INSTITUTE of TECHNOLOGY CARLOW

Institiúid Teicneolaíochta Cheatharlach

DESIGN DOCUMENT

Detect and Identify disease in plants

Lecturer

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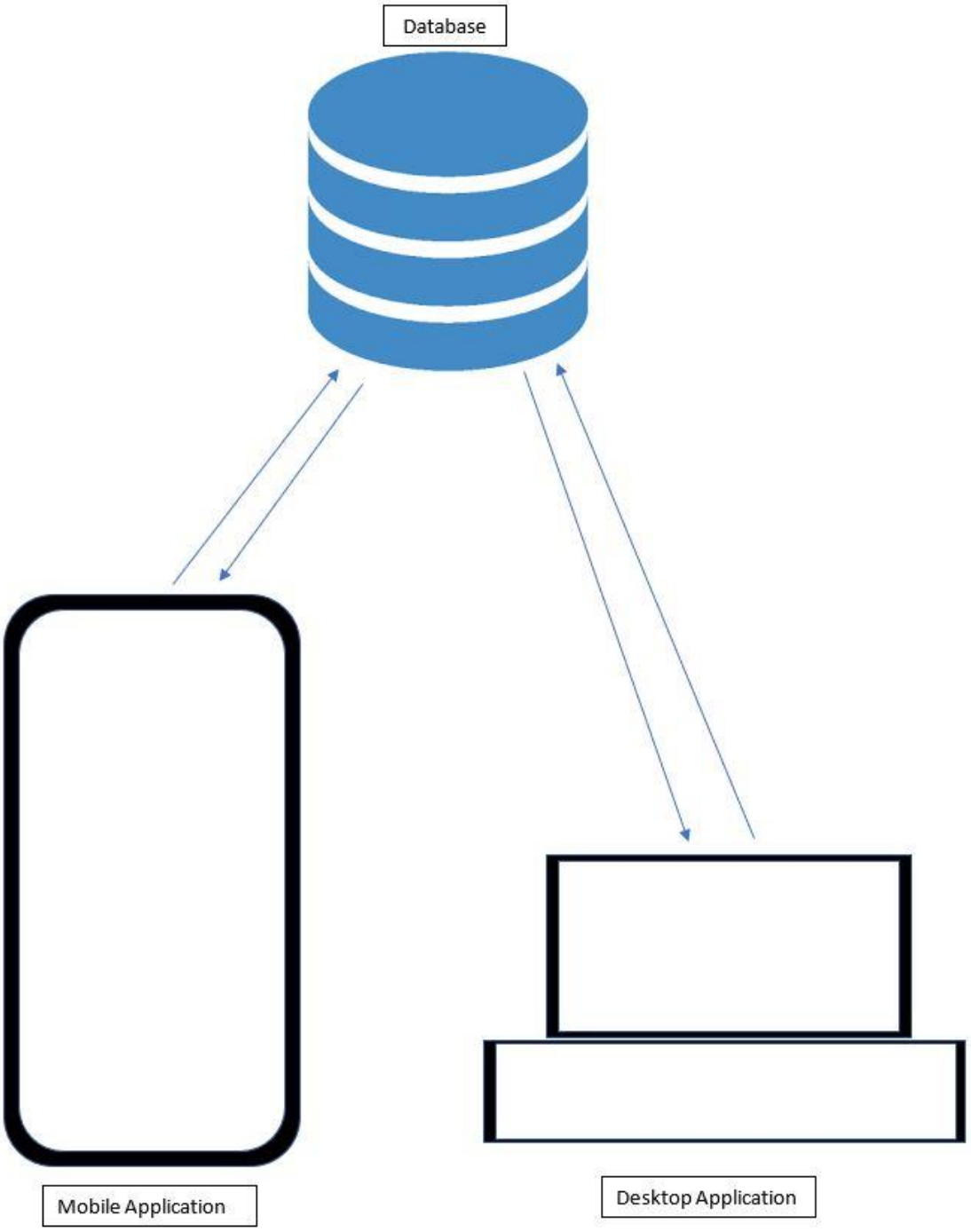
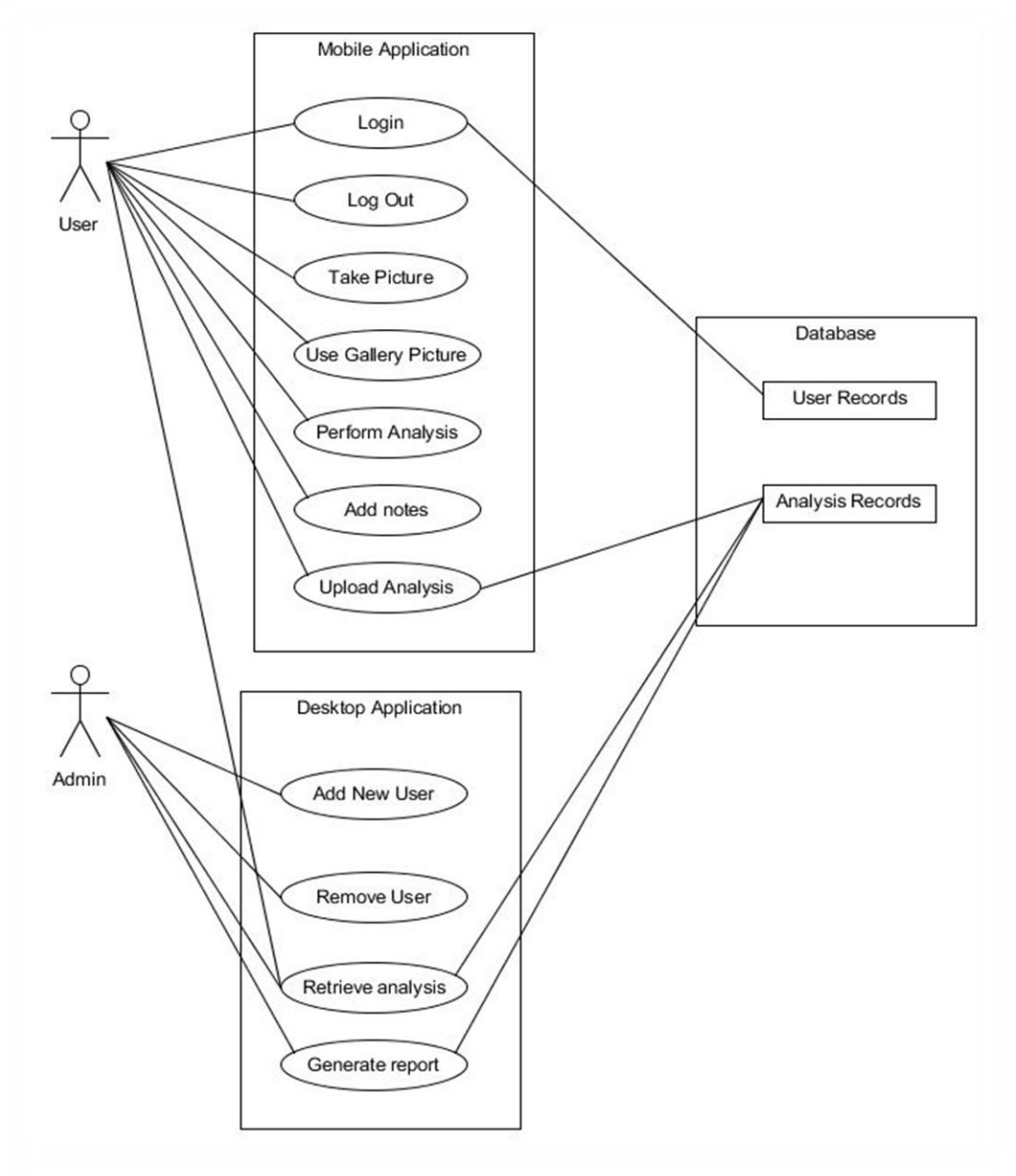
Contents

