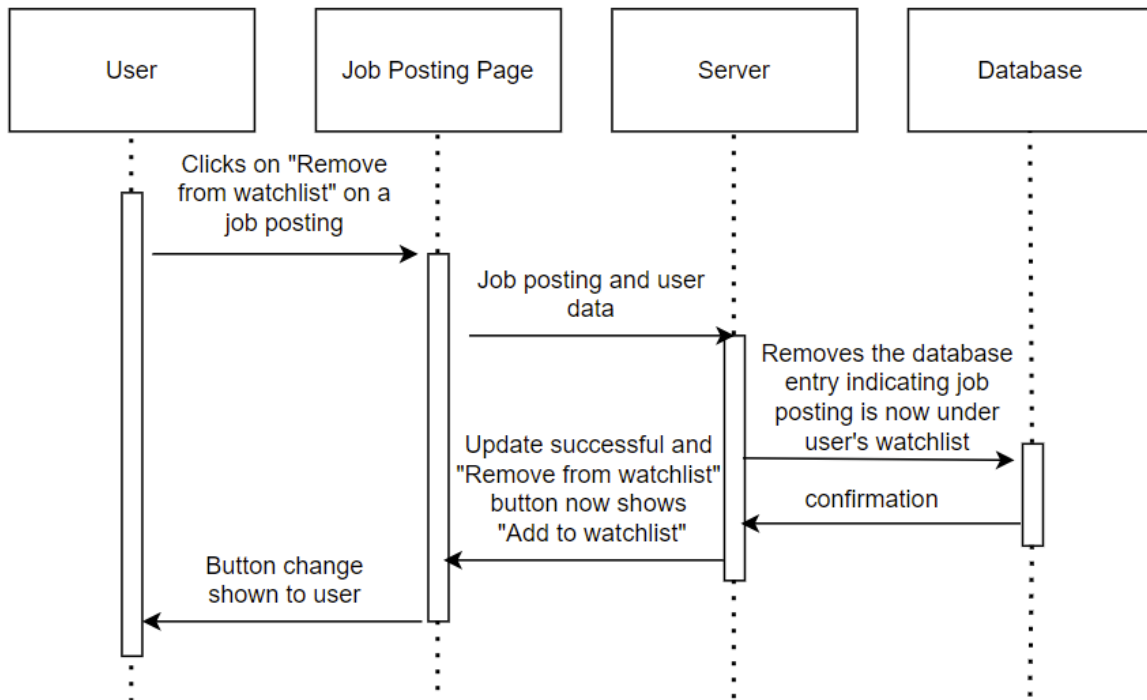
c. As a jobseeker, i want to have job postings that are no longer available in my watchlist to be separated from the available job postings so that I am aware of the available job postings in my watchlist

- **A job posting from the watchlist is no longer available:** Given that I am logged in and on my watchlist page, when a job posting has ended, then the job posting will be moved to the top of the "No longer available" list at the bottom of the watchlist page.
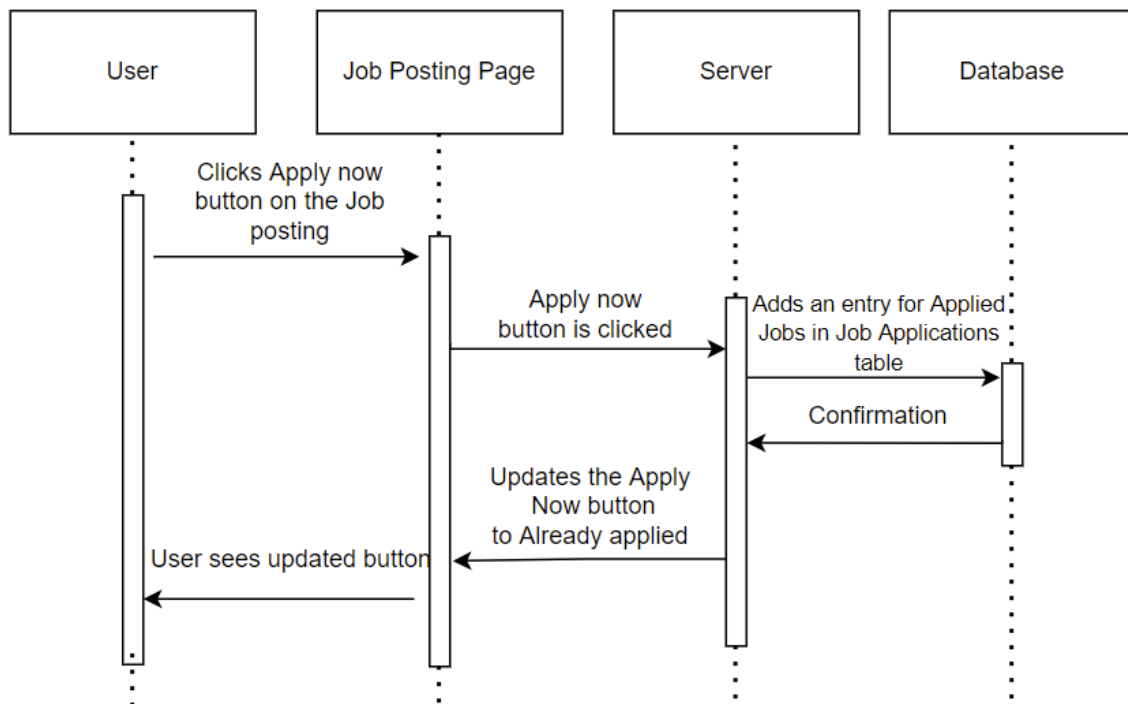
Watchlist (A job posting is no longer available)
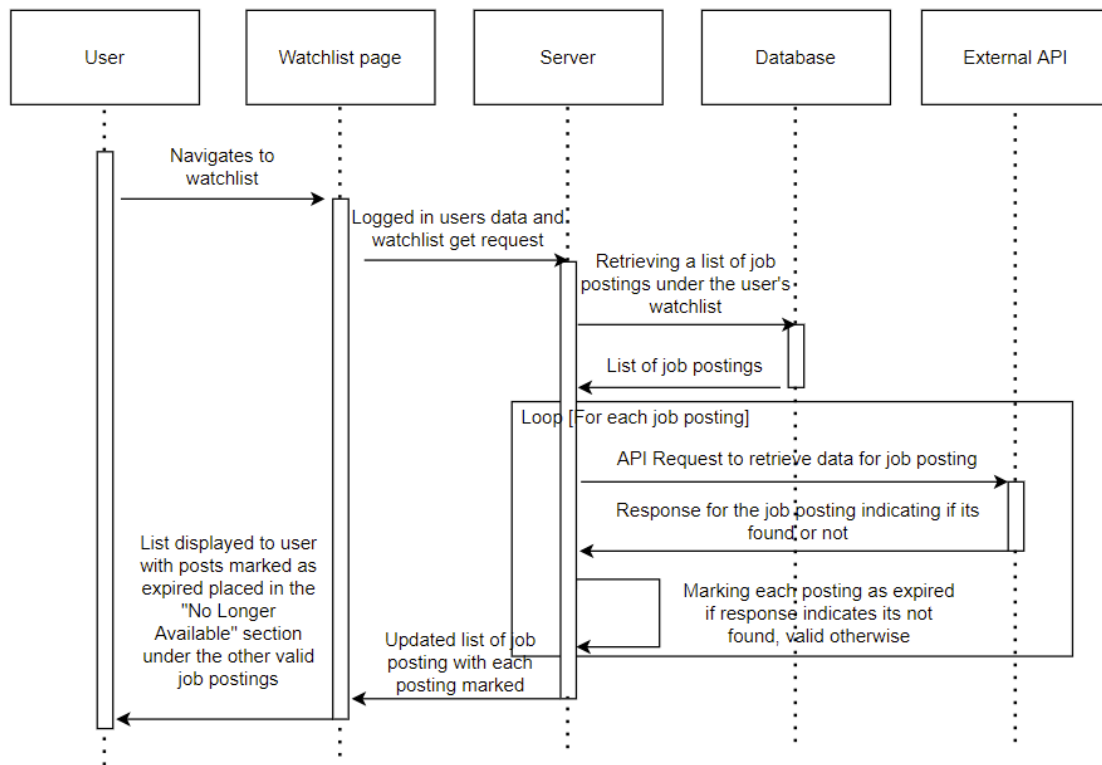

