Object Oriented Analysis and Design
Course project - Application and Recruitment Environment

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1.1.1 Problem

something about this shit?

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something about this shit?

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something huh

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1.4 Use-case model

Figure 1: Use-case model

1.4.1 View profile

Description:

- As a visitor or logged in user, views the profile information of other users on the system.

- Depending on the permission level, the information that are made available is different.

Actors:

- Visitor.

- Applicant.

- Employer.

- Administrator.

- User database.

Trigger:

- Users clicking on another user's name or profile picture within the website.

- Users visiting the direct link to another user's profile page.

- Logged in users clicking on their own profile picture.

Preconditions:

- The user exists in the user database with their basic information

- The user's account is not locked.

Postconditions:

- The user is presented with the profile.

- Sections and options are provided based on authentication status, permissions and available information.

- The visit gets logged if the profile owner chose to do so (for statistical reasons).

Flow of events:

- User click on another user's feature (e.g., name, avatar) within the site (in post, feeds, suggestions).

- The system determines what data get shown and what get hidden based on the permission level and authentication status.

- The information is displayed.

Alternative flows:

- Flow 1:

  - The user clicks on their own profile.
  - The page is displayed with all available information with ability to edit the information stored.

- Flow 2:

  - The user clicks a link from a different website linking to the user profile.
  - The system determines what data get shown and what get hidden based on the permission level and authentication status.
  - The information is displayed.

Exception flows:

- Flow 1:

- The owner blocked public visitors from seeing their profile.
  - The site displays an error message.
- Flow 2:
  - User clicking a link.
  - The user does not exist in the database.
  - The site displays an error message.

1.4.2 Create Account

Description:

- As a visitor, create an account on the system in order to access its personalized features, or features that requires identity confirmation.

Actor:

- Visitor.
- Authentication backends.

Trigger:

- User wanting to logs into the system when they don't have an existing account.

Precondition:

- User does not have an account.
- User has internet connection.

Postcondition:

- User gets logged into the application.
- Basic user authentication information is written into the database.

Flow of events:

- User accesses the website
- User intentionally opt to register / User attempts to access a website part that requires authentication
- User inputs basic information such as their email address, name and password of choice
- Authentication systems sent an email to the chosen inbox.
- User verifies by opening their email inbox and click the link
- The system saves the user's sign in information and ask for extra information as needed

Alternative flows: None.
Exceptions:

- User does not have internet connection.
  - User cannot register.
- User already have an account associated with an email.
  - Notifies user and offer to reset password.
- User fails to confirm their password.
- User's email is blocked from registering.

Business rules:

- Deny account registration if there are more than three registration attempts from the same computer within the span of a day (24 hours).

Non-functional requirements:

- User passwords are hashed with a salt for security.

1.4.3 Login

Description:

- As an existing user (applicant, employer or admin), login to an existing account.

Actor:

- Applicant.

- Employer.

- Admin.

- Authentication backends.

Trigger:

- User choosing to login on the interface

- User visiting contents that requires authentication

Precondition:

- User already have an account in the authentication database.

- User account have proper permissions to login.

- User has internet connection.

Postcondition:

- User gets logged in to the account.

- The activity is logged into the user's Activity Log.

Flow of events:

- User choose to login from the user interface or access a page that requires authentication.

- The system checks for any existing session token on the device.

- The user provides their email address and password of their choosing.

- The system compares the information the user provides with what is stored in the authentication database.

- The system logs the user in and set a session token on the device.

Alternative flows: None.
Exceptions flow:

- If the system found an existing session token on the device, instead of prompting the user for the account info, logs the user in if the token is valid.

- If the user-provided information is not correct, prompt the user and offer password reset.

- If the account is blocked from login, notifies the user and sign out automatically.

- If the user does not have internet connection before the data is sent to the server, the system will cache the data.

1.4.4 Update profile

Description:

- User go to profile page and update information. New information will be saved and displayed on profile page after user click update button.

- This feature apply to both employer and applicant.

Actor:

- Applicant or employer.

Trigger:

- User wanting to update profile information.

Precondition:

- User has an account (not administrator account).

- User logged in.

- User has internet connection.

Postcondition:

- User profile information is updated.

Flow of events:

- User go to profile page.

- User update new information. User can add new section information (e.g. education, experience, etc.) or update existing information.

- User click update button.

- System save new information.

- System display new information on profile page.

Alternative flow:

- User click cancel button.

- System display old information on profile page.

Exception flow:

- User has no internet connection.

- System display error message.

Business rules:

- User can only update information of his/her own profile.

Non-functional requirements: None

1.4.5 Apply into job description post

Description:

- User go to job description post page and apply for the job. User can apply for multiple jobs.

- This feature apply to applicant only.

Actor:

- Applicant.

- Backend system.

Trigger:

- User wanting to apply for a job in a job description post.

Precondition:

- User has an applicant account.
- User logged in.
- User has internet connection.

Postcondition:

- User apply for a job in a job description post.

Flow of events:

- User go to job description post page.
- User click apply button.
- System shows a textbox for user to write a cover letter or simply a message/comment (optional).
- System save user's application.
- System send notification to employer and applicant to confirm.

Alternative flow:

- User click cancel button.
- System display job description post page.

Exception flow:

- User has no internet connection.
- System display error message.

Business rules:

- Each user can apply for only onetime in a job description post.

Non-functional requirements: None

1.4.6   Interact with job description

Description:

- User go to job description post page and interact with the job description post. User can like, dislike, comment the job description post.
- This feature apply to both applicant and employer.

Actor:

- Applicant or employer.
- Backend system.

Trigger:

- User wanting to interact with a job description post.

Precondition:

- User has an account (not administrator account).
- User logged in.
- User has internet connection.

Postcondition:

- User's interaction with a job description post is saved and displayed.

Flow of events:

- User go to job description post page.

- User click like, dislike button or leave a comment.

- System save user's interaction.

- System display user's interaction on job description post page.

Alternative flow:

- User stop commenting on job description post.

- System display job description post page.

Exception flow:

- User has no internet connection.

- System display error message.

Business rules:

- User can only have one like or dislike on a job description post.

- User can leave multiple comments on a job description post.

Non-functional requirements: None

1.4.7 Post job description

Description:

- Employer click create recruitment announcement and post a job description. Employer can post multiple job descriptions.

- This feature apply to employer only.

Actor:

- Employer.

- Backend service and database.

Trigger:

- Employer wanting to post a job description for recruitment.

Precondition:

- Employer has an employer account.

- Employer logged in.

- Employer has internet connection.

Postcondition:

- Employer post a job description for recruitment.

Flow of events:

- Employer click create recruitment announcement button.

- Employer fill in job description information.

- Employer click post button.

- System save job description information.

- System display job description post page.

Alternative flow:

- Employer stop editing job description information and close browser/tab or direct to another site or press cancel button.

- System display a warning message to ask employer weather to save a draft or not.

- Employer choose to save a draft or not. If yes, system save job description information as a draft in user's local storage. If no, system discard job description information.

Exception flow:

- Employer has no internet connection.

- System auto save job description information as a draft in employer's profile page by caching the draft in employer's device.

- System display error message.

Business rules:

- Employer can only post one job description in a recruitment announcement.

- Employer can post multiple job descriptions in multiple recruitment announcements.

1.4.8   View job description post

Description:

- User go to job description post page and view the job description post.

Actor:

- Applicant.

- Employer.

- Administrator.

- Visitor.

- Backend service and database.

Trigger:

- User wanting to view a job description post.

- User search for a specific job description post.

Precondition:

- User has internet connection.

- Database service is available.

Postcondition:

- Job description post is displayed.

Flow of events:

- User goes to the website.

- User type a keyword related to the job in the search box.

- The website displays several job descriptions posts.

- User selects a job description post.

- The website displays the full job description post.

Alternative flow:

- Flow 1:
    - User goes to the website.
    - User type a keyword related to the job in the search box.
    - The website displays several job descriptions posts.
    - User selects a job description post.
    - The website displays the full job description post.

- Flow 2:
    - User click on a link to a job description post.
    - The website displays the full job description post.

Exception flow:

- Flow 1:
    - User cannot find any job description posts.
    - Display a notification message.

- Flow 2:
    - User accesses a deleted job description post.
    - Display an error message.

Business rules:

- User cannot access a deleted job description post.

1.4.9 Edit Job description post

Description:

- Employer wants to change the content of a job description post.

Actor:

- Employer.

- Backend service and database.

Trigger:

- Employer wants to change the content of a job description post.

Precondition:

- Employer has an employer account.

- Employer logged in.

- Employer has internet connection.

- Employer is viewing his/her job description post.

Postcondition:

- Employer has changed the content of a job description post.

Flow of events:

- User accesses the website.

- User selects a job description post.

- User click edit button.

- User modifies the content of the job description post.

- User saves the changes.

- The change has updated on the system.

- System display job description post page.

Alternative flow:

- User accesses the website.

- User selects a job description post.

- User click edit button.

- User modifies the content of the job description post.

- User close browser/tab or direct to another site or press cancel button.

- System display a warning message to ask user if the user wants to keep editing. If yes, the browser cancel closing/redirect keep editing. If no, system discard the changes.

Exception flow:

- User attempt to open more than 1 editor for 1 post at a time point.

- Display an error message.

Business rules:

- User can only open an editor for one post at a time point.

- User cannot edit other employer's job description posts.

1.4.10 Delete Job description post

Description:

- User, as an employer, delete a job description posts.

- User, as an administrator, delete a post that is considered not a job description.

Actor:

- Employer.

- Administrator.

- Backend service and database.

Trigger:

- A job description post has expired or no longer needed.

Precondition:

- User has an internet connection.

- User has an employer/administration account.

- User logged in.

- The employer owned the job description post (this is not required for administration).

Postcondition:

- A job description post is removed from the database.

Flow of events:

- User accesses the website.

- User selects a description post or view a description post.