System Architecture



Use Cases

Use Case Diagram



Detailed Use Cases

1. Login

Use case: Login

Actors: User, Mobile App, API, Database

Description: This use case occurs when a user attempts to login to the system. The user enters a username and password the system will then verify the credentials provided by the user and log them in if they are correct.

Main Success Scenario

1. User enters their username and password.
2. The system verifies the user name and password provided against user credentials from the database.
3. If the credentials are correct the user is logged in.
4. User is logged in and active login field in the database is set to 1 (logged in) and the user is moved to the main screen.

Alternatives:

3b. user credentials are incorrect.

4b. User is informed their input credentials are incorrect and they should try log in again.

5b. User is shown the login screen.

2. Logout

Use case: Logout

Actors: User, mobile application, database.

Description: This use case begins when a logged in and verified user wishes to log out. The logged in user will select the logout option on the main screen and the user is logged out.

Main Success Scenario

1. Logged in user currently on the main screen selects logout.
2. The system uses the username to find the user in the database and set the active login to 0 (logged out).
3. The user is now logged out.

3. Add New User

Use case add new user

Actors: Administrator, desktop application, database.

Description: This use case begins when an administrator wishes to add a new user to the system. The administrator must be logged into the desktop application, where they can enter user details and add a new user.

1. An Administrator logged into the desktop application selects add new user.
2. The add new user page is returned.
3. The administrator enters a username and password for the new user.
4. The system takes the given credentials and creates a new user in the system.

4b. Username entered by the administrator is already in use.

5b. Administrator enters and new username for the user and user is added to the system.

4. Remove User

Use case remove user.

Actors Administrator, desktop application, database.

Description: This use case begins when an administrator wishes to remove a user.

1. An administrator logged into the desktop application wishes to remove a user from the system.
2. The administrator selects remove user.
3. The administrator enters the username name and selects remove.
4. The user's login is then removed from the database, but any data they may have gathered will remain.
5. The user is no longer registered with the system.

3b. username entered does not match any existing user.

4b. Administrator must renter the username correctly.

5. Take image

Use case take image.

Actors: User, mobile application.

Description: This use case begins when a user wants to capture and image.

1. A user is logged in and on the home screen.
2. The User selects "Take Image".
3. The system loads the camera page.
4. The user presses the capture button to capture the image.
5. The user is given the option to keep or disregard the image.
6. The user keeps the image.
7. The image is saved to the user device along with the GPS location, current weather information, time and date as well as the analysis that is performed on the image.
8. The user id them returned to the camera screen to continue capturing images.

6b. The user disregards the image.

7b. The user is returned to the camera screen to continue taking pictures.

6. Use image from gallery

Use case use image from gallery for analysis.

Actors: User, Mobile Application.

Description: this use case begins when a user wants to select and image from their gallery to analysis.

1. The user selects "select image from gallery".
2. The application displays the user's gallery to the user.
3. The user selects the image they wish to use.
4. The application fetches the image and returns it to the user.
5. The user selects perform analysis.

4b. The system fails to return the image.

5b. System returns to step 2.

7. Perform Analysis

Use caser perform analysis

Actors: User, Mobile application

Description: This use case starts when a user has either captured an image for analysis of selected and image from their gallery for analysis.

1. The user selects perform analysis.
2. The application performs the analysis for disease on the image.
3. The application returns the analysis to the user.

8. Add notes to analysis.

Use case add notes to analysis.

Actors: User mobile application, database.

Description: This use case begins when a user is finished capturing images and wishes to upload the results.

1. The user selects upload analysis.
2. The Application askes the user if they wish to add any notes to the analysis.
3. The user selects to enter notes.
4. The user enters notes for the analysis and selects “Upload Analysis”.
5. The results along with the added notes are uploaded.

3b. The user selects to not enter notes about the analysis.

4b. The analysis is uploaded by the application.

9. Retrieve results of previous analysis.

Use case: retrieve previous analysis.

Actors: Administrator, desktop application, database.

Description: this use case begins when an administrator wishes to retrieve results of a previous analysis.

1. The administrator is logged into the desktop application.
2. The Administrator selects the analysis they want to retrieve.
3. The system retrieves the analysis and display the information on screen.

10. Generate Reports

Use case generate reports.

Actors: User, Desktop application, database.

Description: This use case begins when a user has selected the generate report option

1. The system displays to the user all experiments associated with them.

2. The user selects the information they wish to use to generate a report from and selects generate report.
3. The system then generates the report and returns it to the user.

11. Upload Analysis

Use case for uploading of analysis.

Actors: User, Mobile application, Database.

Description: This use case begins when a user has received the results of an analysis from the system.

