

1. Authentication and Authorization:

- Test the login functionality to ensure users can access their accounts securely.
- Test Cases:
 - Test Case Concept: Log in Success
 - Description: Verify that the user can log in with valid credentials.
 - Steps to Reproduce:
 1. Launch the application.
 2. Enter valid username and password.
 3. Click on the login button.
 4. Verify that the user is logged in successfully.
 - Expected Result: User should be logged in and directed to the home screen.
 - Test Case Concept: Log in Failure
 - Description: Verify that the user will be denied entry on invalid credentials (note: exception for final product functionality).
 - Steps to Reproduce:
 1. Launch the application.
 2. Enter invalid username and password.
 3. Click on the login button.
 4. User will see a 'toast' message indicating failure.
 - Expected Result: User should be tasked with logging in again, or creating an account. SUCCESS.

2. Account Creation:

- Test the account creation process to ensure new users can register successfully.
- Test Cases:
 - Test Case Concept: Successful Creation of Account
 - Description: Verify that the user can create an account with valid inputs.
 - Steps to Reproduce:
 1. Launch the application.
 2. Navigate to the create account screen.
 3. Enter valid email, password, and confirm password.
 4. Create Account button should become interactable. Click on the create account button.
 5. Verify that the account is created successfully.
 - Expected Result: User should be redirected to the login screen after successful account creation. SUCCESS

3. Adding Friends:

- Test the functionality to add friends to the user's network.
- Test Cases:
 - Test Case Concept: Add Friend to List
 - Description: Verify that the user can add a friend by entering their email address.
 - Steps to Reproduce:
 1. Launch the application.
 2. Navigate to the Home screen.
 3. Press 'Add Friend' Button
 4. Enter the email address of the friend.
 5. Click on the confirm button.
 6. Verify that the friend is added successfully.
 - Expected Result: Friend should be added to the user's friend list.
PARTIAL FAILURE

4. Group Creation:

- Test the functionality to create groups for organizing friends.
- Test Cases:
 - Test Case Concept: Creation of Group
 - Description: Verify that the user can create a group with a unique name.
 - Steps to Reproduce:
 1. Launch the application.
 2. Navigate to the home screen.
 3. Click Group Button.
 4. Click 'Create Group'.
 5. Enter a unique (to user) group name.
 6. Add members to the group.
 7. Click on the create group button.
 8. Verify that the group is created successfully.
 - Expected Result: Group should be created with the specified name and members. PARTIAL FAILURE

5. Sphere Visualization:

- Test the 3D sphere visualization feature to ensure it renders correctly and responds to user interaction.
- Test Cases:
 - Test Case Concept: Sphere
 - Description: Verify that the user can rotate the 3D sphere using touch gestures.
 - Steps to Reproduce:
 1. Launch the application.

2. Navigate to the home screen with the sphere visualization.
 3. Touch and drag on the sphere to rotate it.
 4. Verify that the sphere rotates smoothly.
- Expected Result: Sphere should rotate according to the user's touch input.
- PARTIAL FAILURE

6. Performance Testing:

- Test the performance of the application under different network conditions and device configurations.
- Document test cases for measuring response times, loading times, and resource usage.
- Example Test Case:
 - Test Case ID: PERFORMANCE_TC_001
 - Description: Measure the response time of the login process under normal network conditions.
 - Steps to Reproduce:
 1. Launch the application.
 2. Enter valid login credentials.
 3. Click on the login button.
 4. Measure the time taken for the login process to complete.
 - Expected Result: Login process should complete within an acceptable time frame.

7. Usability Testing:

- Test the usability of the application by observing user interactions and collecting feedback.
- Document test cases for user tasks such as navigating between screens, performing actions, and understanding interface elements.
- Example Test Case:
 - Test Case ID: USABILITY_TC_001
 - Description: Observe a user's interaction with the application's navigation menu.
 - Steps to Reproduce:
 1. Ask a test user to navigate to a specific screen using the application's menu.
 2. Observe the user's actions and note any difficulties or confusion.
 - Expected Result: User should be able to navigate to the desired screen without difficulty.