- User selects the remove option.

- The system ask for confirmation.

- The description post is removed from the database.

Exception flow:

- User attempt to delete a deleted job description post.

- Display an error message.

Business rules:

- User can use only one delete request on one job description post.

- User cannot delete other employer's job description post (except administrator).

1.4.11   Delete Account

Description:

- The user can delete their account along with their associated data from the respective databases of the site.

- An administrator can delete a user's account upon their request or due to site rules violations.

Actor:

- Employer.

- Applicant.

- Administrator.

- Backend authentication.

Trigger:

- The user selecting the option to delete their account.

- An admin deleting an account from administration tools.

Precondition:

- The user is logged in and able to access their account settings.

- An administrator is authorized to manage user accounts.

- Employer or Applicant has internet connection.

Postcondition:

- The user login info and user data are deleted from all systems.

- The user may or may not re-register an account with the same email.

Flow of events:

- The user logs into their account.

- The user opens the account settings.

- The user chooses to delete their account.

- The user confirms with their password.

- The system verifies the password and ask for confirmation.

- The system deletes the user's data and authorization information.

Alternative flow:

- An admin logs into his/her account.

- The admin selects a user account and choose the option to delete it.

- The system asks if the user should be able to recreate an account with the same email.

- The system asks for confirmation.

- The system logs the deletion in the Audit log and sets a flag if the user is denied from re-registering.

Exception flow:

- Flow 1:

  - The user has no internet connection.
  - The system displays an error message.

- Flow 2:

  - The user fails to verify their password upon deletion.

1.4.12 Searching tool

Description:

- User search information from the website about job descriptions, employers, and applicants.

Actor:

- Applicant.

- Employer.

- Administrator.

- Visitor.

- Backend search engine.

Trigger:

- User wants to search for information about a typical job, an employer, or an applicant.

Precondition:

- User has internet connection.

Postcondition:

- The website displays several results about the information user is looking for.

Flow of events:

- User accesses the website.

- User clicks the search bar and type keywords in the search box.

- The website displays several results about the information user is looking for.

Alternative flow:

- User click on a link to a search result.

- The website displays several results about the information user is looking for.

Exception flow:

- The search engine does not find any information.

- The system displays a message not finding any job description post or employer or applicant.

Business rules:

- The search engine will search for information in the database.

- The search engine will search for information in the job description post, employer, and applicant.

2 Use-case realisations

2.1 Sequence diagrams
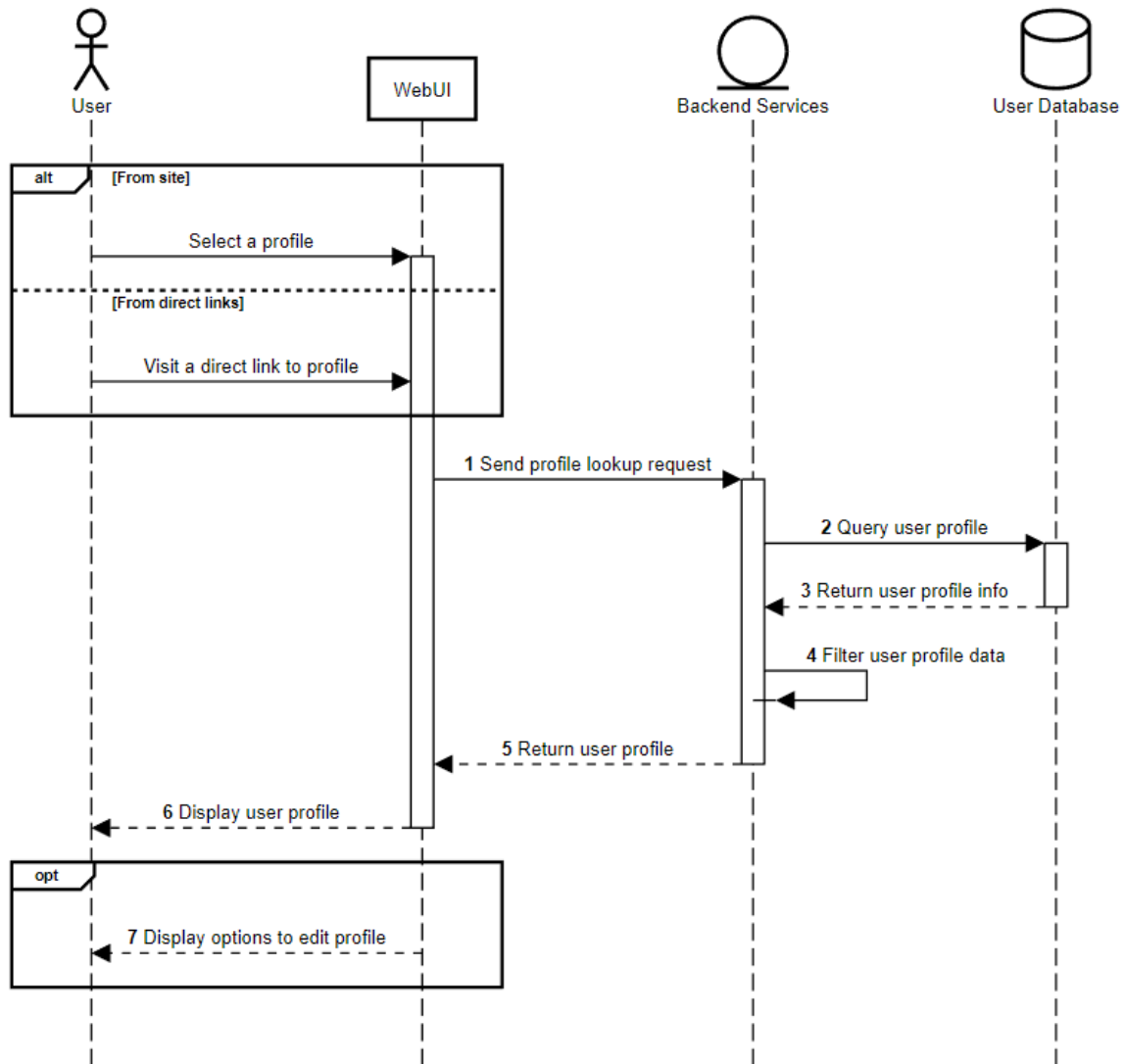
Figure 2: Sequence diagram for the use profile use case (basic flow)
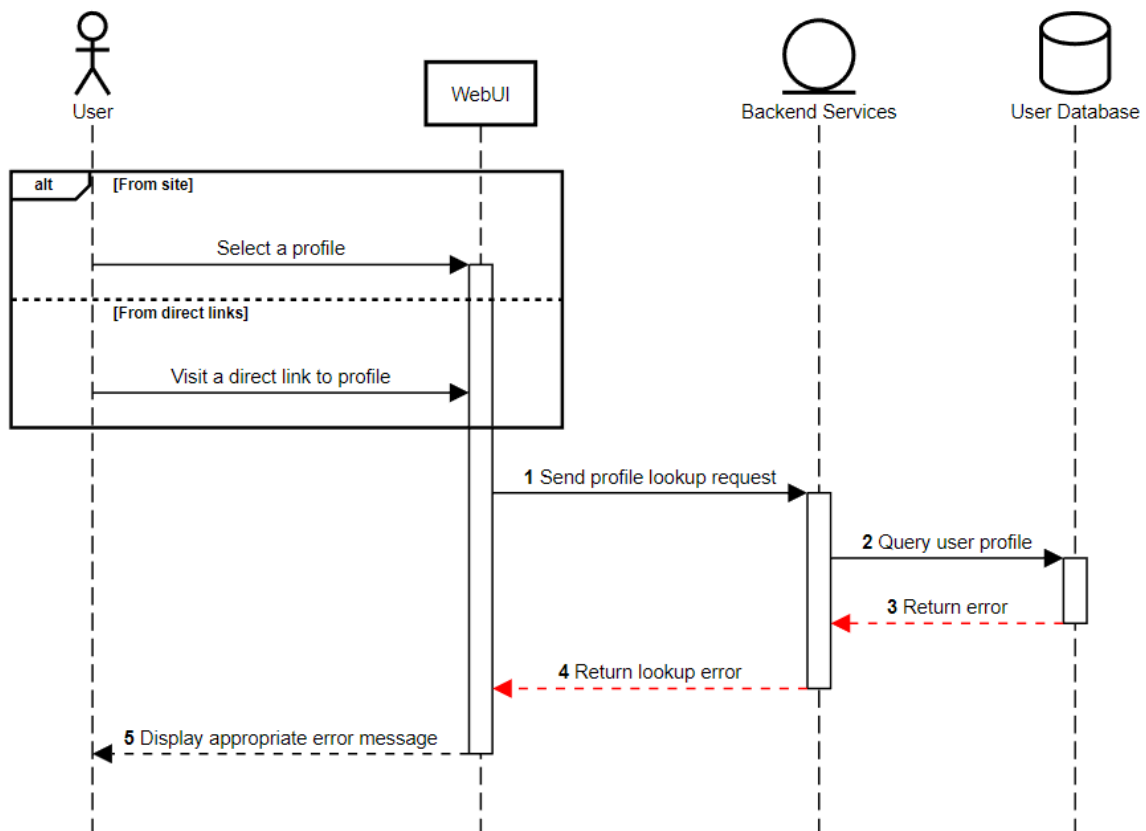
Figure 3: Sequence diagram for the use profile use case (exception flow)
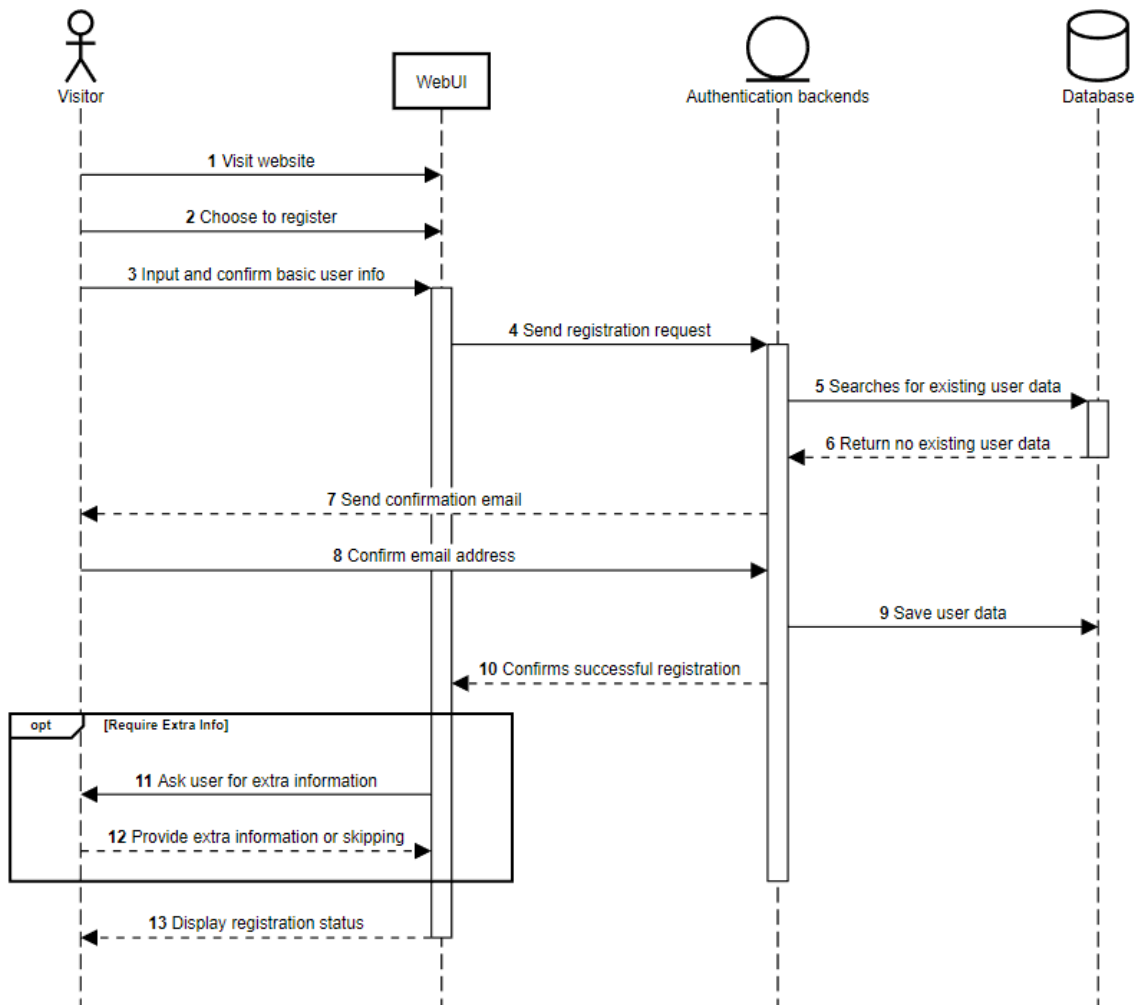
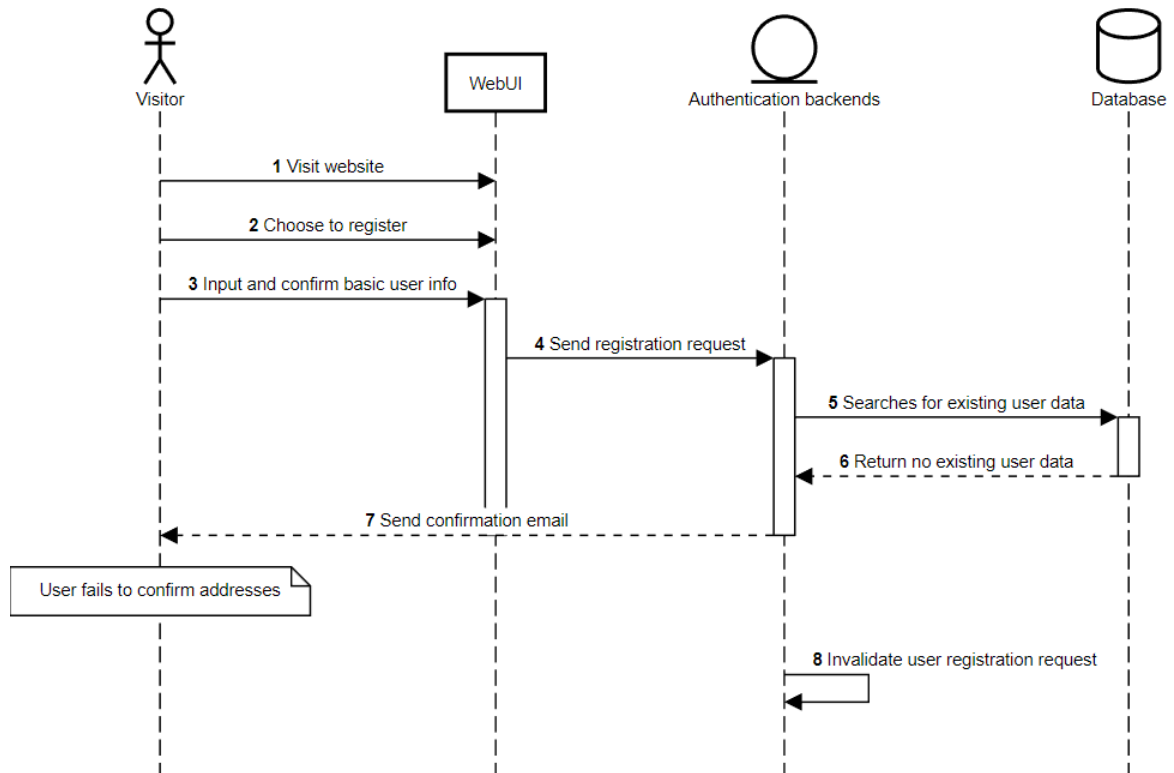**Figure 4:** Sequence diagram for the create account use case (basic flow)