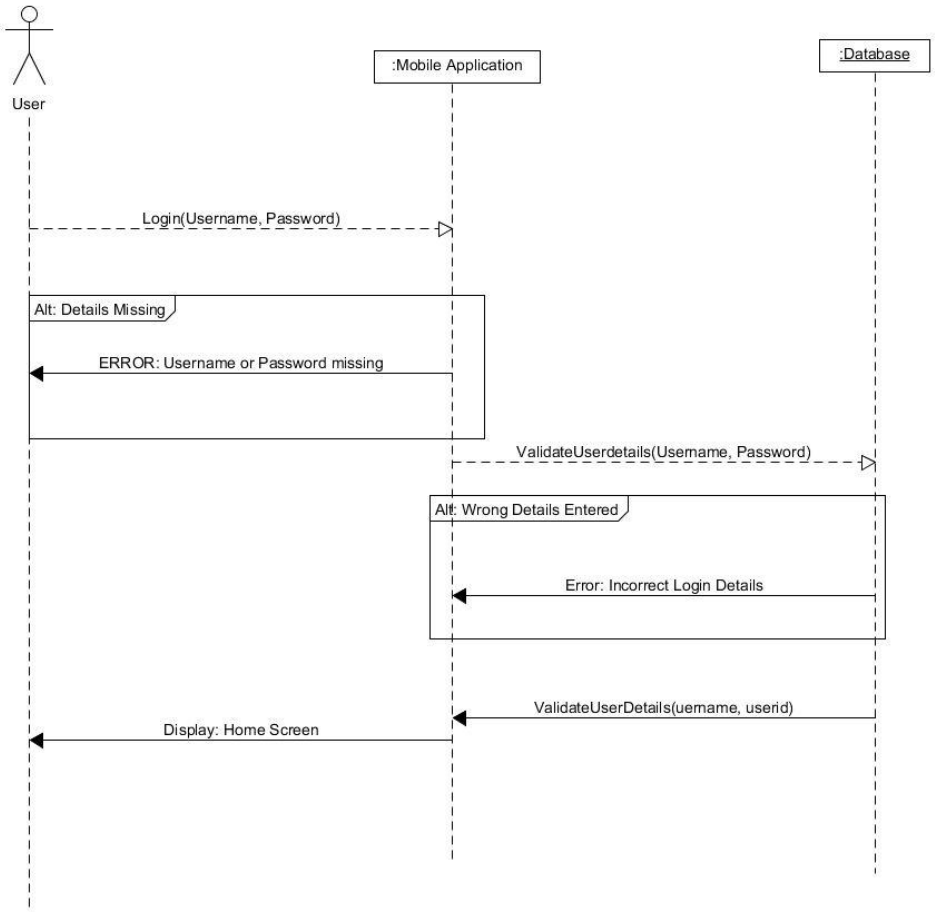
1. The user selects upload analysis.
2. The mobile application sends the details of the analysis to the database.
3. The database stores the details of the analysis and returns a success result.
4. The application receives the success from the database and display it to the user.

3b. The database is unable to store the data.

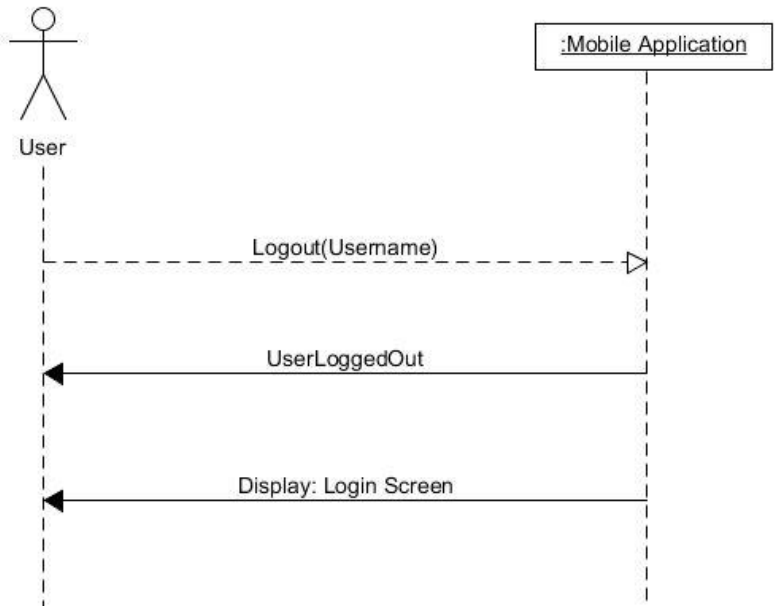
4b. The system returns to step 1.