3. Job application tracking

   a. As a jobseeker, I want to be able to mark a job as applied so I can keep track of which jobs postings I've applied to.

   - **Apply for a job posting on the Job posting page:** Given that I am logged in and viewing a job posting that I have not previously applied for, when I click on apply now then the "Apply now" button will be disabled with the text changed to "Already applied" and a new tab for the job posting will be opened.

Job application tracking
(Job posting Page)

User	Job Posting Page	Server	Database

Clicks Apply now button on the Job posting

Apply now button is clicked

Adds an entry for Applied Jobs in Job Applications table

Confirmation

Updates the Apply Now button to Already applied

User sees updated button

b. **Viewing search results with a job posting that has been applied for:**
Given that I am viewing a list of job postings, then each job posting will show an "Apply now" button if the job posting has not been applied to and a disabled "Already Applied" button if the user has already been led to the official job posting link.
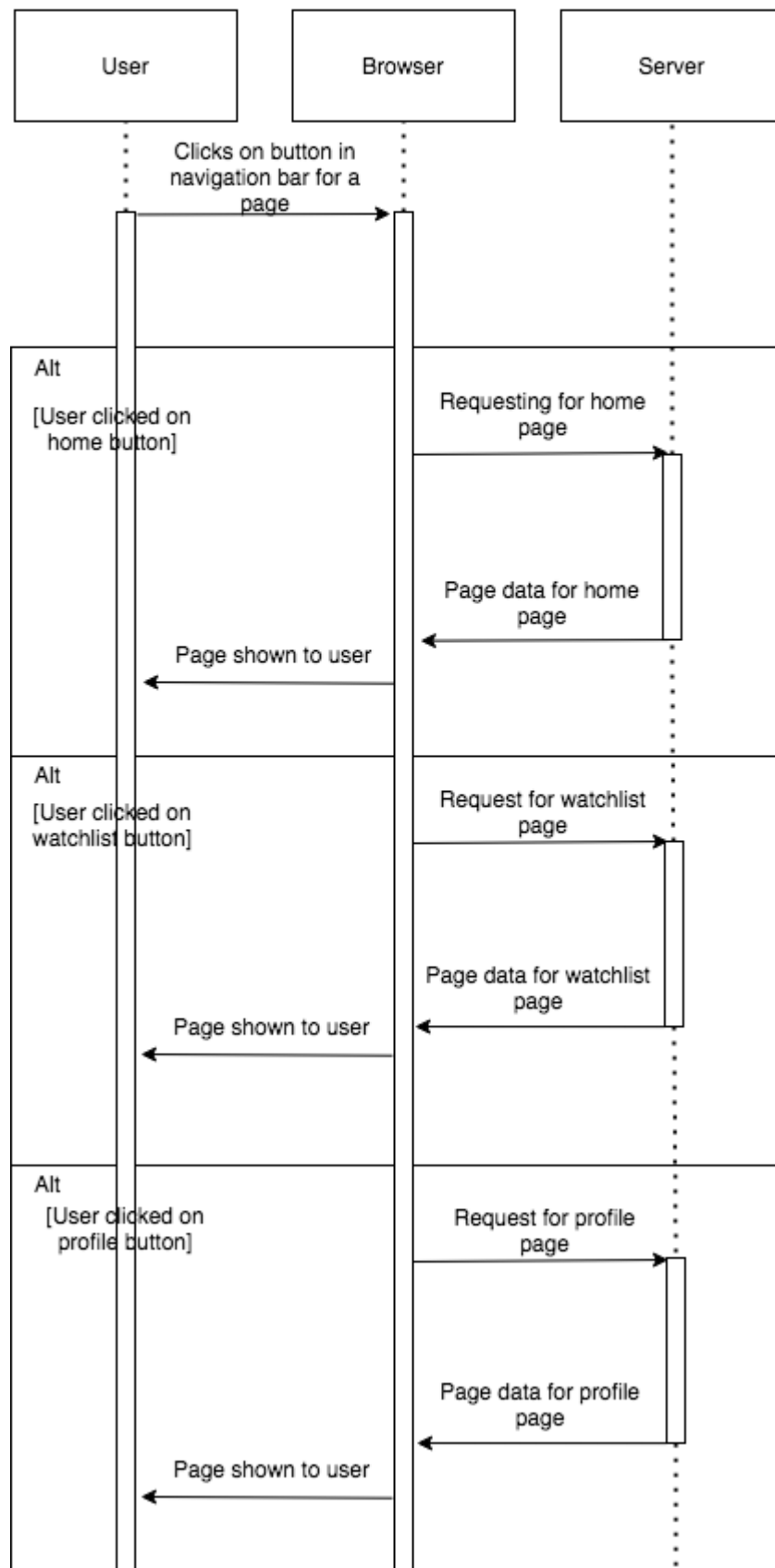
Job application tracking
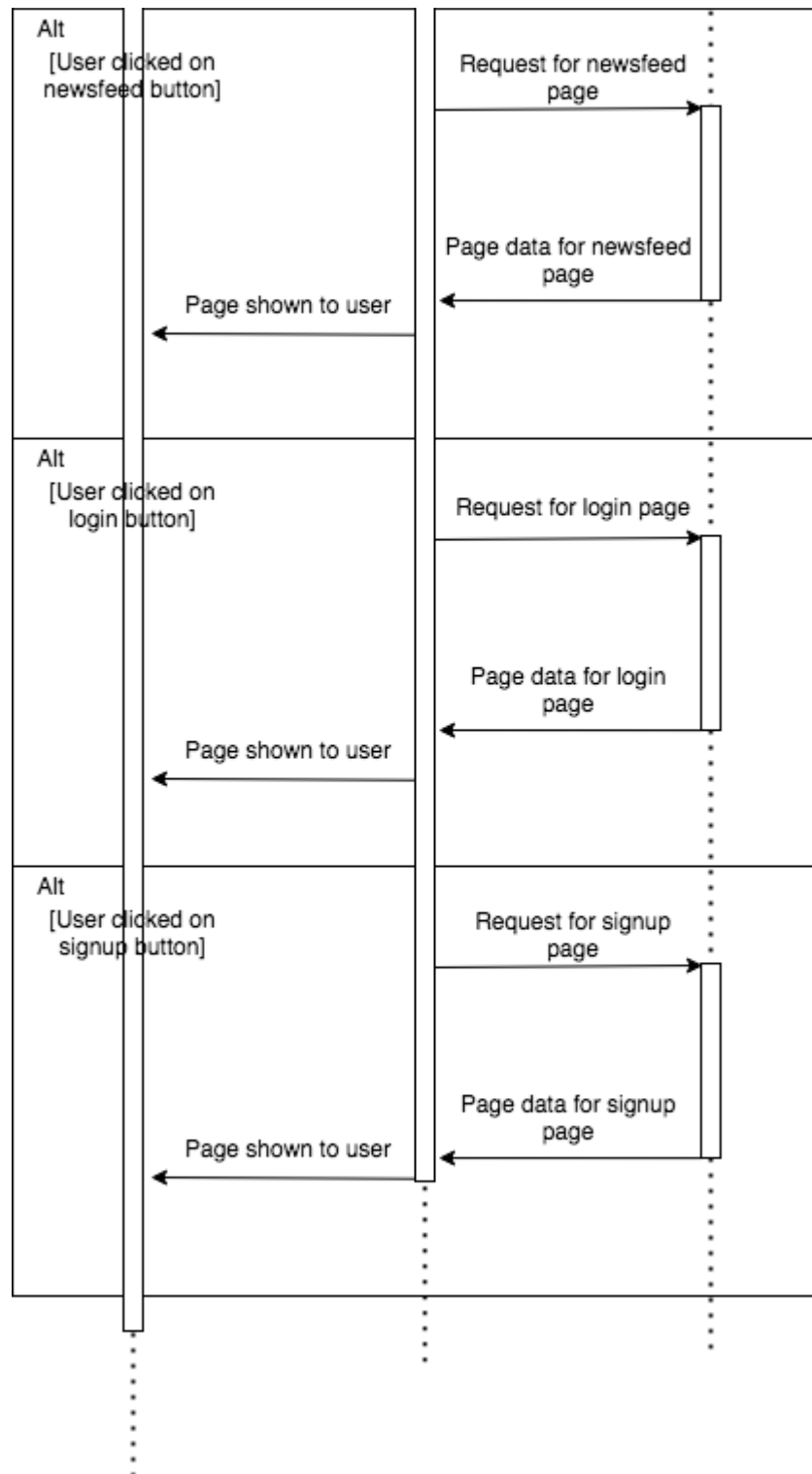# (Job listing page)
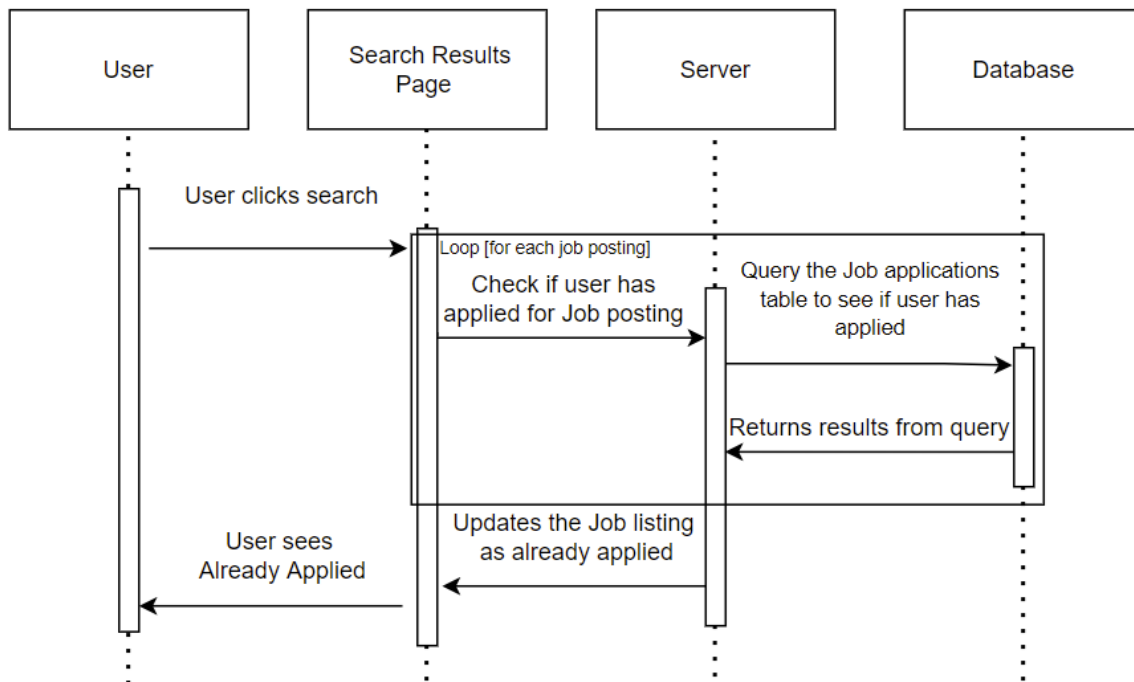
4. Navigation bar

   a. As a job seeker, I want a navigation bar so that I can access different components of the website more easily such as home page, watchlist, newsfeed and profile.