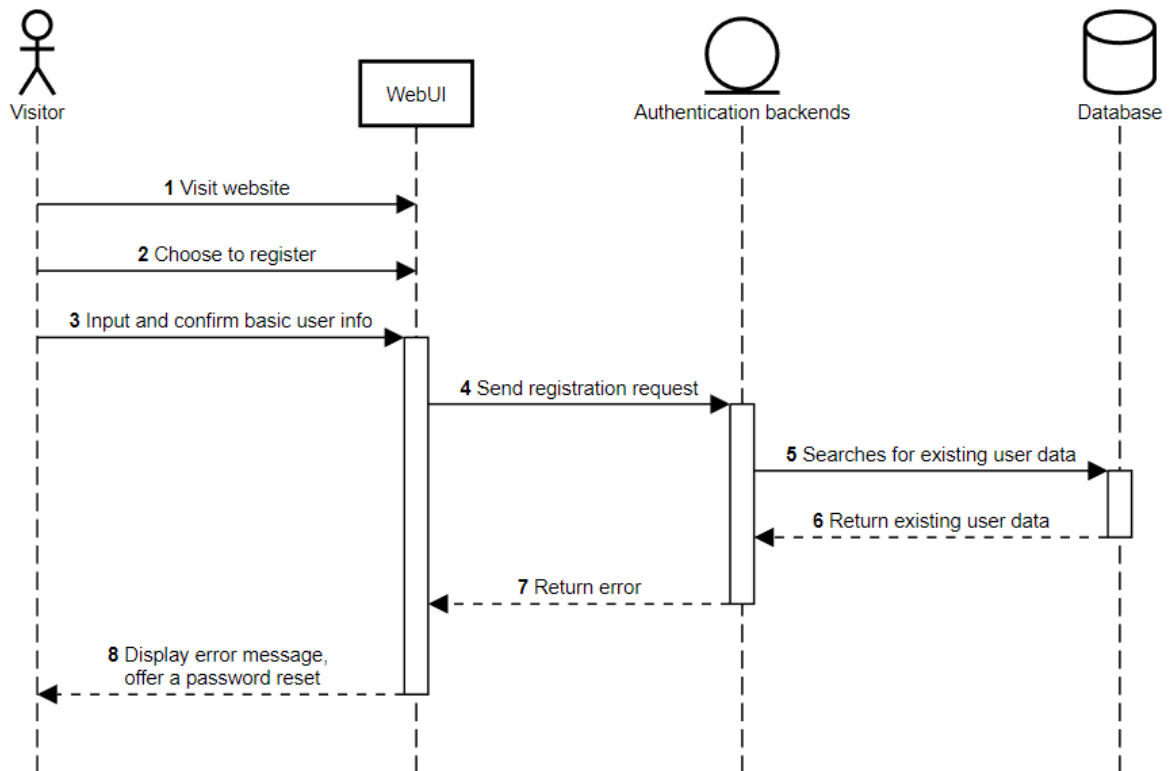**Figure 5:** Sequence diagram for the create account use case (unconfirmed email exception)