System Sequence Diagrams

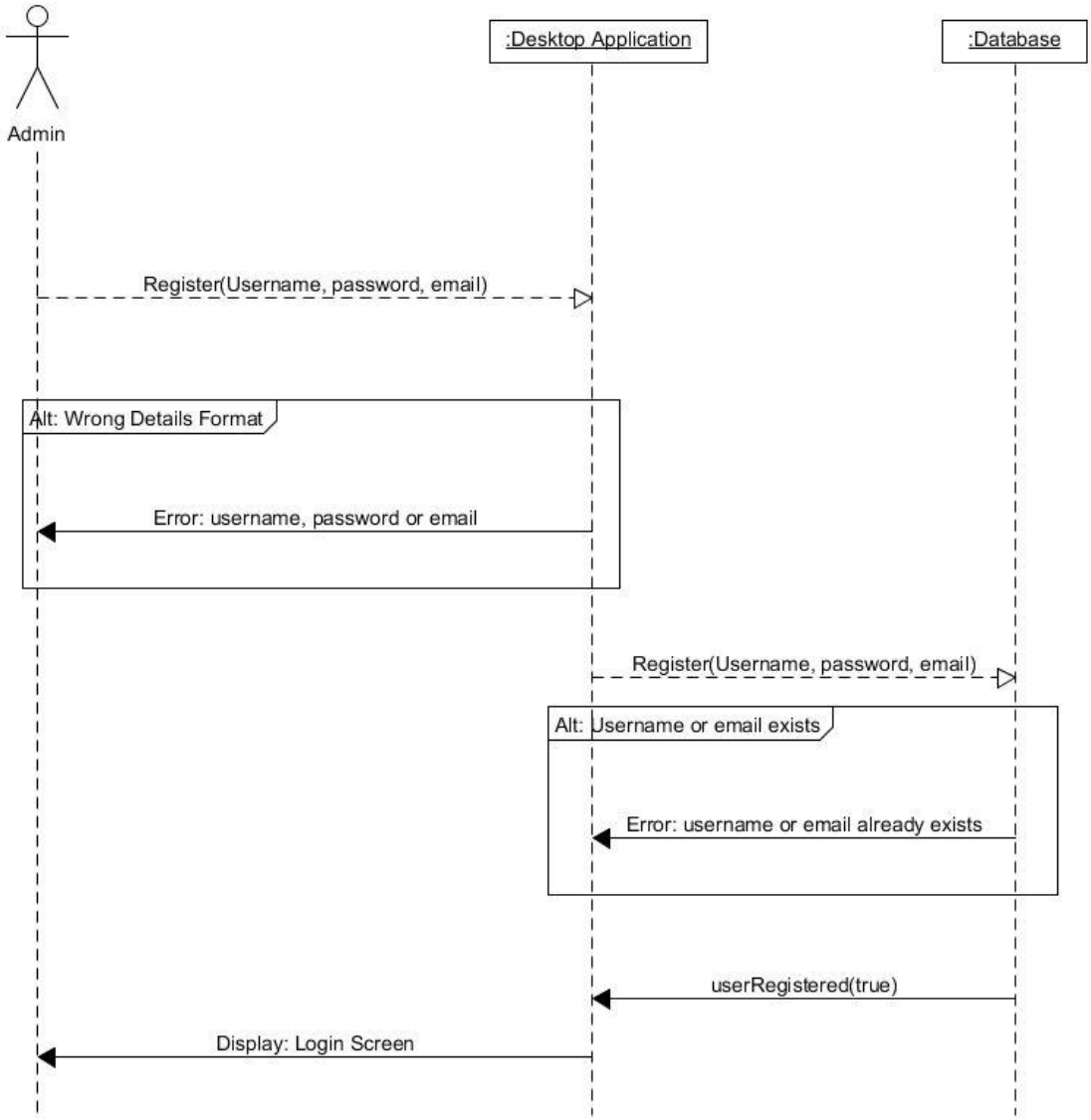
1. Login



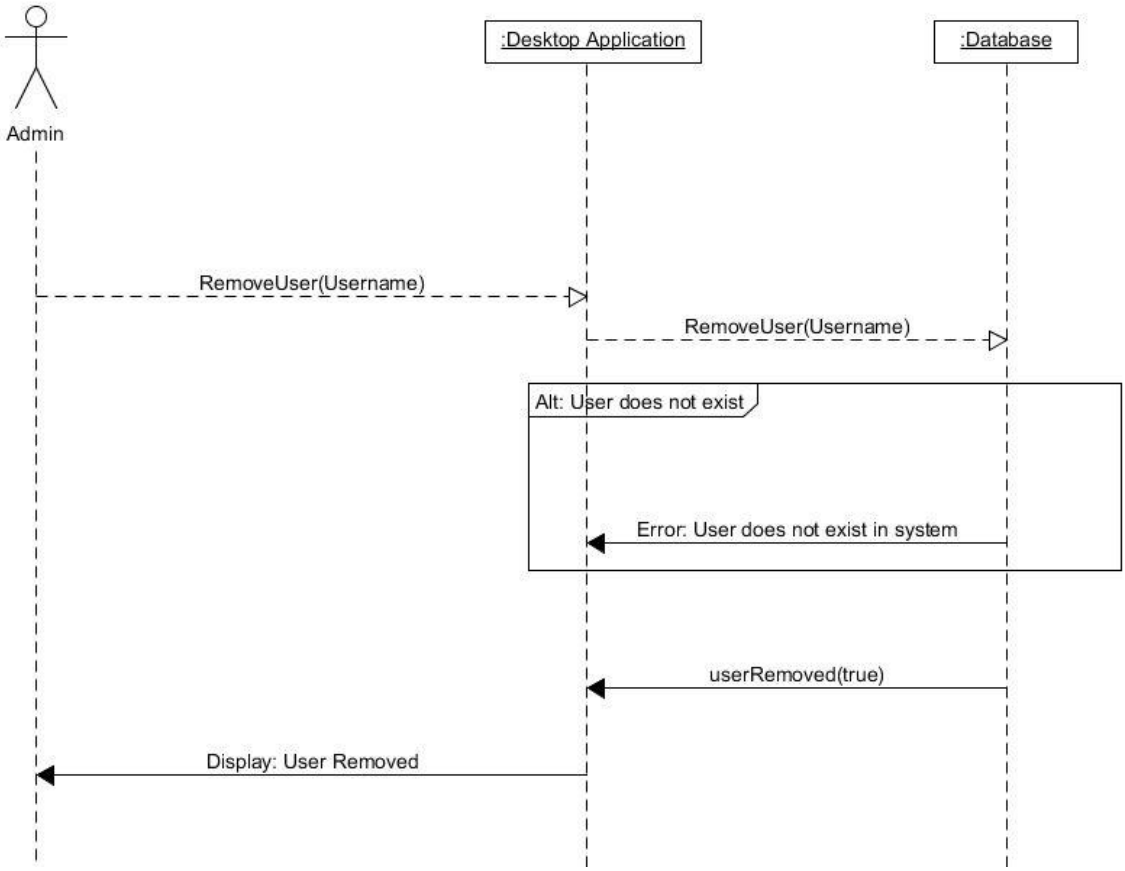
2. Logout



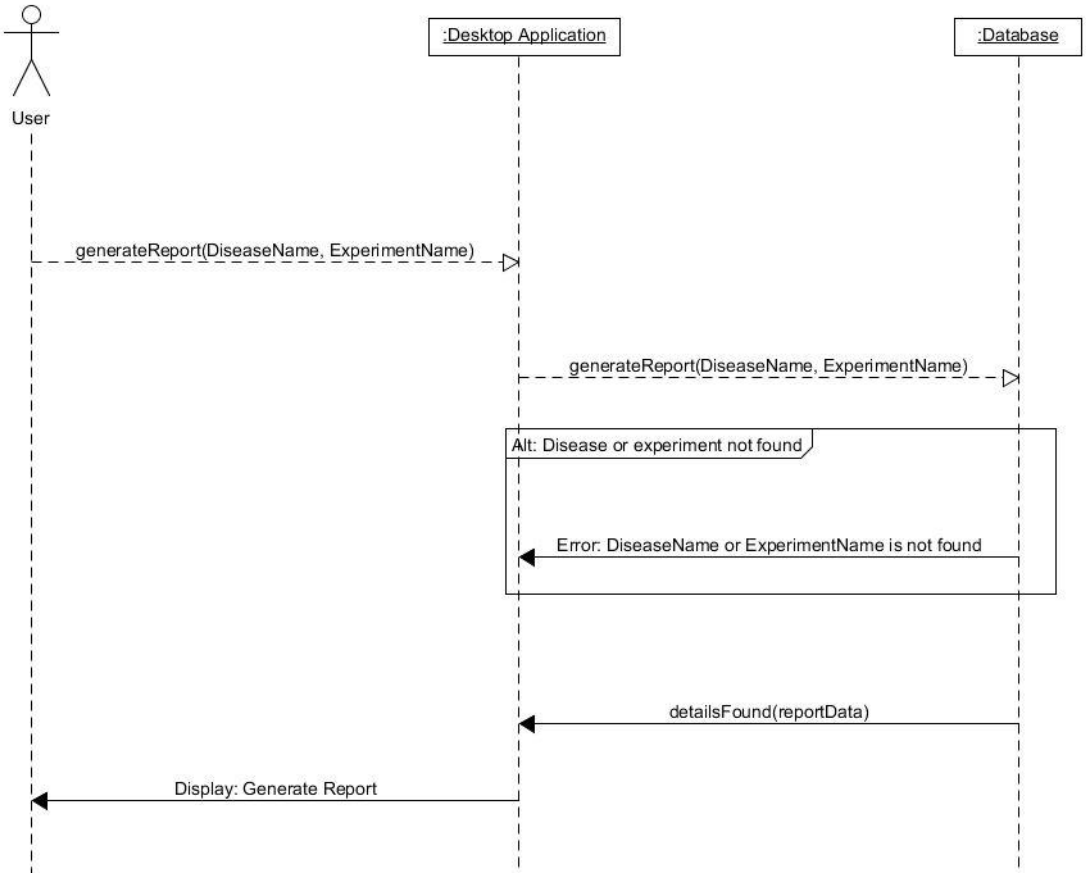
