

Twitter-clone App Project

Testing Document

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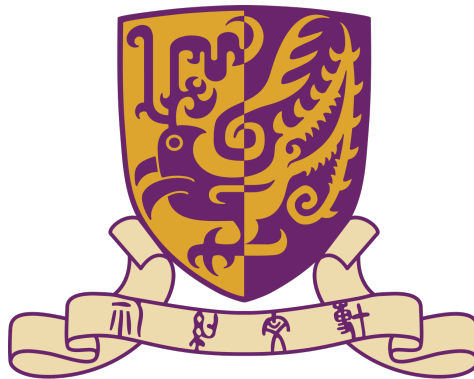
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1 TEST PLAN

1.1 Introduction

The **black box testing approach** will be employed to thoroughly test the functionality and user experience of the Twitter-Clone application. This section outlines the test cases and the tools to be used for monitoring outputs during the testing process. The testing environment will consist of computers running macOS and Windows operating systems.

1.2 Test Objectives

The primary objectives of black box testing are as follows:

- Ensure the application meets functional requirements.
- Validate the user interface behavior and responsiveness.
- Verify the compatibility with different operating systems.

1.3 Test Inputs

Test inputs will be provided to the application to simulate user interactions. These inputs will cover various scenarios and include typical use cases, edge cases, and invalid inputs.

1.4 Test Outputs

The outputs will be monitored through the following tools:

- Browser Page: The visual feedback on the application's user interface will be observed in the web browser.
- Browser Console Output: The console logs in the web browser will be monitored for any error messages or warnings.
- The console logs from the backend server will be checked for any relevant information, error messages, or exceptions.

1.5 Testing Environment

The black box testing will be conducted on computers running **macOS and Windows operating systems**. This will ensure compatibility and validate the application's behavior across different platforms.

1.6 Conclusion

The black box testing approach will enable comprehensive validation of the Twitter-Clone application's functionality and user experience. By monitoring outputs through the browser page, browser console output, and backend console output, we can ensure the application performs as expected across different operating systems. The organized test plan will aid in identifying any discrepancies or areas for improvement, ensuring a robust and reliable application.

2 TEST CASES

2.1 Case-1 Sign Up & Login System

2.1.1 Purpose

In this section, test cases are created to test the features of the sign up and login system. Users should create a Twitter account first. Then, they will be able to login and see tweets of following users. When signing up, users are required to provide their username, password, and email address. With this email address provided, users can reset their password if they forget it. One-time password will be sent to their corresponding email address for the reset password purpose.

2.1.2 Inputs

Case 1: Click the "Login" button in homepage.

Case 2: Click "Sign Up Now" at the bottom-right corner of the login box.

Case 3: Click "Login" at the bottom-right corner of the signup box.

Case 4: Click the "Sign Up" button with no input username, no password, and no email address.

Case 5: Click the "Sign Up" button with the input username "CSCI3100" (which has not been used by other users), password "testing", and email address "csci3100@gmail.com".

Case 6: Click the "Sign Up" button with the input username "tester" (which has not been used by other users), password "123456", and email address "abc.com".

Case 7: Click the "Sign Up" button with the input username "tester" (which has not been used by other users), password "123456", and email address "@".

Case 8: Click the "Sign Up" button with the input username "tester" (which has not been used by other users), password "123456", and email address "a@abc".

Case 9: Click the "Sign Up" button with the input username "CSCI3100" (which is the username of an existing user), password "654321", and email address "csci3100@gmail.com".

Case 10: Click the "Login" button with the input username "CSCI3100" and password "testing" (which is a correct pair of username and password created in test case 4).

Case 11: Click the "cross" (i.e., x) next to the user's information at the bottom-left corner of the homepage.

Case 12: Click the "Reset Password?" above the "Login" button in the login box.

Case 13: Click the "Send OTP" button with the input username "Hello" (which is not an existing username).

Case 14: Click the "Send OTP" button with a valid username.