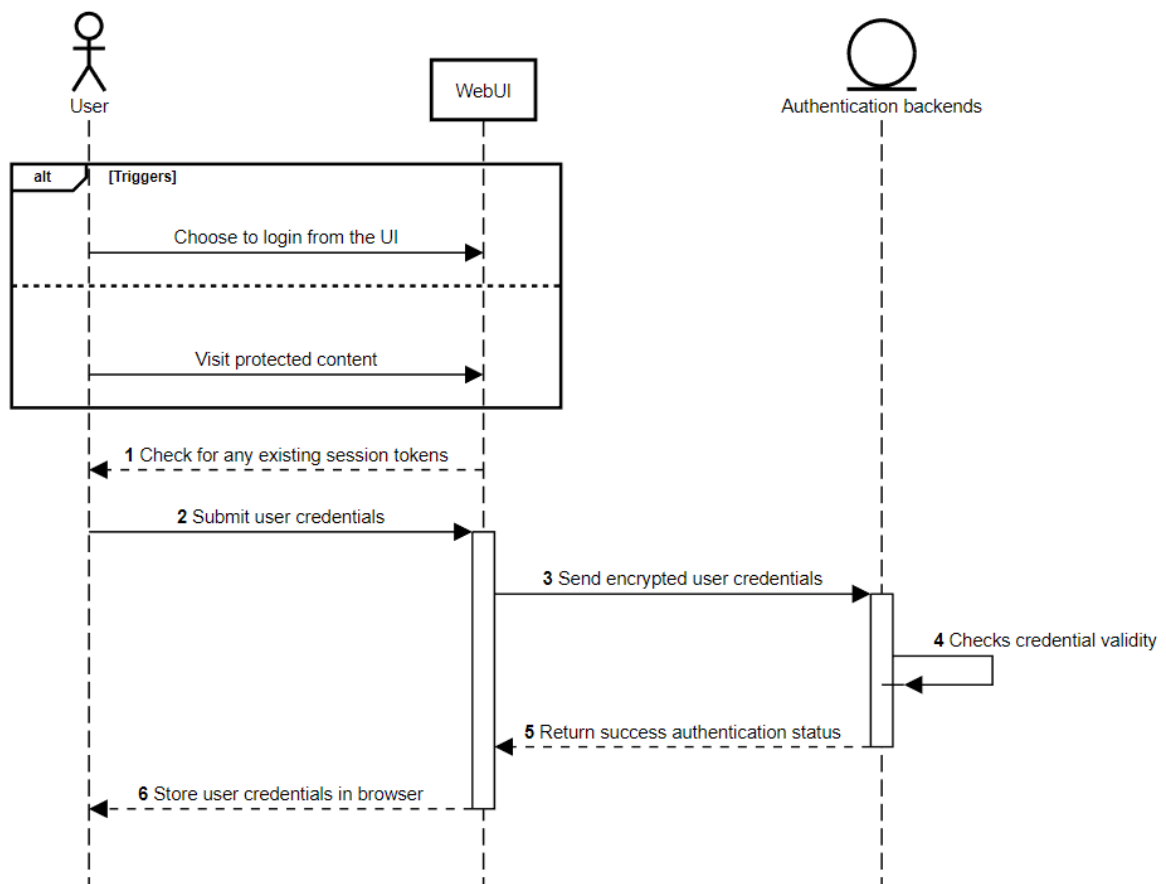**Figure 6:** Sequence diagram for the create account use case (user exist exception)