3. Add new user



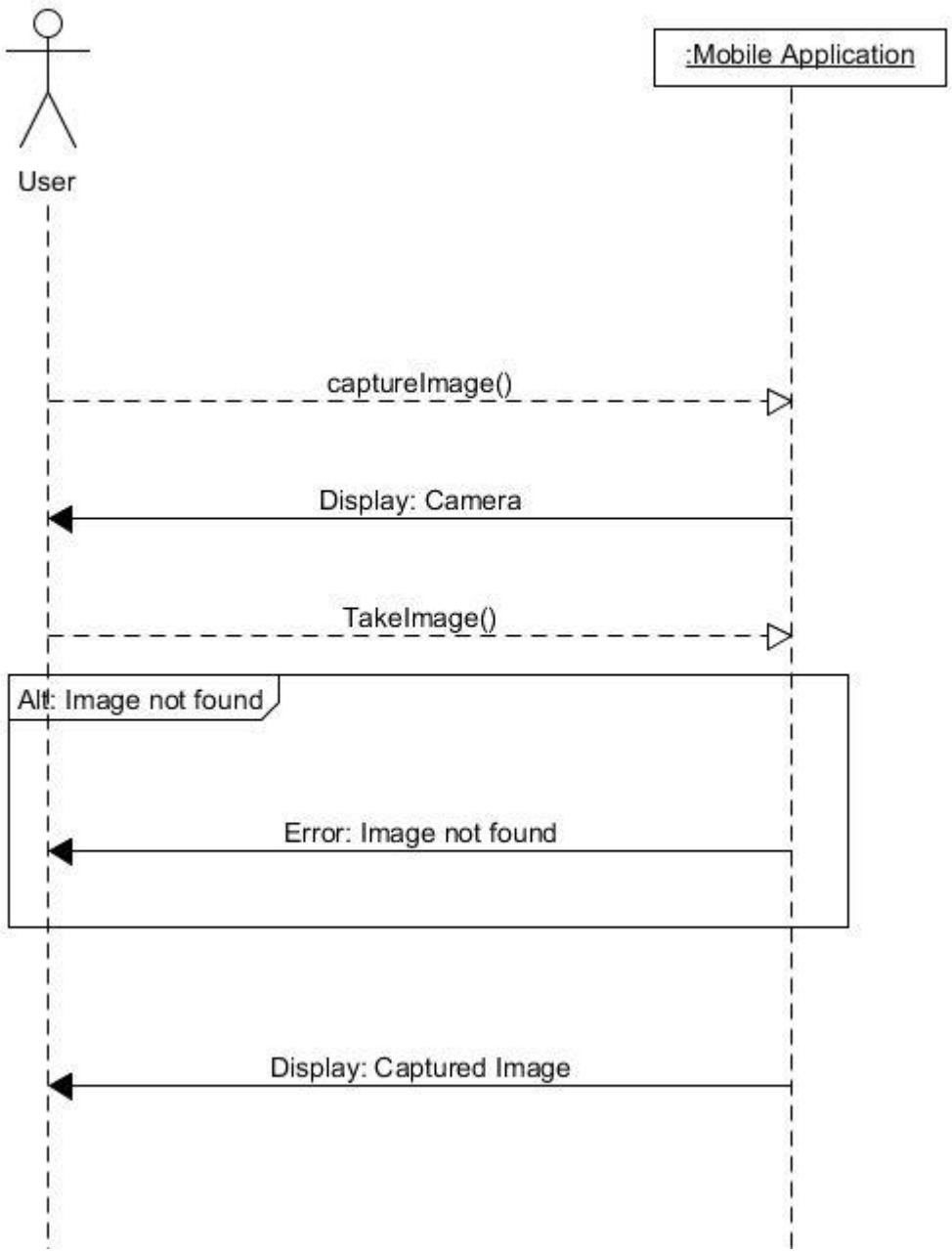
4. Remove User



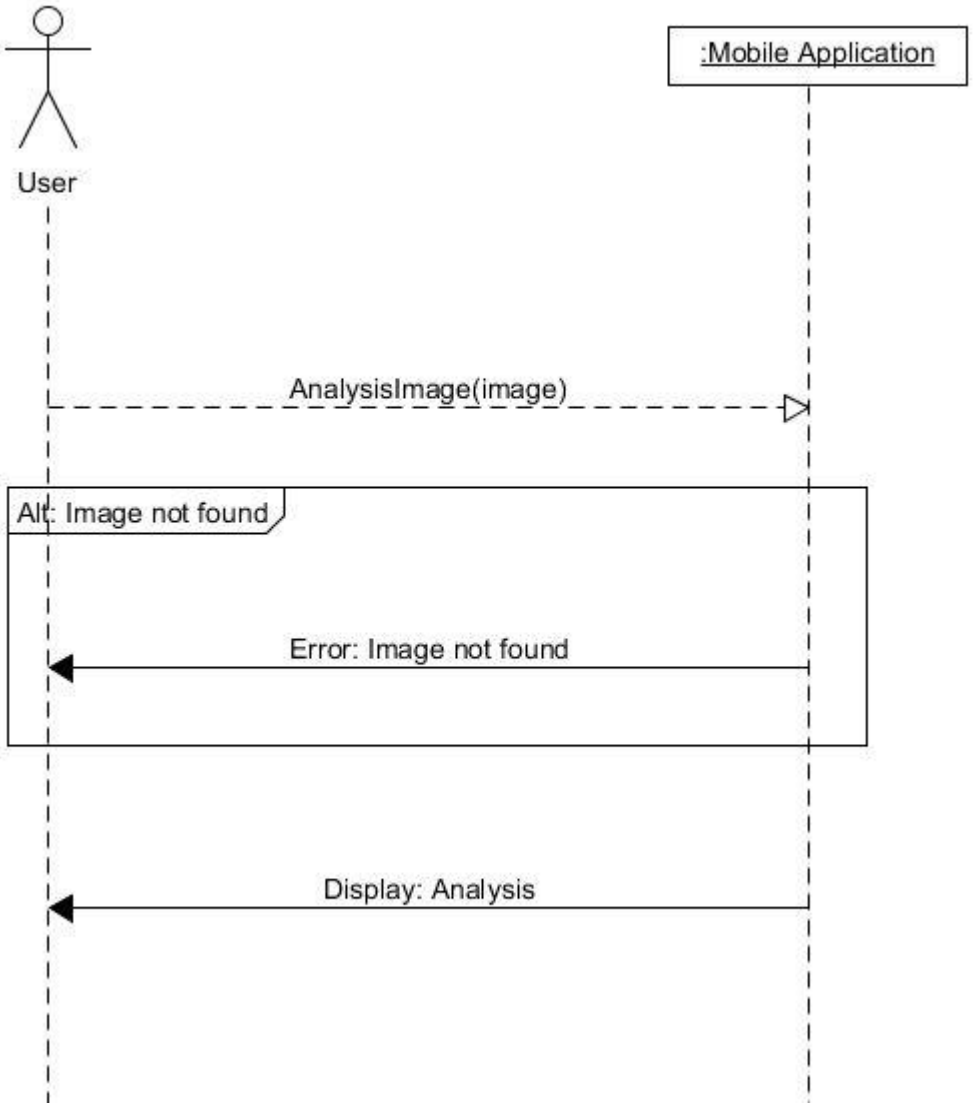
5. Generate Report



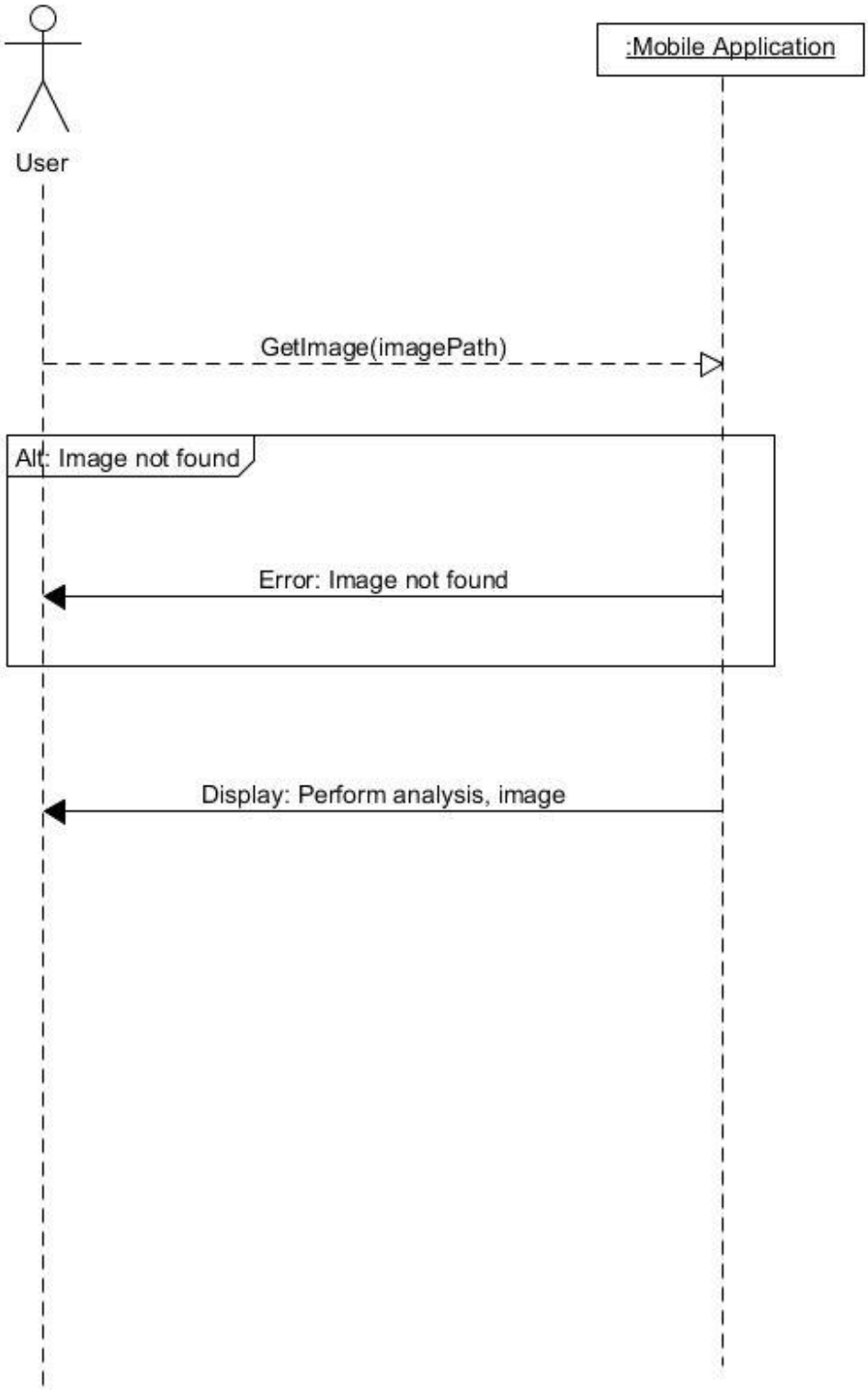
6. Take Image


:Mobile Application
User
captureImage()
Display: Camera
TakeImage()
Alt: Image not found
Error: Image not found
Display: Captured Image