Case 15: Click the "Verify OTP" button with a wrong OTP.

Case 16: Click the "Verify OTP" button with a correct OTP.

Case 17: Click the "Reset Password" button with no input.

Case 18: Click the "Reset Password" button with different inputs in the "new password" and the "new password again" fields.

Case 19: Click the "Reset Password" button with the matched new password (which is the same as the old password) in both the "new password" and "new password again" fields.

Case 20: Click the "Reset Password" button with the matched new password (which is different from the old password) in both the "new password" and "new password again" fields.

Case 21: After resetting the password in test case 20, click the "Login" button with the old password.

Case 22: After resetting the password in test case 20, click the "Login" button with the new password.

2.1.3 Expected Outputs & Pass/Fail Criteria

Case 1: Users will be directed to the login page.

Case 2: Users will be directed to the sign up page.

Case 3: Users will be directed to the login page.

Case 4: Users will not be able to sign up. Three error messages, including "Email Required...!", "Password must be more than 6 characters long", and "Username Required...!" will pop up.

Case 5: A "Register Successfully!" message will pop up. At the same time, users will be redirected to the login page.

Case 6: Since the email address must be invalid without the '@' sign, users will not be able to register with this provided email address. Instead, a warning message asking users to include the '@' character in the email address will pop up.

Case 7: Since "@@" is not a valid email address, users will not be able to register with this provided email address. Instead, a warning message asking users to fill in the remaining part of the email address will pop up.

Case 8: Since "a@abc" is an invalid email address, users will not be able to register with this provided email address. Instead, an error message "Invalid email address...!" will pop up.

Case 9: Since "CSCI3100" is an existing user, users will not be able to register with this username again. Instead, an error message "Could not register." will pop up.

Case 10: User should be able to login successfully. He/ she will be redirected to his/ her homepage.

His/ her username and avatar information will be shown at the bottom-left corner of the homepage to indicate that he/ she has logged in his/ her account successfully.

Case 11: User should be logged out and the homepage of general users should be shown.

Case 12: Users will be directed to the reset password page.

Case 13: An error message "Invalid username!" will pop up.

Case 14: An OTP will be sent to the corresponding email address of the user and a success message "OTP has been sent to your registered email!" will pop up.

Case 15: An error message "Incorrect OTP!" will pop up.

Case 16: A success message "OTP has been verified!" will pop up. At the same time, users will be asked to enter the new password.

Case 17: An error message "Password Required...!" will pop up.

Case 18: An error message "Password not match...!" will pop up.

Case 19: Since the new password is the same as the old password, there should be no change for the password. Still, a success message "Password has been reset for you!" will pop up.

Case 20: The password for the user's account should be changed to the new password (which is different from the old one). A success message "Password has been reset for you!" will pop up.

Case 21: The user should not be able to login with their old password. An error message "Could not login." will pop up.

Case 22: The user should be able to login with their new password. He/ she will be redirected to their corresponding homepage.

The test is passed if the application behaves as suggested in the expected outputs and takes less than 2 seconds.

2.2 Case-2 Admin User System

2.2.1 Purpose

Test whether admin users can access and delete information of all users and have a different interface from normal users.

2.2.2 Inputs

Case 1: Login as a normal user and try to access the admin interface.

Case 2: Login as an admin user and navigate to the user information page.

Case 3: Login as an admin user and try to delete a normal user.

Case 4: Login as a normal user and try to delete another normal user.

Case 5: Login as an admin user and attempt to delete a user who was previously deleted from the system.

2.2.3 Expected Outputs & Pass/Fail Criteria

Case 1: The system should prevent the normal user from accessing the admin interface and display an error message. Test passes if the error message is displayed.

Case 2: The admin user should be able to navigate to the user information page and see the information of all users. Test passes if the user information page displays information about all users.

Case 3: The admin user should be able to successfully delete a normal user from the system. Test passes if the user is deleted from the system and no longer appears in the user list.