Figure 7: Sequence diagram for the login use case (basic flow)
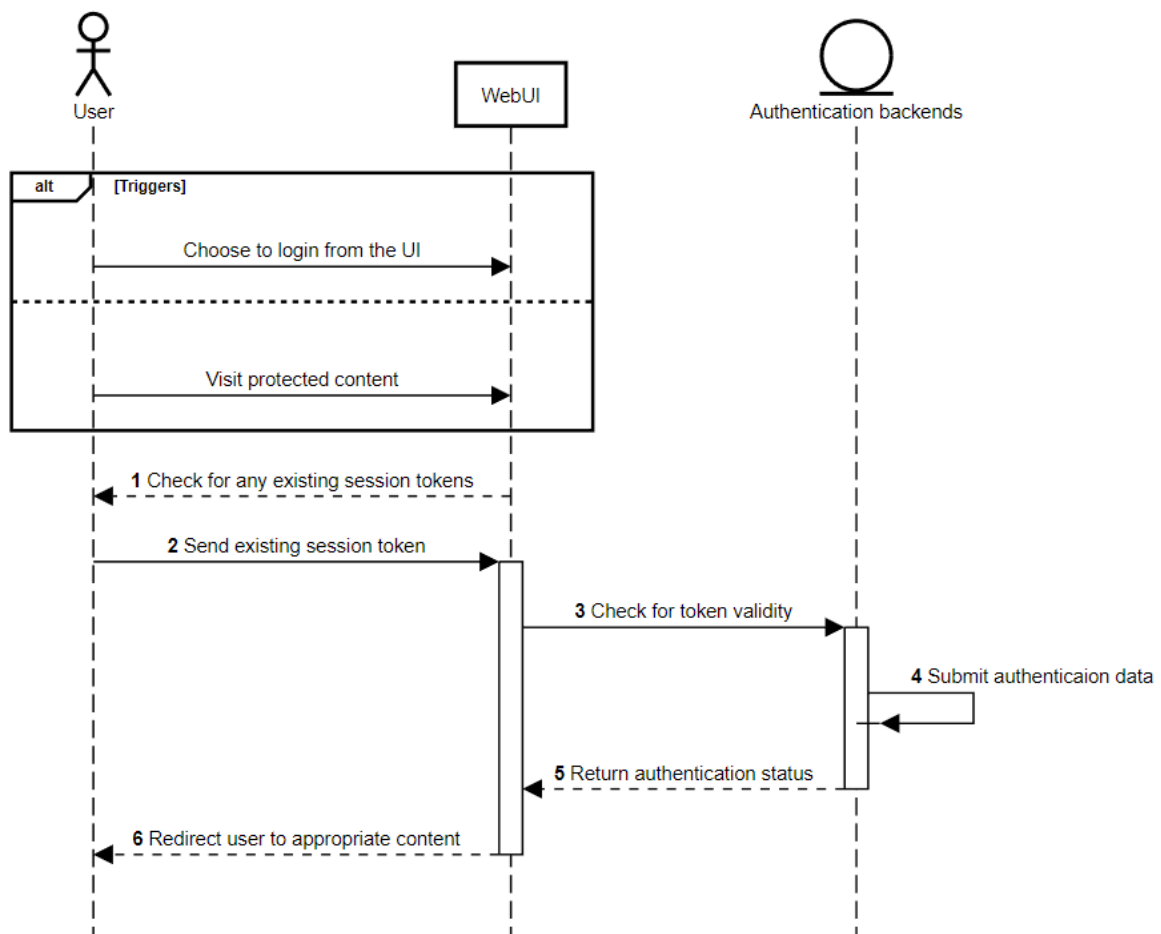
Figure 8: Sequence diagram for the login use case (alternative flow)
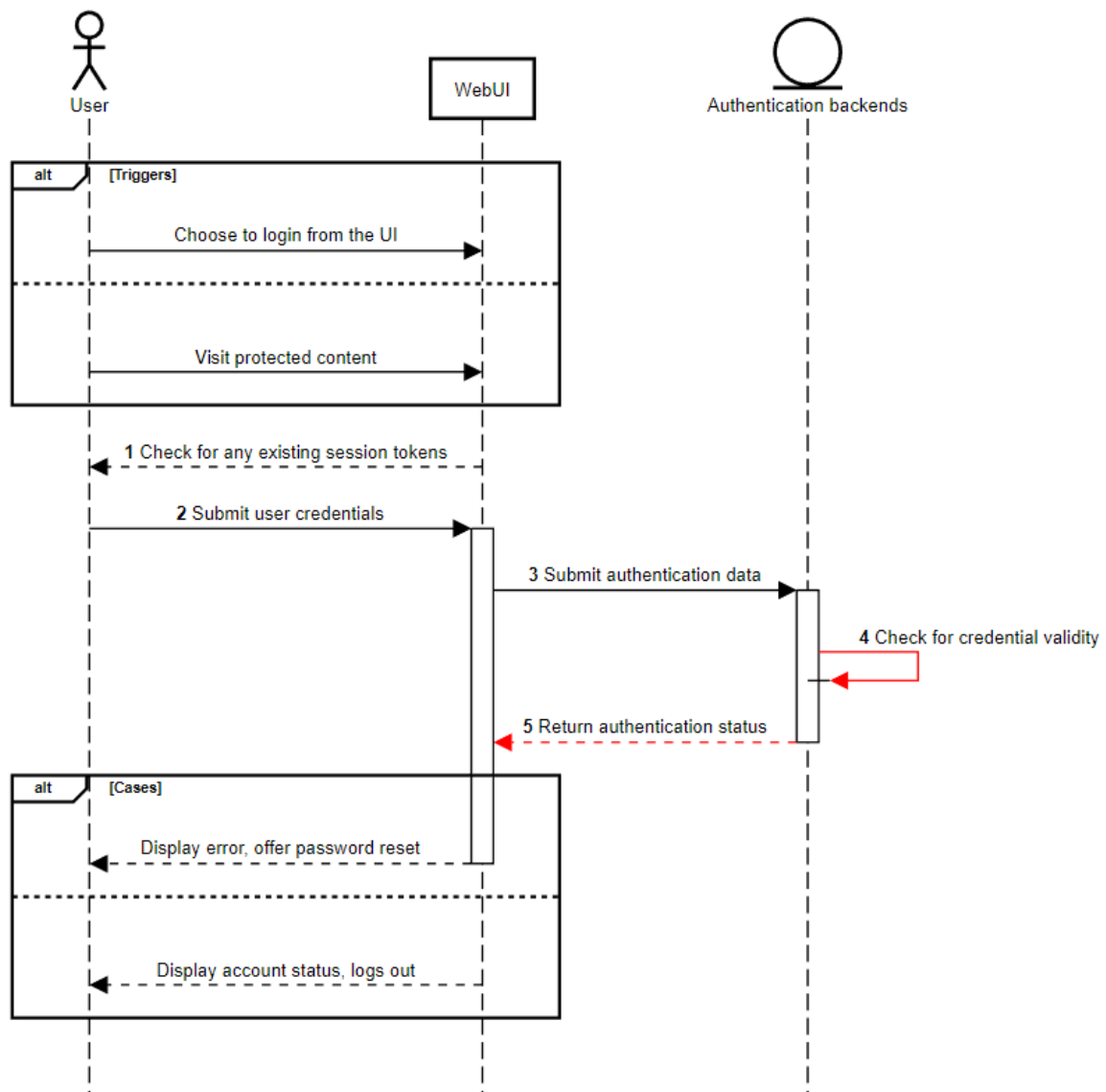
Figure 9: Sequence diagram for the login use case (exception flow)
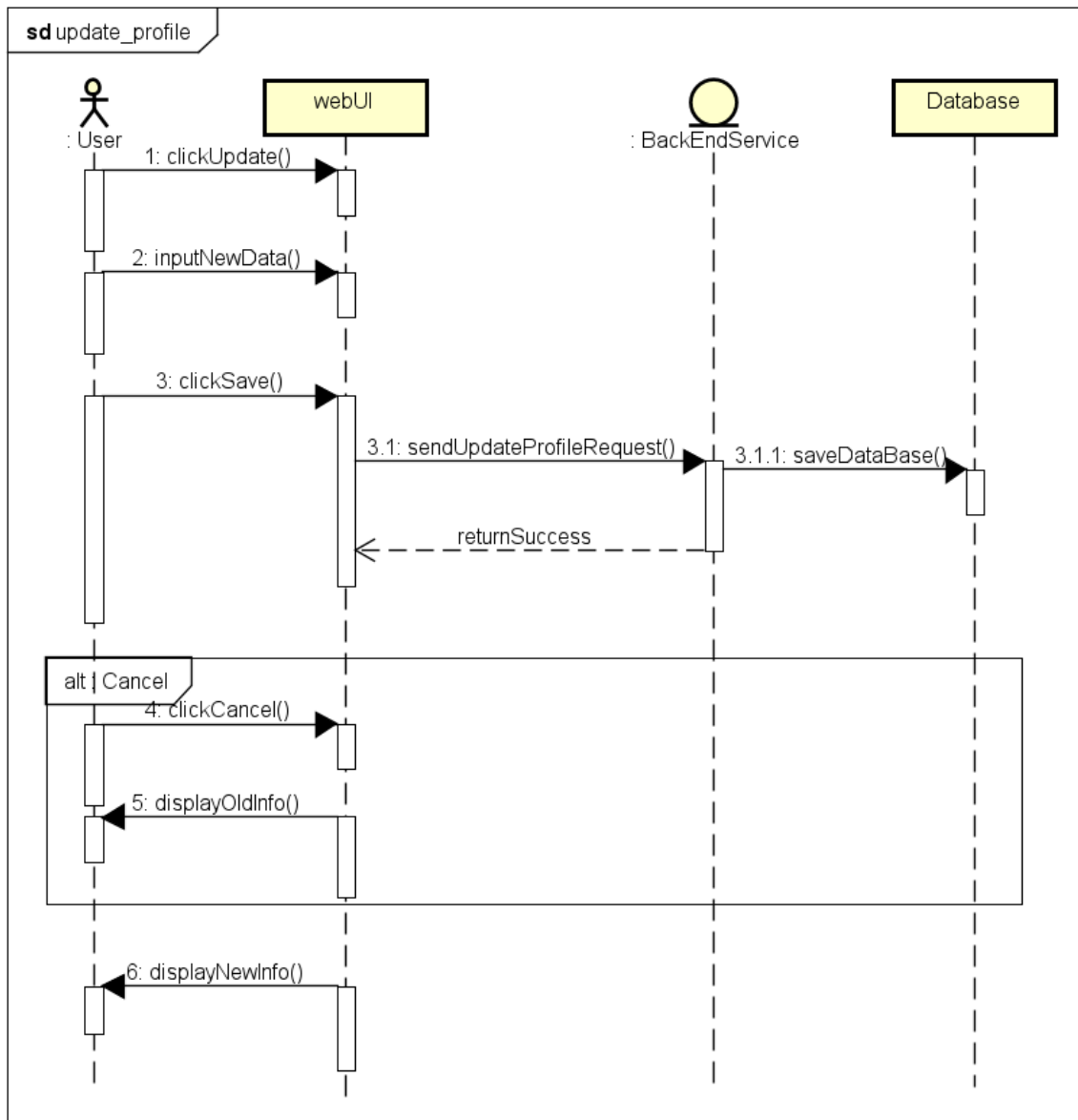
Figure 10: Sequence diagram for the update profile use case
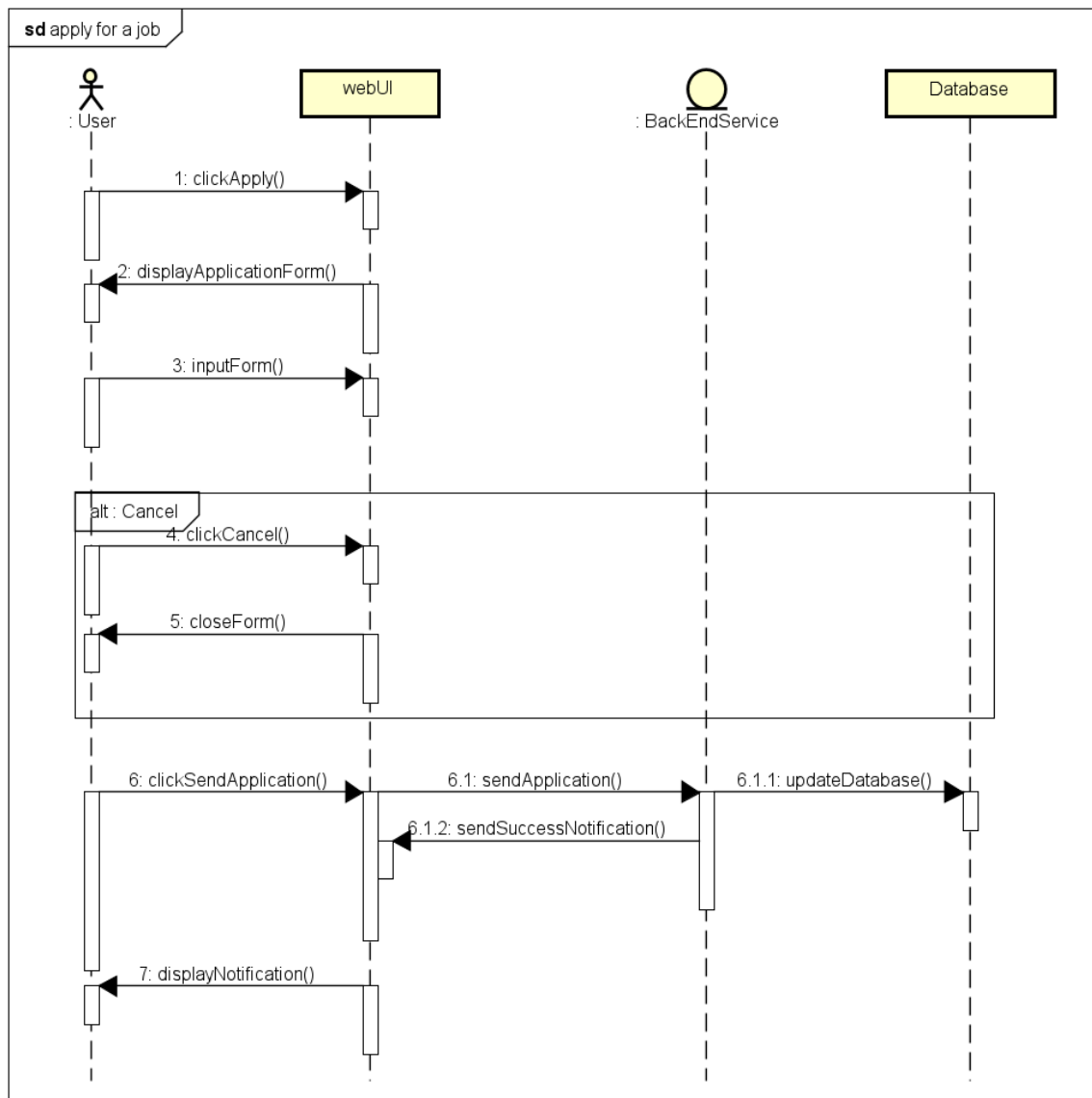
Figure 11: Sequence diagram for the job description application use case
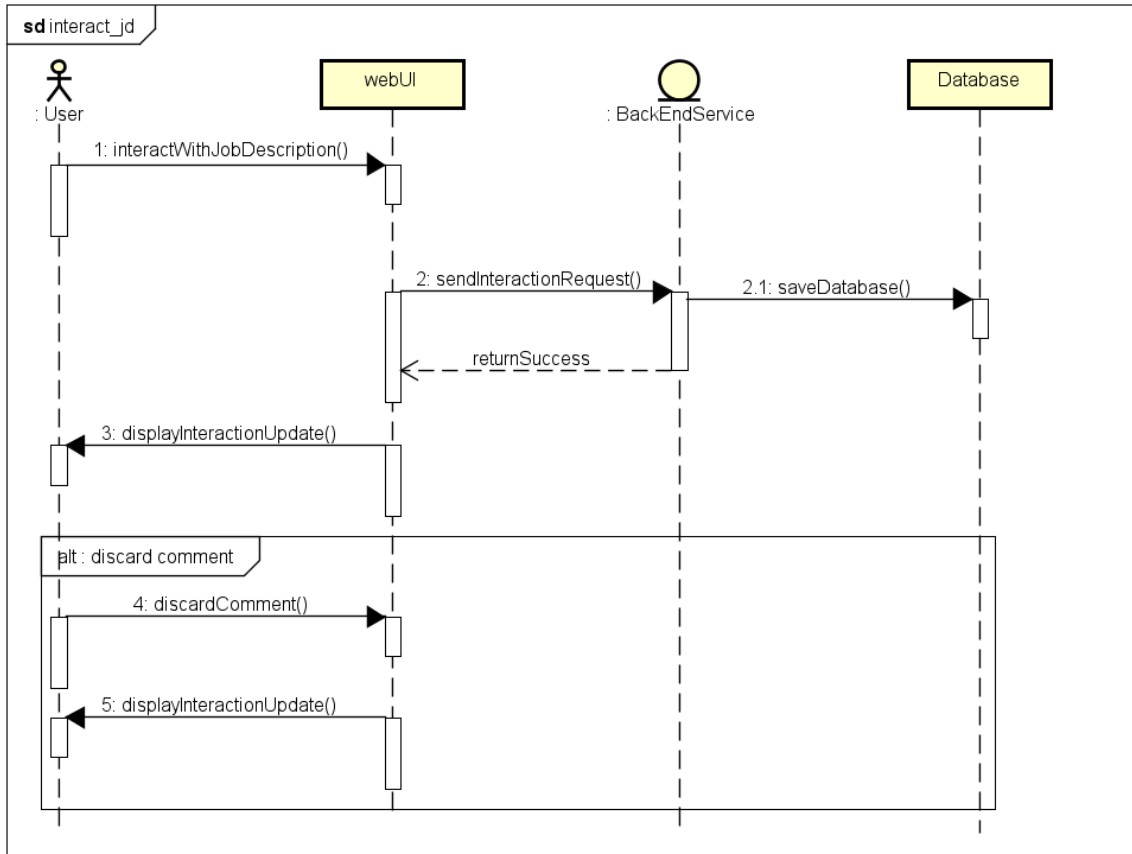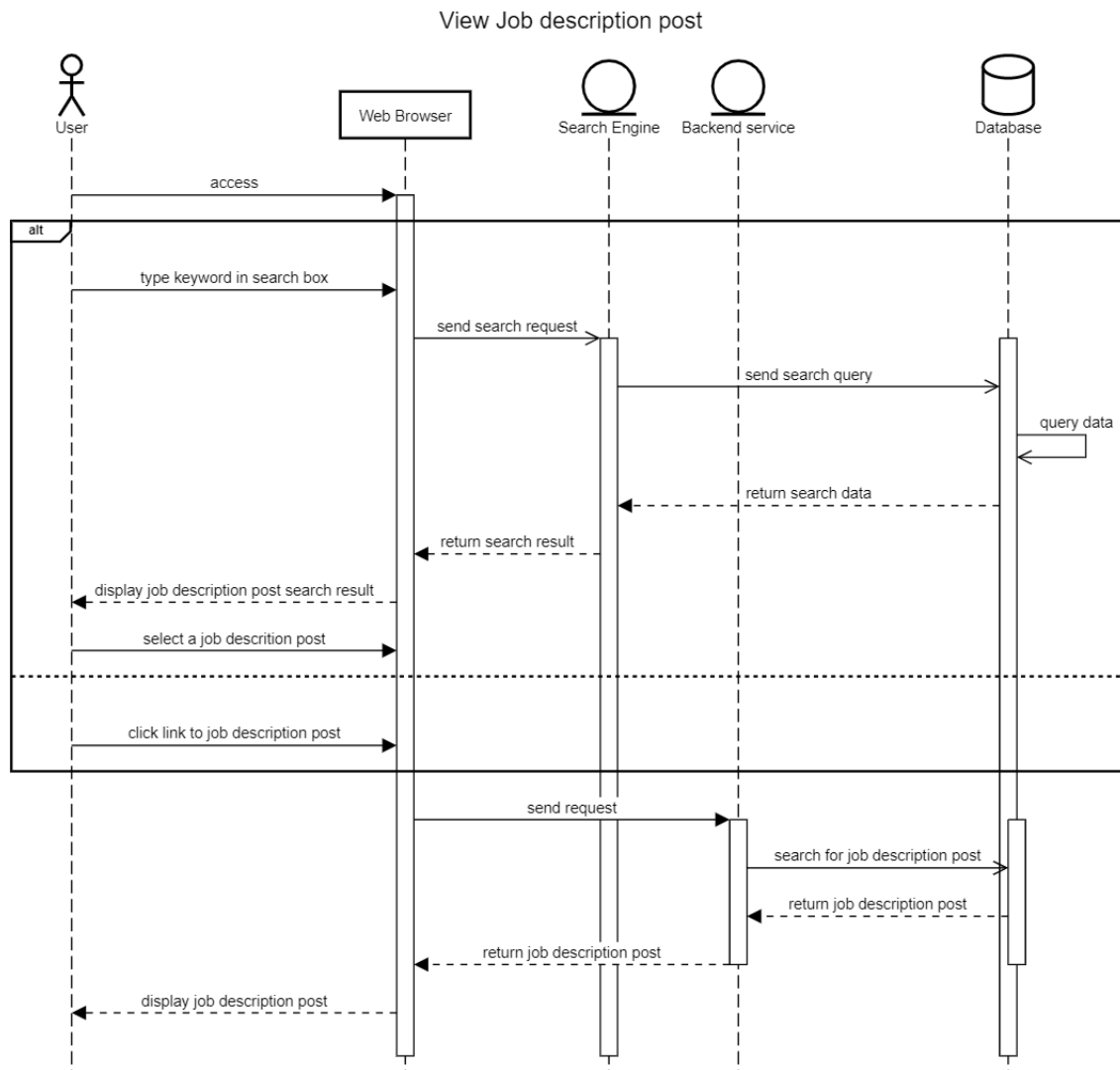
Figure 12: Sequence diagram for the job description interaction use case
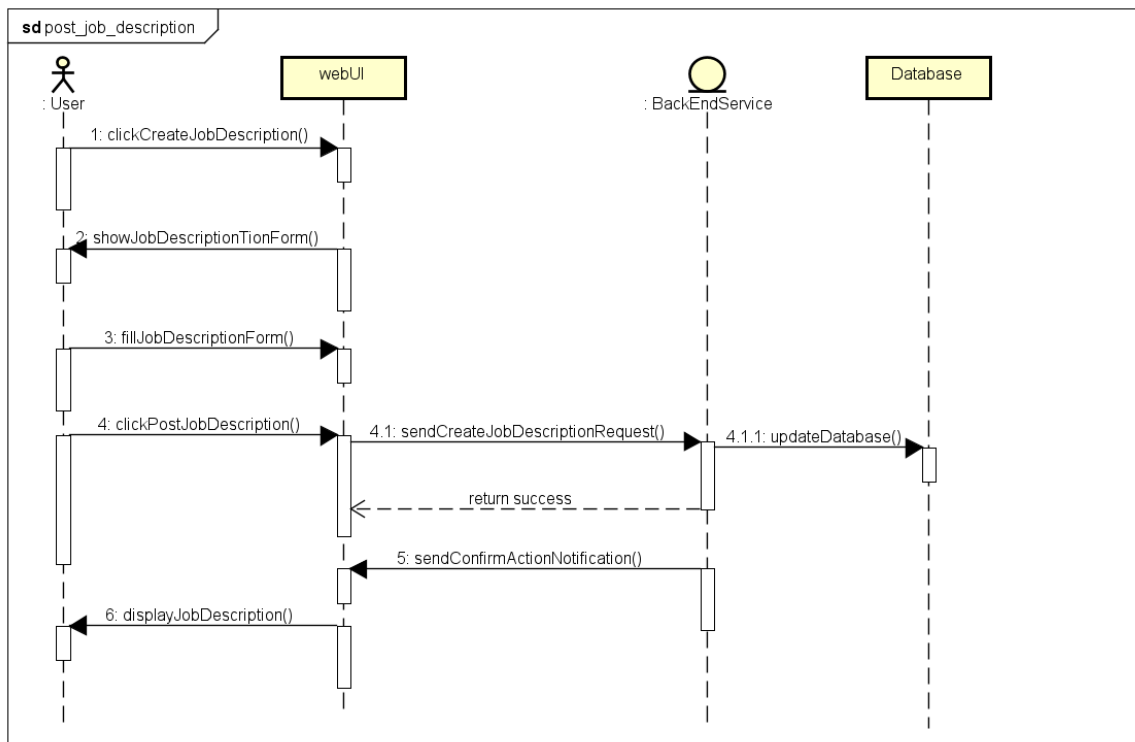
Figure 13: Sequence diagram for the post job description use case