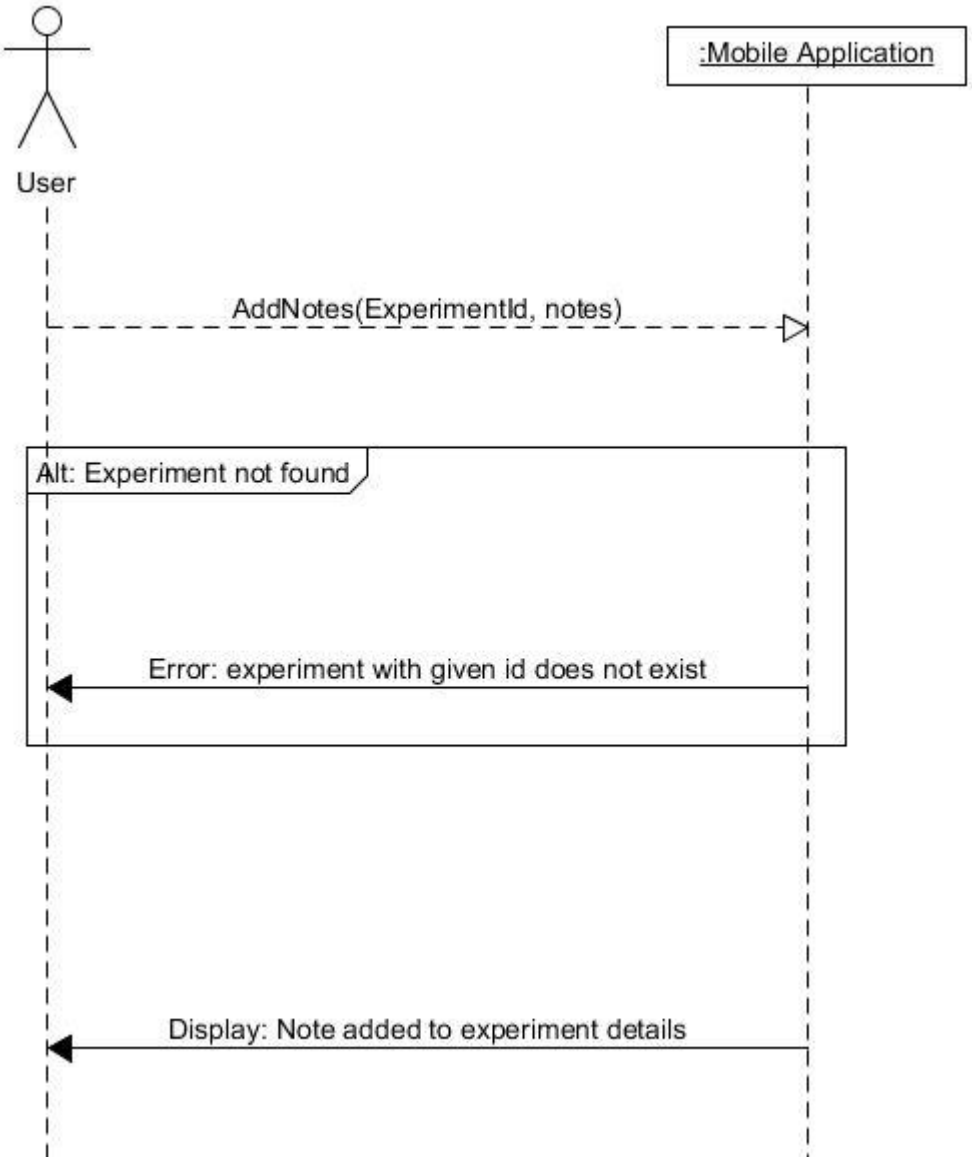
7. Perform Analysis



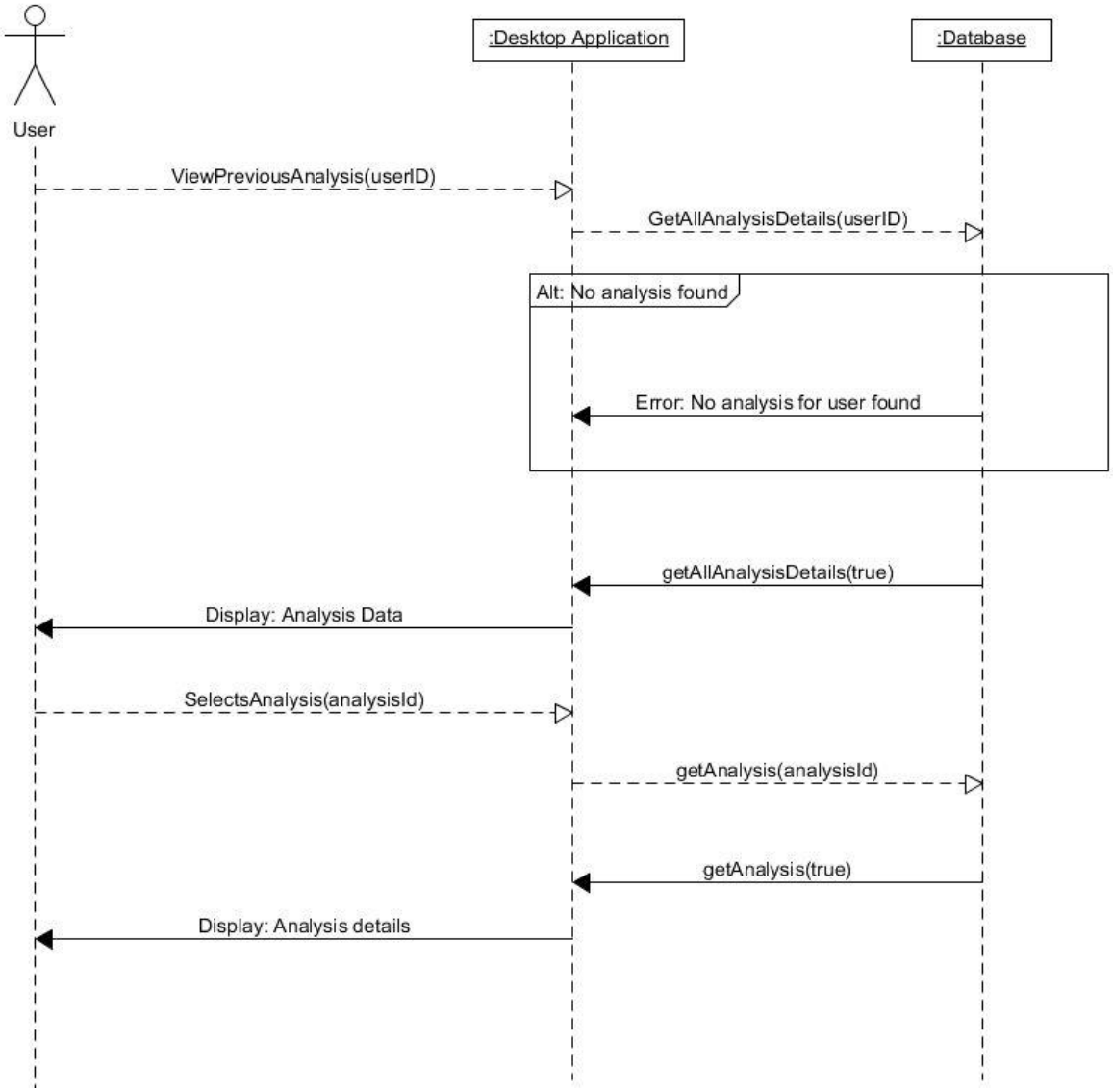
8. Use image from gallery



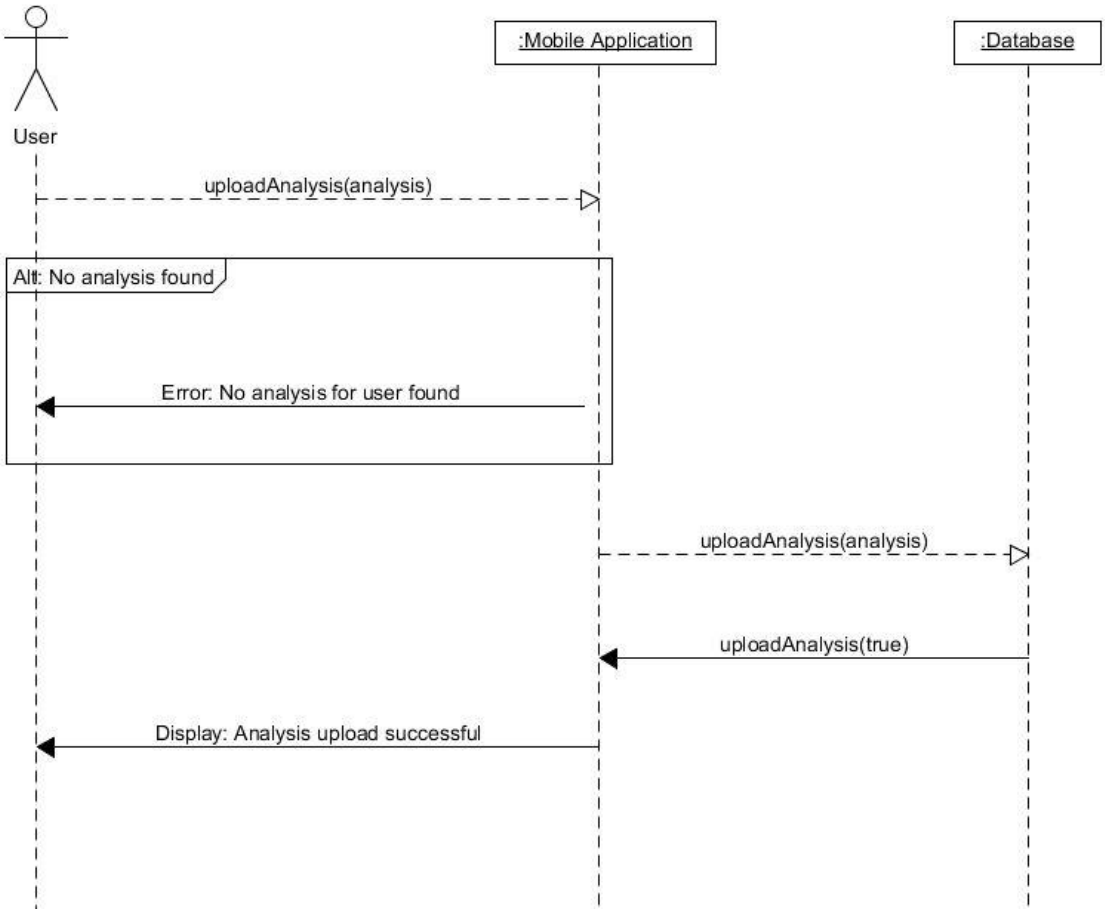
9. Add notes


User
:Mobile Application
AddNotes(ExperimentId, notes)
Alt: Experiment not found
Error: experiment with given id does not exist