Case 4: The normal user should not be able to delete another normal user from the system. Test passes if the system prevents the user from deleting another user and displays an error message.

Case 5: The system should return an error message stating that the user does not exist.

2.3 Case-3 Profile System

2.3.1 Purpose

Verify if the user is able to upload the profile cover image and change their avatar effectively. Additionally, ensure that the avatar displayed on the profile page matches the one displayed elsewhere.

2.3.2 Inputs

Case 1: After logging into our Twitter account, click on the profile button located in the left pane.

Case 2: Take an image from your folder and drag it onto the avatar area.

Case 3: Take an image from your folder and drag it onto the cover area.

Case 4: Once the avatar image has been uploaded, refresh the page.

Case 5: Once the cover image has been uploaded, refresh the page.

Case 6: After uploading the avatar image, go back to the home page to verify that it appears correctly in other areas such as the posting, commenting, and searching areas.

Case 7: Click on another user's avatar to view their profile.

2.3.3 Expected Outputs & Pass/Fail Criteria

Case 1: The profile page should display the user's avatar and cover image accurately. If the user has not uploaded any images before, the default ones should be displayed instead. In addition, any tweets posted by the user should be visible below the profile information.

Case 2: If the profile being viewed is the user's own profile, the avatar change will take effect immediately. However, if the profile being viewed belongs to another user, the avatar change will not have any effect.

Case 3: If the profile being viewed is the user's own profile, the cover change will take effect within 3 seconds. However, if the profile being viewed belongs to another user, the cover change will not have any effect.

Case 4: The uploaded avatar will still be shown in the profile.

Case 5: The uploaded cover will still be shown in the profile.

Case 6: The newly uploaded avatar is displayed consistently across all areas where the user's avatar is shown.

Case 7: The profile of other users will display their respective avatar, cover image, and posted tweets.

The profile system will be deemed to have passed the test cases only if it adheres strictly to the expected output as specified above; otherwise, it will be considered a failure.

2.4 Case-4 Searching System

2.4.1 Purpose

In this section, test cases are designed for testing the features of the searching system. Users should be able to search for other users and tweets by inputting some keywords of the usernames or tweet contents.

2.4.2 Inputs

Case 1: Enter the homepage, without searching anything,

Case 2: Without logging in, input "123" in the searching field and then click the "Search" button.

Case 3: Without logging in, input "45" in the searching field and then click the "Search" button.

2.4.3 Expected Outputs & Pass/Fail Criteria

Case 1: A searching area appears in the right pane of the homepage. Originally, the default searching result is "No users found" and "No tweets found".

Case 2: A list of users with username containing the keywords "123" will be shown in the right searching pane. For example, user "1234" and "12345" will be in the list. At the same time, a list of tweets with tweet contents containing the keywords "123" will also be shown.

Case 3: A list of users with username containing the keywords "45" will be shown in the right searching pane. For example, user "12345" will be in the list. At the same time, a list of tweets with tweet contents containing the keywords "45" will also be shown.

2.5 Case-5 Tweeting System

2.5.1 Purpose

Check whether the application supports different kind of tweeting behaviors, including posting tweets with and without images, listing existing tweets and showing tweet information. Also, test whether the application can behave correctly on unexpected or invalid input.

2.5.2 Inputs

Case 1: Enter the homepage containing no tweets in the database without logging in.

Case 2: Enter the homepage containing no tweets in the database, logged in.

Case 3: Enter the homepage containing some tweets in the database without logging in.

Case 4: Enter the homepage containing some tweets in the database, logged in.

Case 5: Click on the text area of an existing tweet.

Case 6: Click on the top left arrow of the tweet detail page.

Case 7: Enter some words in the input box of "post tweet" box and click "Tweet".

Case 8: Click "Tweet" without entering anything in the input box.

Case 9: Click the picture button under the input box.

Case 10: Enter some words, attach a picture and click "Tweet".