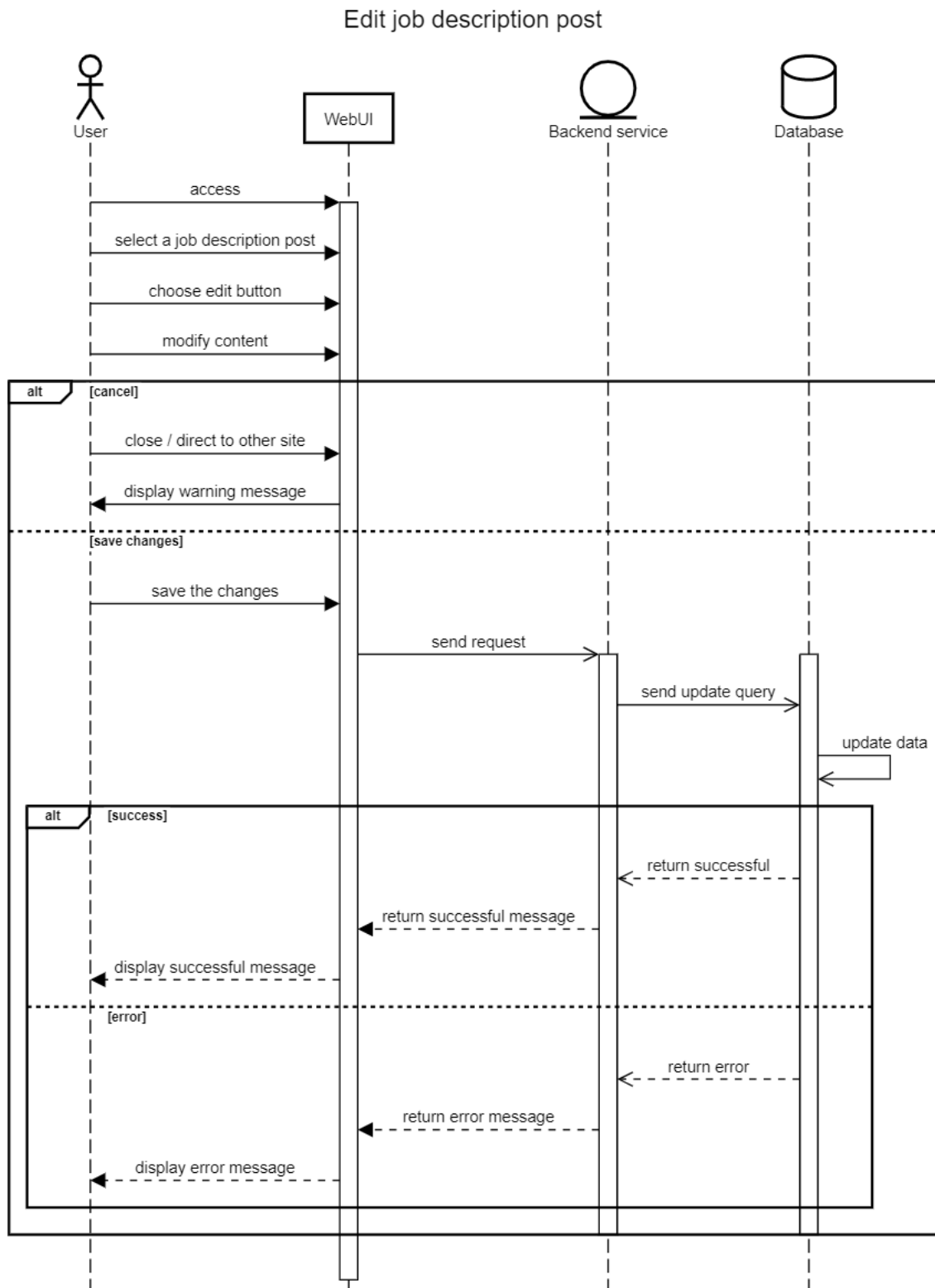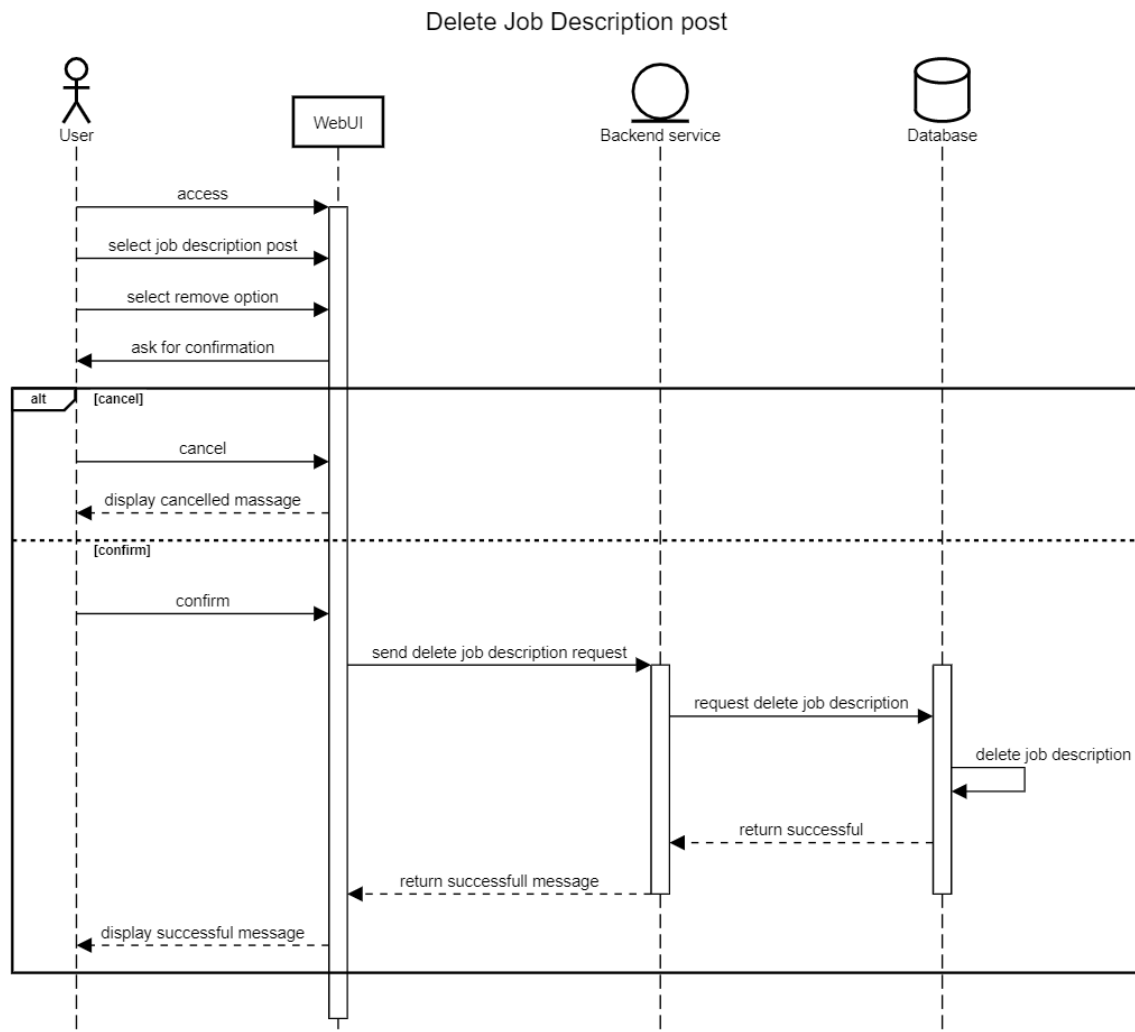**Figure 14:** Sequence diagram for the view job description use case