   - **Using the navigation bar after login:** Given that I am logged in and on any page, when I click on "Home" in the navigation bar then I am able to navigate to the "Home" page, when I click on "Profile" in the navigation bar then i am able to navigate to the "Profile" page, when I click on "Newsfeed" in the navigation bar then i am able to navigate to the "Newsfeed" page, when I click on "Watchlist" in the navigation bar then i am able to navigate to the "Watchlist" page, when I click on "Log out" in the navigation bar then I will be redirected to Home page and "Watchlist" and "Profile" will be removed and replaced with "Login" and "Sign up" options in the navigation bar
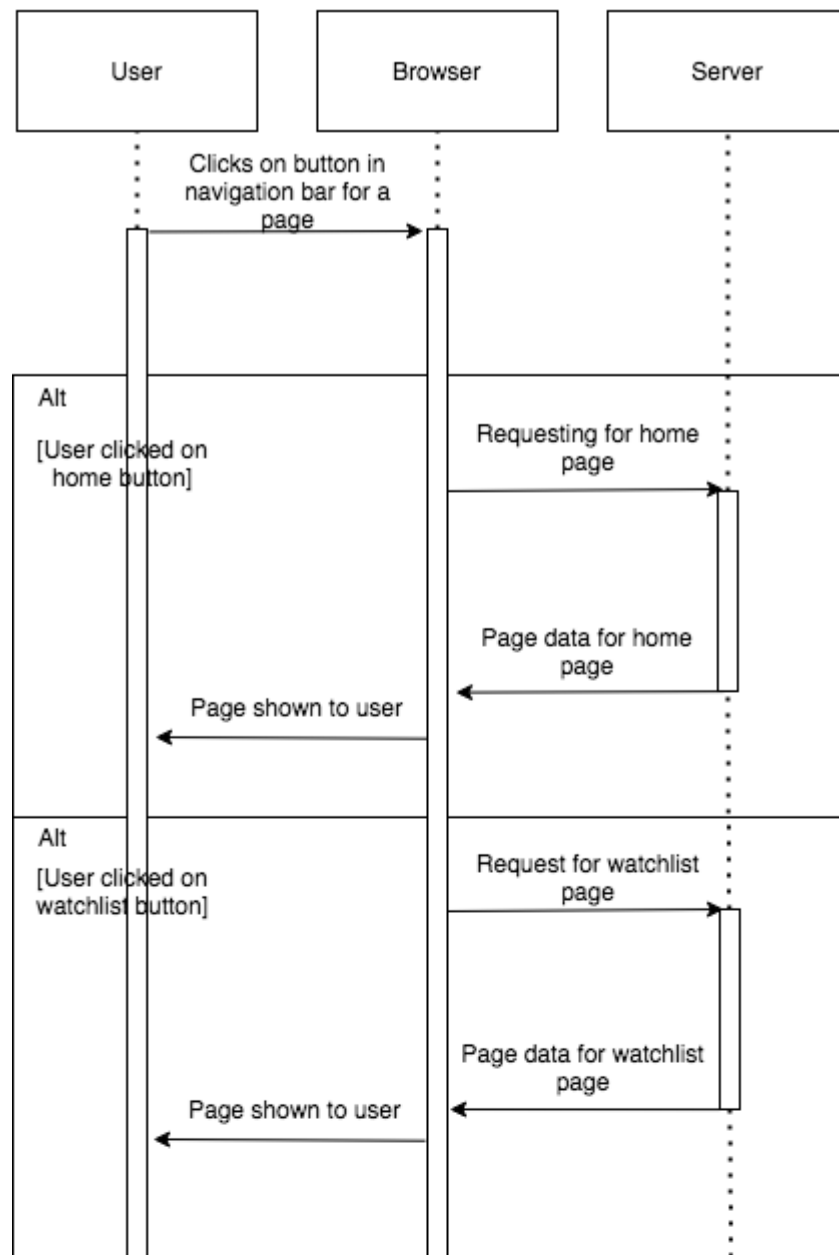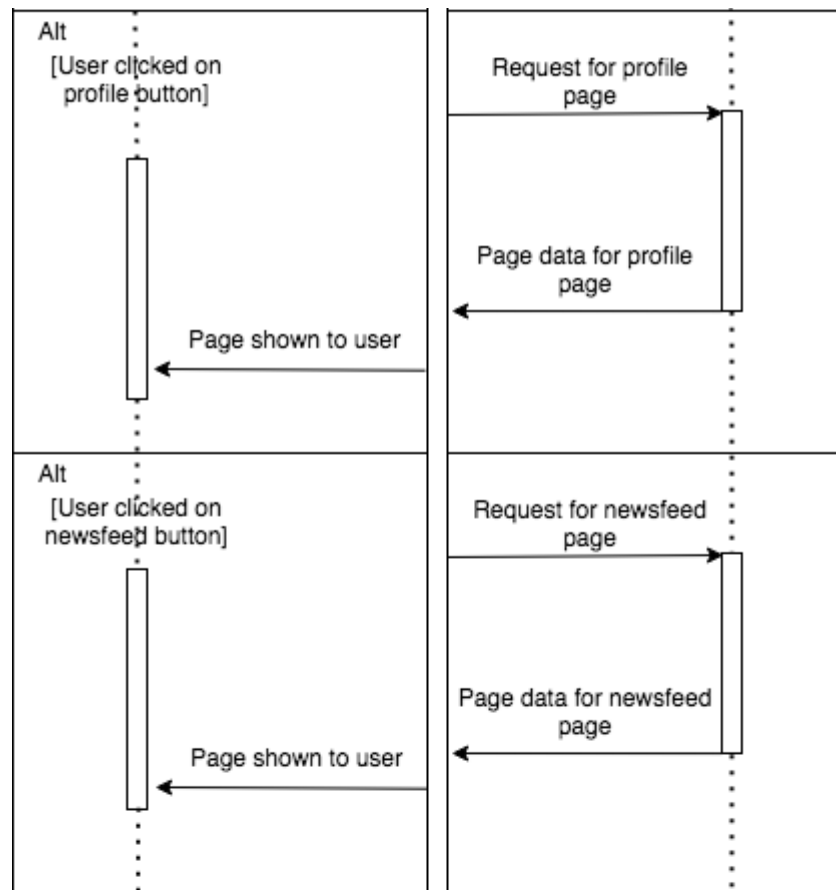
Navigation Bar

