Experiment 9: On the basis of required validations map the different test cases to handle all possible critical cases which may arise during the life cycle of the image search application.

Validating an image search application involves considering various scenarios to ensure its robustness and reliability. Below are mapped test cases for handling critical cases during the lifecycle of an image search application:

1. Search Functionality:

- **Test Case 1: Valid Search Query**

    - Input: Valid search query (e.g., "Nature").

    - Expected Outcome: Relevant search results are displayed.

- **Test Case 2: Empty Search Query**

    - Input: Empty search query.

    - Expected Outcome: Proper error message indicating the need for a search query.

- **Test Case 3: Invalid Search Query**

    - Input: Special characters, symbols, or unsupported characters in the search query.

    - Expected Outcome: Proper error message and guidance on valid characters.

2. Image Upload:

- **Test Case 4: Valid Image Upload**

    - Input: Upload a standard image file (e.g., JPEG, PNG).

    - Expected Outcome: Image is successfully processed, analyzed, and added to the database.

- **Test Case 5: Unsupported Image Format**

    - Input: Upload a file in an unsupported image format.

    - Expected Outcome: Proper error message indicating the unsupported format.

- **Test Case 6: Image Upload without Authentication**

- Input: Attempt to upload an image without proper authentication.

- Expected Outcome: Access denied error message.

3. Favorites Management:

- **Test Case 7: Add to Favorites**

  - Input: User adds an image to their favorites.

  - Expected Outcome: Image is successfully added to the user's favorites.

- **Test Case 8: Remove from Favorites**

  - Input: User removes an image from their favorites.

  - Expected Outcome: Image is successfully removed from the user's favorites.

5. Account Management:

- **Test Case 9: Update User Profile**

  - Input: User updates their profile information.

  - Expected Outcome: Profile information is successfully updated.

- **Test Case 10: Change Password**

  - Input: User changes their password.

  - Expected Outcome: Password is successfully updated.

- **Test Case 11: Delete User Account**

  - Input: User initiates account deletion.

  - Expected Outcome: Account is successfully deleted.