Edit job description post

User   WebUI   Backend service   Database

access

select a job description post

choose edit button

modify content

alt   [cancel]

close / direct to other site

display warning message

[save changes]

save the changes

send request

send update query

update data

alt   [success]

return successful

return successful message

display successful message

[error]

return error

return error message

display error message

Figure 15: Sequence diagram for the view job description use case

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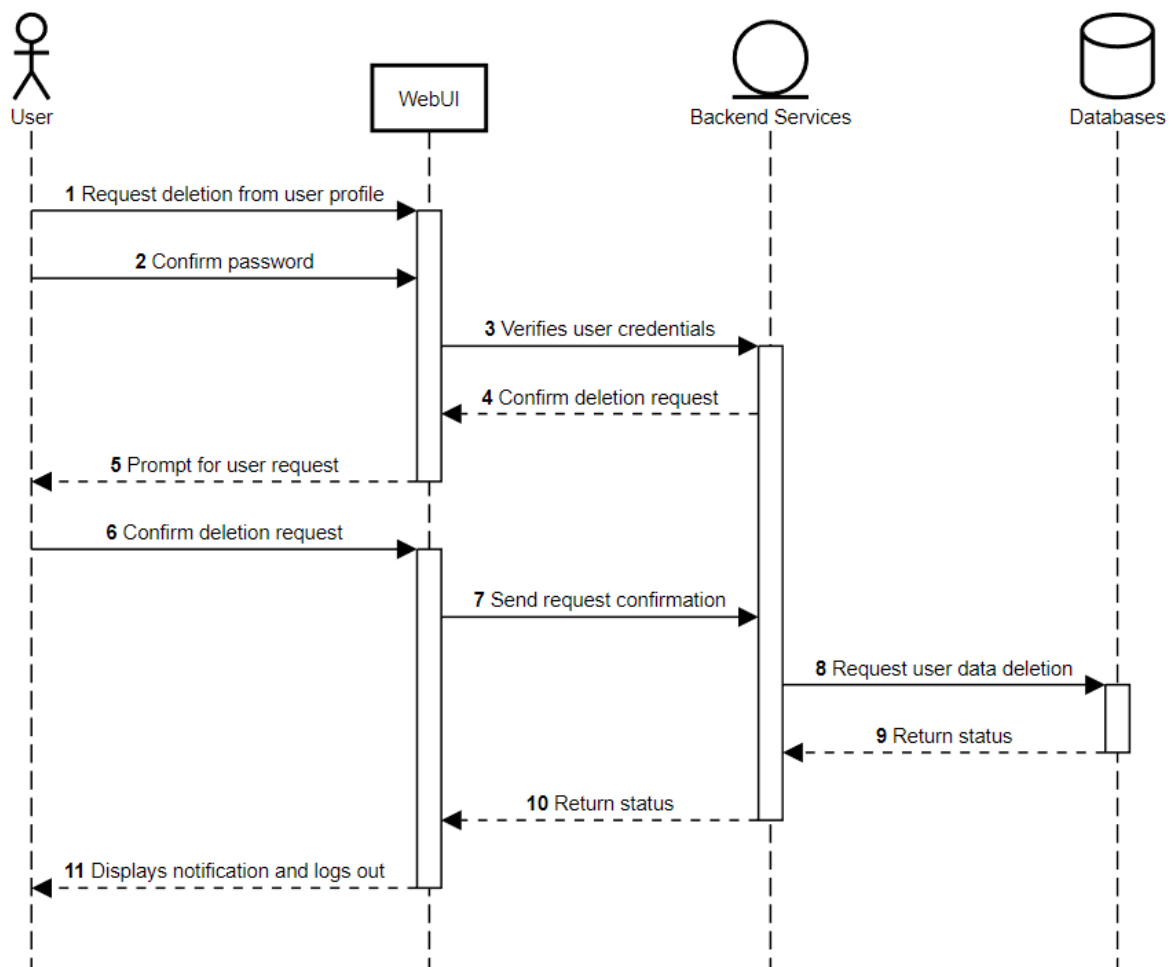**Figure 16:** Sequence diagram for the delete job description use case