User	Browser	Server

Clicks on button in navigation bar for a page

Alt

[User clicked on home button]

Requesting for home page

Page data for home page

Page shown to user

Alt

[User clicked on watchlist button]

Request for watchlist page

Page data for watchlist page

Page shown to user

Alt

[User clicked on profile button]

Request for profile page

Page data for profile page

Page shown to user

- **Using the navigation bar before login**: Given that I am not logged in and on any page, when I click on "Home" in the navigation bar then I am able to navigate to the "Home" page, when I click on "Newsfeed" in the navigation bar then i am able to navigate to the "Newsfeed" page, when I click on "Login" in the navigation bar then i am able to navigate to the "Login" page, when I click on "Sign Up" in the navigation bar then i am able to navigate to the "Sign Up" page.

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Navigation Bar

	User	Browser	Server

Clicks on button in navigation bar for a page

Alt

[User clicked on home button]

Requesting for home page

Page data for home page

Page shown to user

Alt

[User clicked on watchlist button]

Request for watchlist page

Page data for watchlist page

Page shown to user

Etchness

5. Most popular job postings
   a. As a job seeker, I want to be shown the most popular job postings available so that I can apply for job postings that are in high demand

   - **View most popular job postings:** Given that I am on the home page, when I click on "Most popular jobs", then the page will scroll up and a list of the most job postings show up.

Popular Jobs
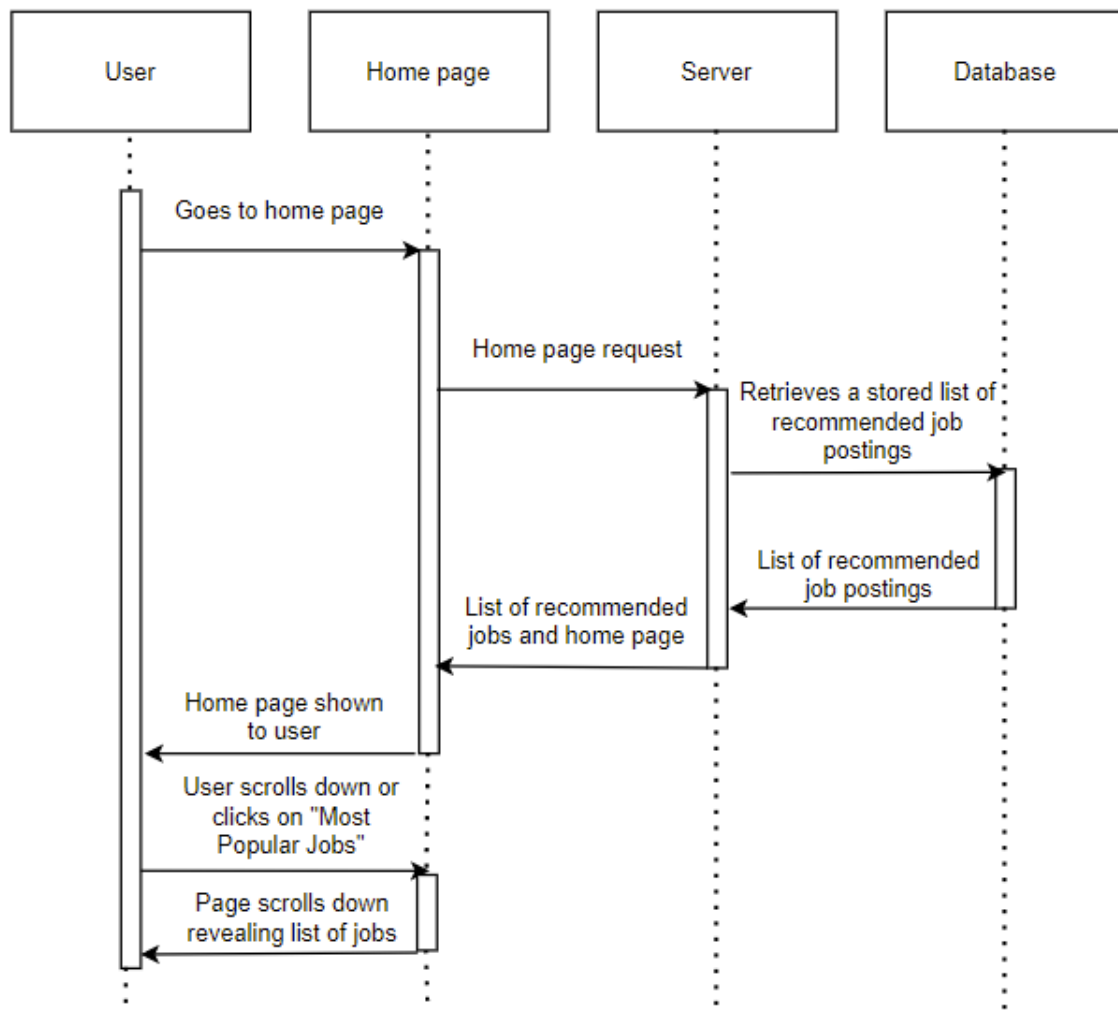
6. Newsfeed
    a. As a job seeker, I want to see all the relevant news about the latest employment and job intake/outtake.