Display: Note added to experiment details

10. Retrieve previous analysis.

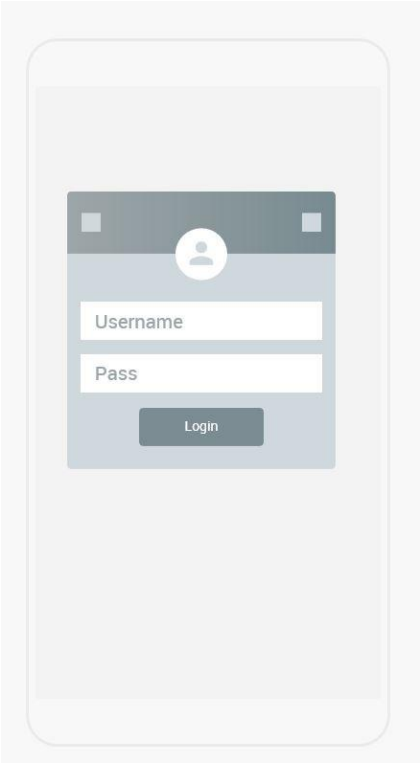


11. Upload analysis

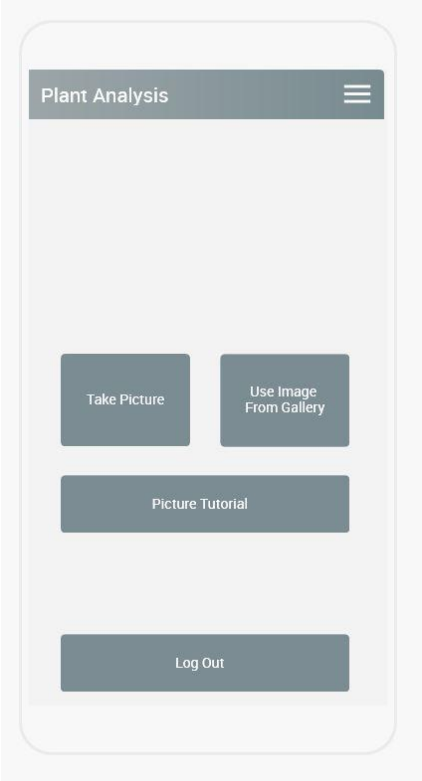


Screens

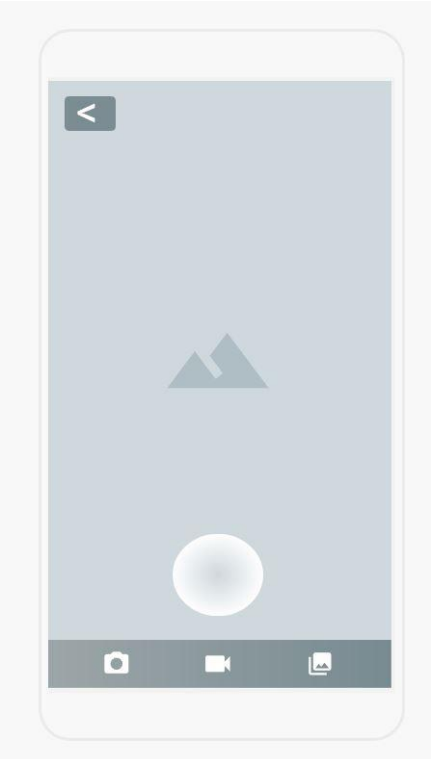
Login



Home



Take Image



Select Image from gallery

Analysis

Upload successful