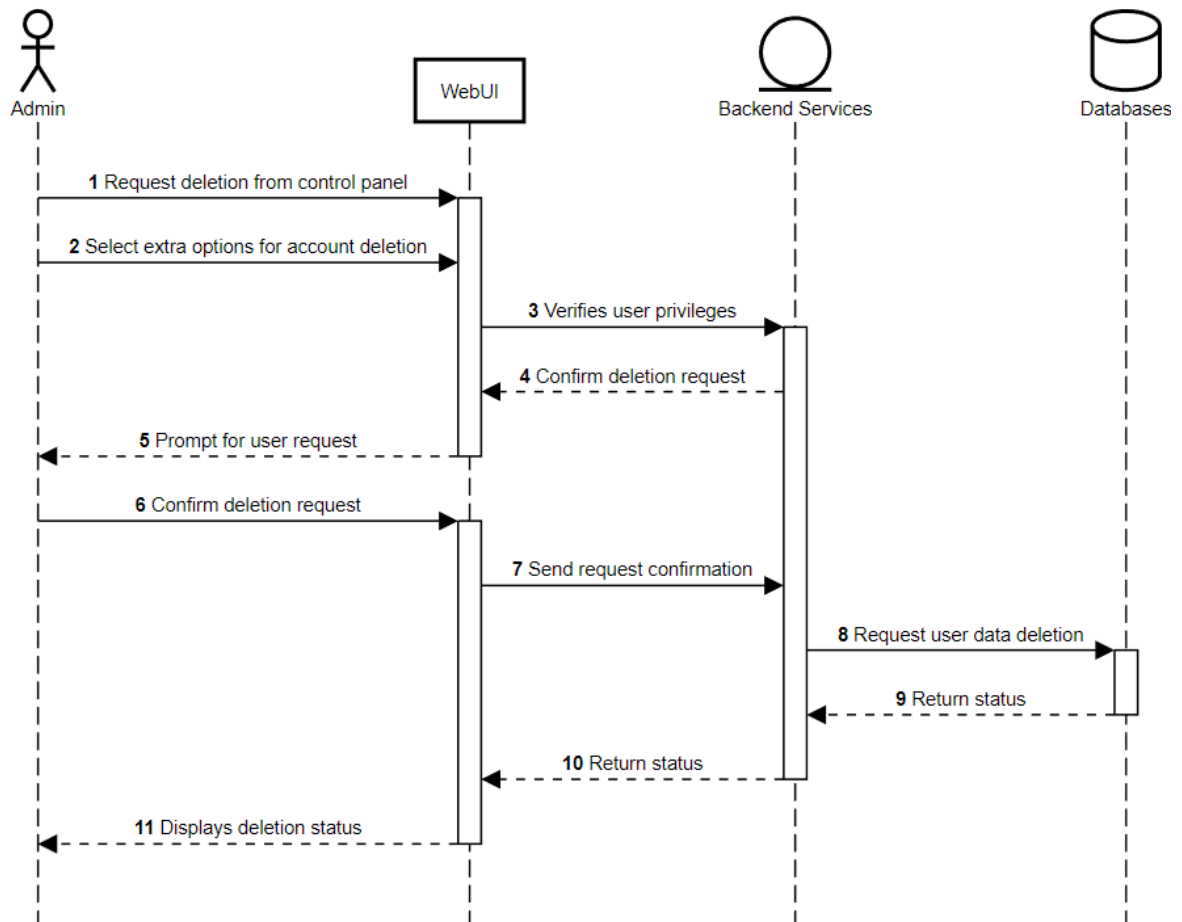**Figure 17:** Sequence diagram for the delete account use case (basic flow)

Figure 18: Sequence diagram for the post job description use case (admin alternative)
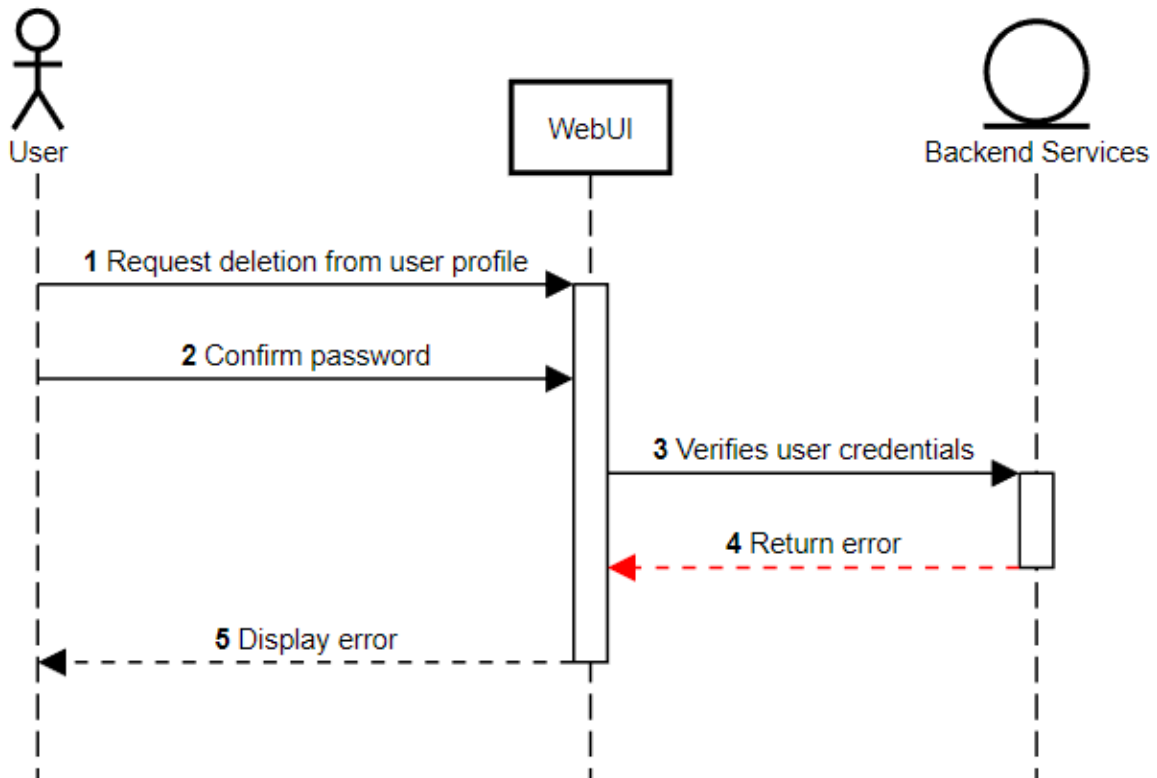

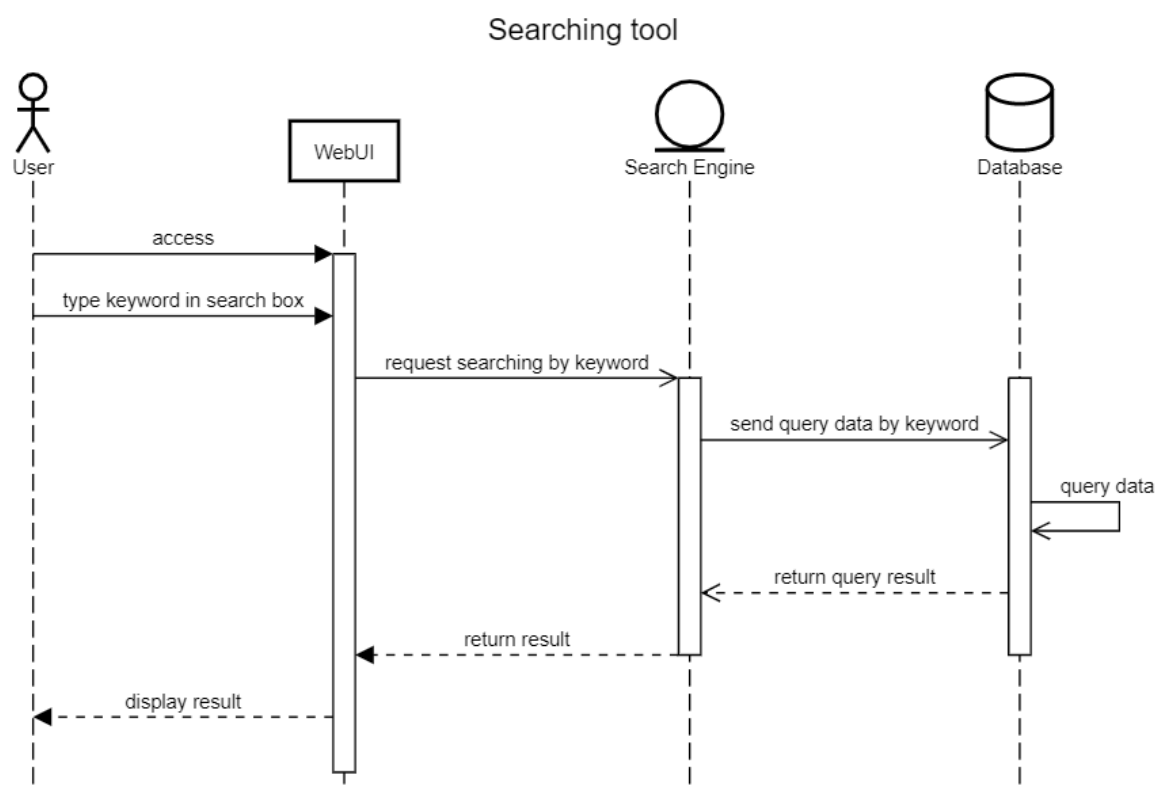**Figure 19:** Sequence diagram for the delete account use case (exception)

Figure 20: Sequence diagram for the search engine use case