    - **Read a news article from the newsfeed:** Given that I am on the news feed page, then I can see a list of the most recent news articles and each article will have a title, thumbnail, date, and short description, when I click into an article then a new tab on the specified article will be opened.
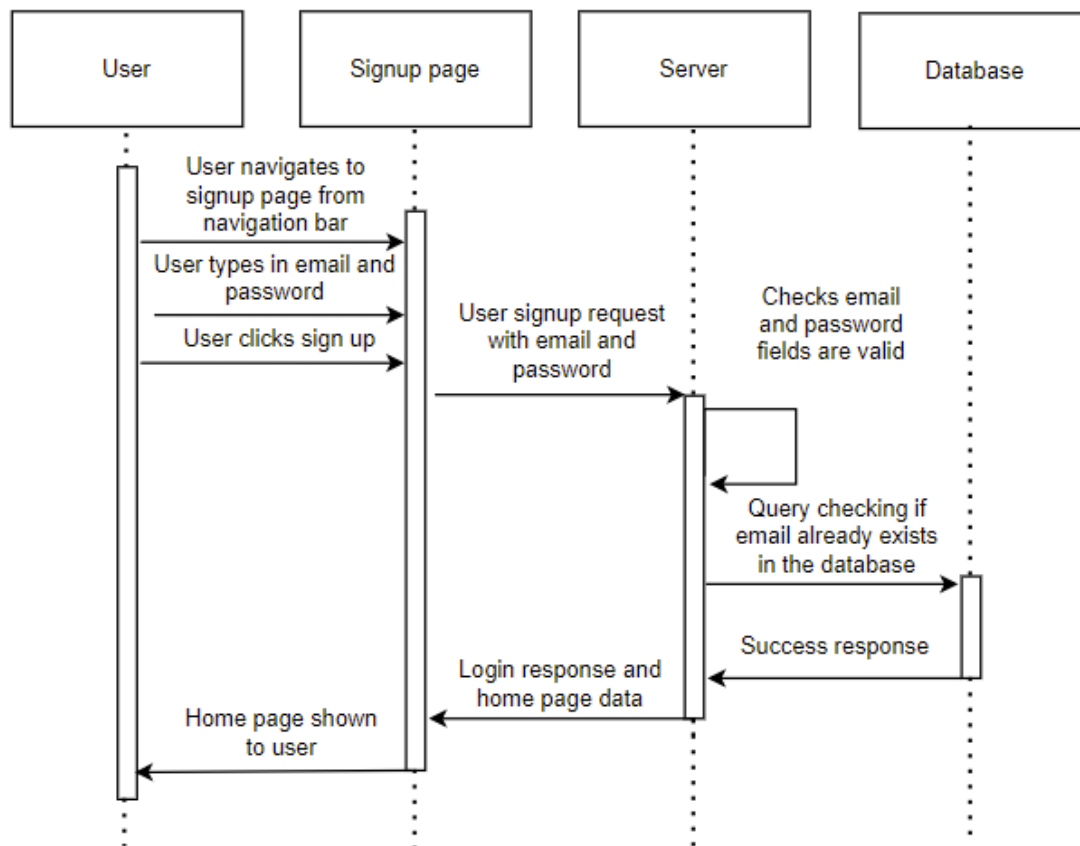
Newsfeed
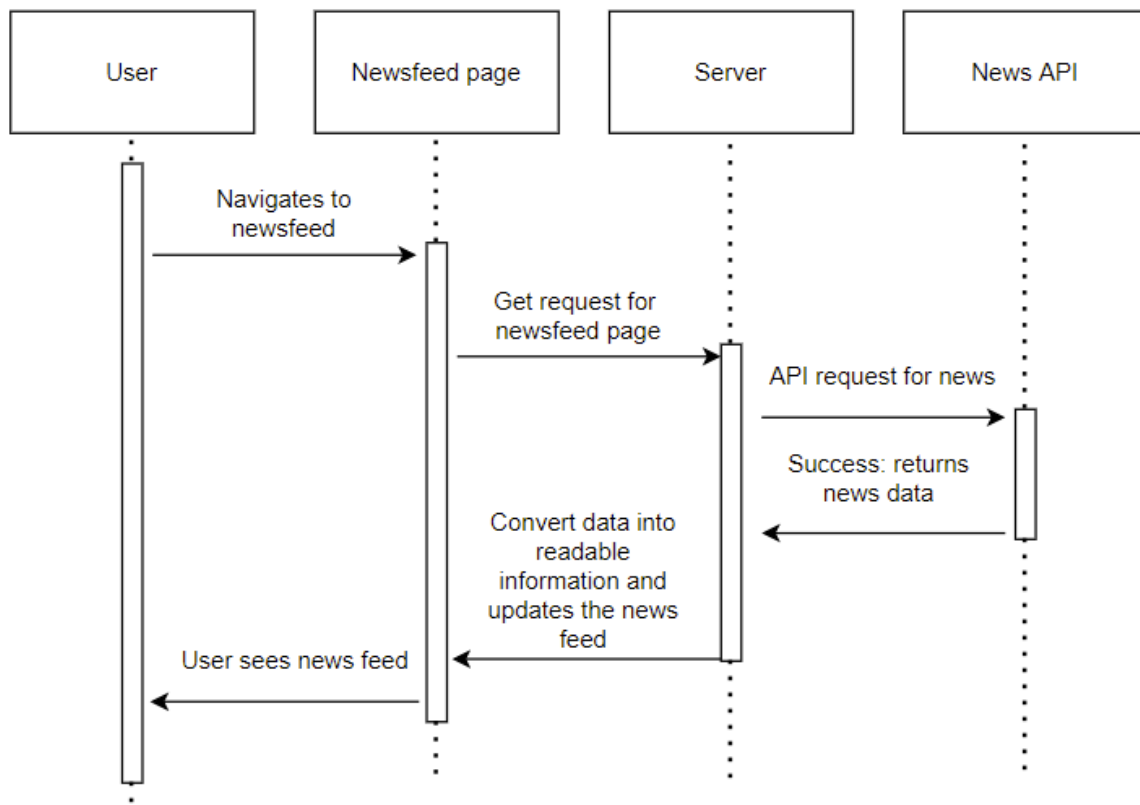
7. Register
   a. As a job seeker, I want to be able to register an account so that I can save job postings to my personal watchlist

   - **Register a new account via nav bar:** Given that I am on the home page, when I click the "Sign up" button from the navigation bar then I will be directed to the register page, when I enter a valid email, password and confirm password input and click the "Register" button, then I will be directed to the home page and am able to access my personal watchlist and profile page from the navigation bar.

Signup (Navigation bar)

- **Register a new account via login page:** Given that I am on the login page, when i click the "Register" button under the "Login" button then I will be directed to the register page, when I enter a valid email, password and confirm password input and click the "Register" button, then I will be directed to the home page and am able to access my personal watchlist and profile page from the navigation bar.

Signup (login page)
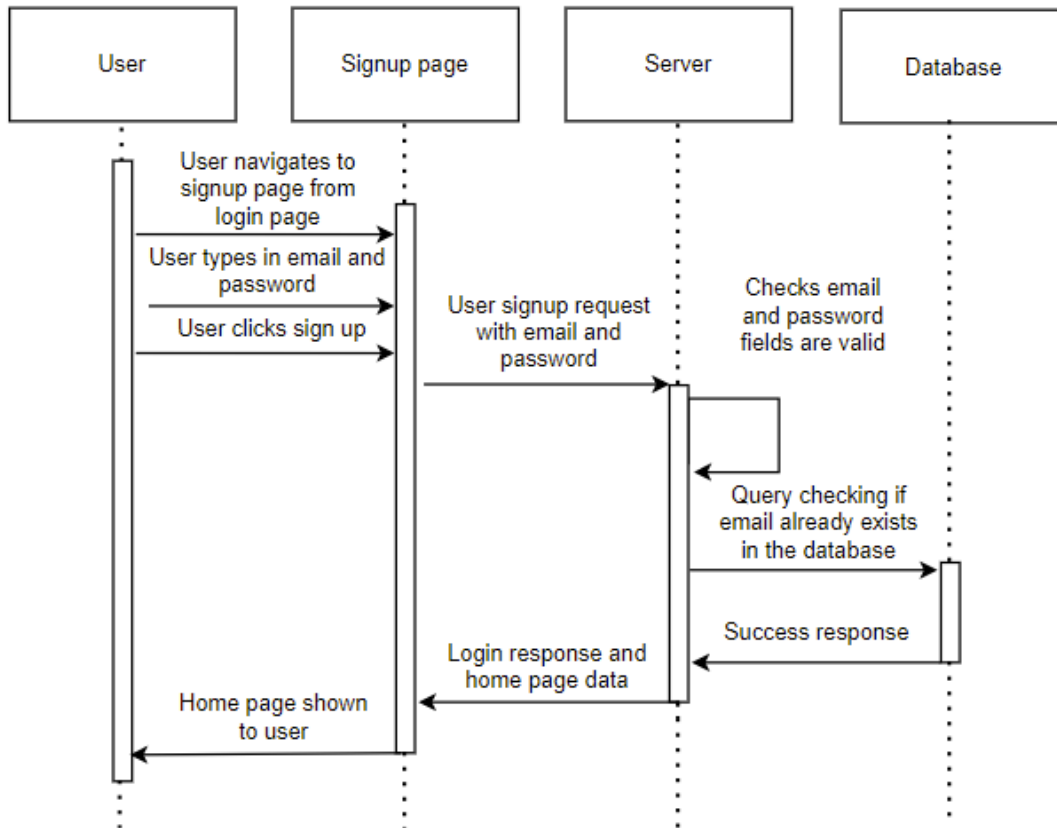
8. Log in and log out
    a. As a job seeker i want to be able to log into my personal account so that all my data is saved from where i left it.

    - **Log in to personal account via nav bar:** Given that I am on the home page, when I click the "Login" button from the navigation bar then I will be directed to the login page, when I type in my email and password correctly and click the "Login" button, I will be directed to the home page and am able to access my personal watchlist and profile page from the navigation bar.
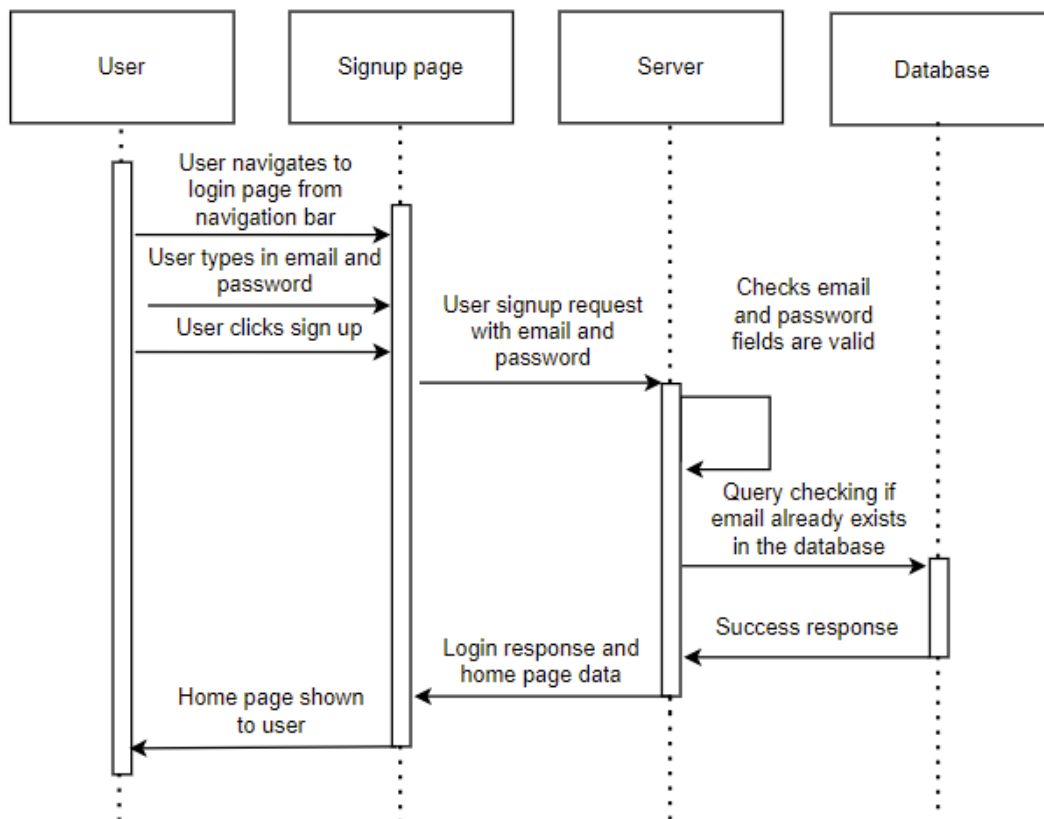
Login

- **Log in to personal account via register page:** Given that I am on the register page, when i click the "Login" button under the "Register" button then I will be directed to the login page, when I type in my email and password correctly and click the "Login" button, I will be directed to the home page and am able to access my personal watchlist and profile page from the navigation bar.

Login
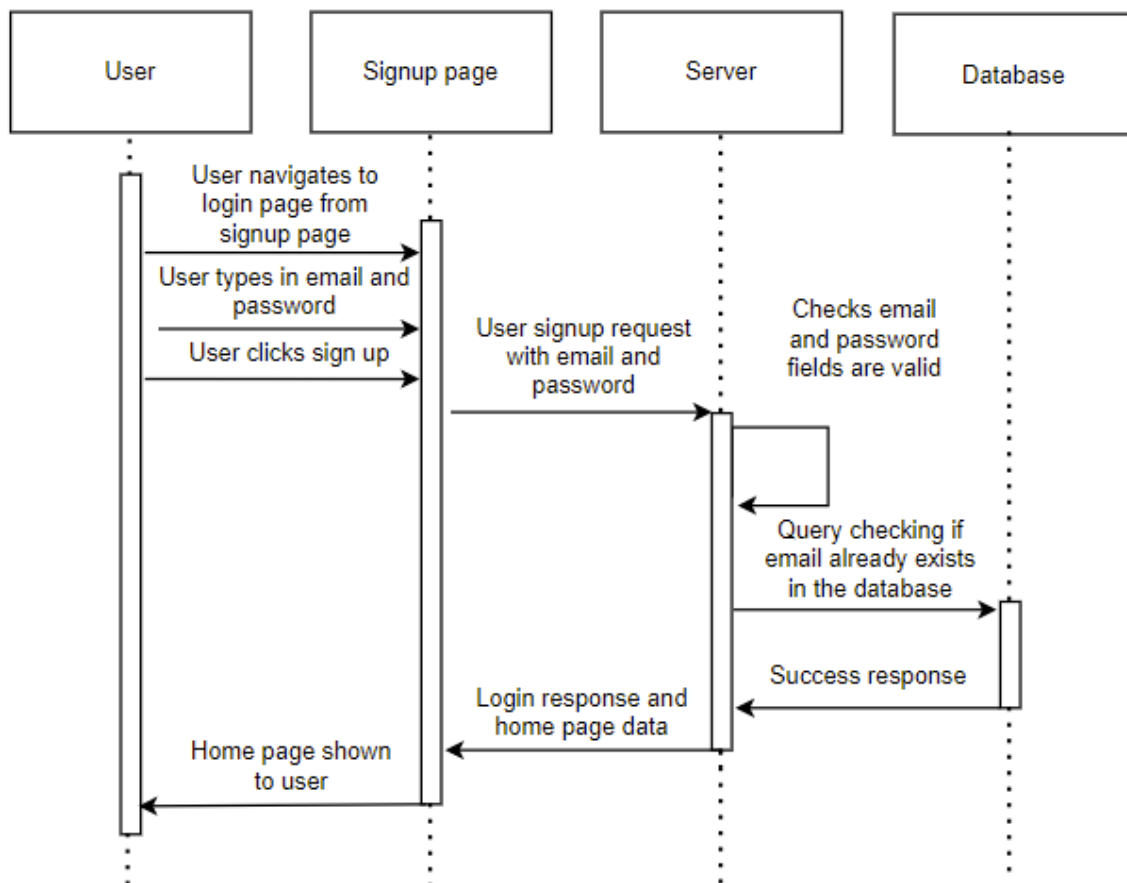
b. As a job seeker i want to be able to log out of my personal account so all my data can be saved for later.

- **Log out of personal account when logged in:** Given that I am on any page, when I click on the "Logout" button from the navigation bar then I can no longer access a personal watchlist or a profile option in the navigation bar.

Logout
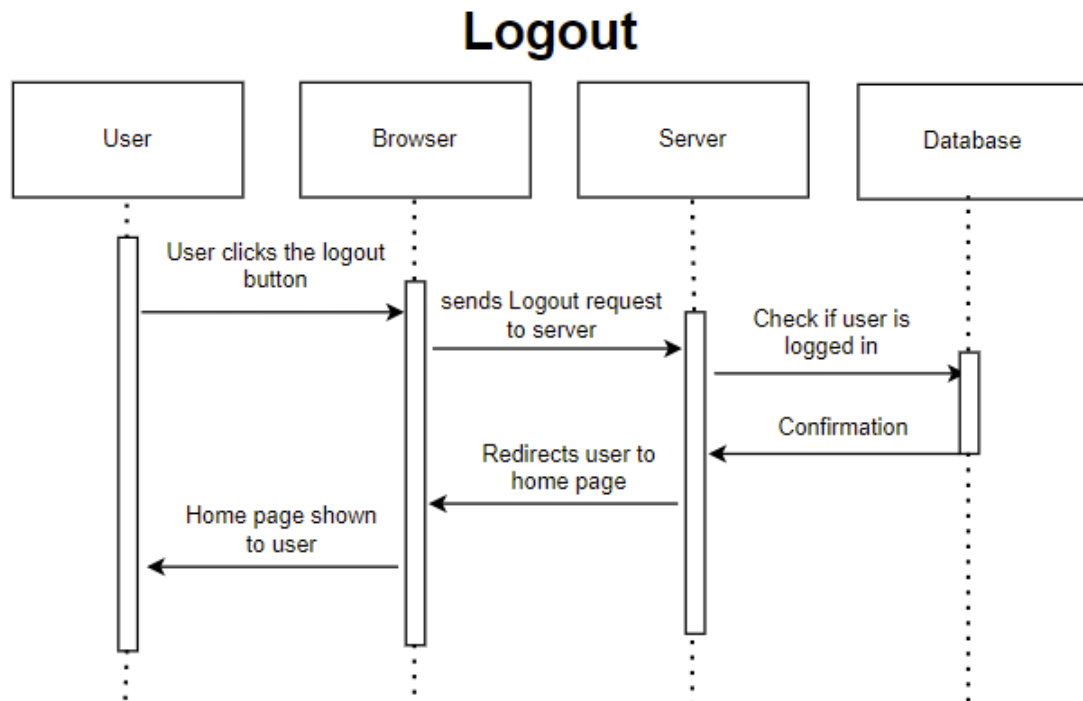
9. Profile page
   a. As a jobseeker, I want to be able to view my profile details so that I can change or update any information.

   - **Edit personal details:** Given that i am on the profile page, when i click "Edit profile" then I can rewrite my full name, password and email and then when I click "Save Changes", those changes are saved for my profile.

Etchness

Profile Page