Case 11: Attach a picture and directly click "Tweet" without entering words.

2.5.3 Expected Outputs & Pass/Fail Criteria

Case 1: No tweets will be shown, and no "post tweet" box will be shown as well.

Case 2: No tweets will be shown, but there will be a "post tweet" box containing an input box and a "Tweet" button shown on top of the page.

Case 3: The existing tweets will be listed in descending order of post time. No "post tweet" box will be shown.

Case 4: The existing tweets will be listed in descending order of post time, and the "post tweet" box as described in case 2 will be shown on top of the page.

Case 5: It will redirect to a page with detailed information of this tweet, including its content, its comments and a comment box.

Case 6: It will return to the homepage.

Case 7: A new tweet will be created and directly shown as the first tweet on the tweet list under the "post tweet" box.

Case 8: "Tweet" button will be unclickable.

Case 9: A file selection dialog will pop out. Select a picture and the picture will be attached to the tweet.

Case 10: A tweet with picture attached will be created and shown in the list.

Case 11: "Tweet" button will be unclickable.

The test is passed if the application behaves as suggested in the expected outputs and takes less than 5 seconds. Additionally, if information has changed (in this case, new tweet), it should keep in the new state even after refreshing.

2.6 Case-6 Tweet Reactions

2.6.1 Purpose

Check whether the application supports different kind of tweet reactions, including like, dislike, retweet, posting comments and viewing comments. Also, test whether the application can behave correctly on unexpected or invalid behaviours.

2.6.2 Inputs

Case 1: Click the like button of a tweet without logging in.

Case 2: Click the like button of a tweet that hasn't been liked by this user (i.e. the like button is not red).

Case 3: Re-login and refresh the page after liking a tweet.

Case 4: Click the like button of a tweet that has been liked by this user (i.e. the like button is red).

Case 5: Click the like button of a unliked tweet 5 times.

Case 6: Click the retweet button of a tweet without logging in.

Case 7: Click the retweet button of a tweet after logged in.

Case 8: Click the retweet button of a retweet.

Case 9: Enter the homepage with some retweets and original tweets in the database.

Case 10: Enter the tweet detail page of a tweet with no replies.

Case 11: Enter the tweet detail page of a tweet with some replies.

Case 12: Enter something in the comment box and click "Reply" without logging in.

Case 13: Click the "Reply" button without entering anything. (Login assumed in the following operations.)

Case 14: Enter something in the comment box and click "Reply".

Case 15: Enter something and attach a picture in the comment box and click "Reply".

Case 16: Click the reply button of a comment.

Case 17: Enter something under the comment of a comment and click "Send".

Case 18: Click "Show quoted text" of a comment replying to the tweet.

Case 19: Click "Show quoted text" of a comment replying to another comment.

2.6.3 Expected Outputs & Pass/Fail Criteria

Case 1: A warning message "You need to login before liking!" will pop out and then it will redirect to the login page.

Case 2: The like button will turn red and the number before "Likes" in the detail of the tweet will increase by 1.

Case 3: The liked tweet will still have its like button turned red no matter re-logged in or refreshed.

Case 4: The like button will return to the unliked style and the number of likes will decrease by 1.

Case 5: The color of the like button will become red, not red, red, not red, red after each click respectively. The number of likes will increase by 1, decrease by 1, increase by 1, decrease by 1, increase by 1 after each click respectively.

Case 6: A warning message "You need to login before retweeting!" will pop out and then it will redirect to the login page.

Case 7: A message "Successfully retweeted!" will pop out and a new item will be displayed in the tweet list with the information of the original tweet and "<username> Retweeted" on top of it (<username> is the name of the user doing this operation). The number before "Retweets" in the detail of the original tweet will increase by 1.

Case 8: A warning message "Please retweet original tweet!" will pop out and no retweet will be

created.

Case 9: The sorting of retweets will be according to their retweet time but not the tweet time of their original tweets.

Case 10: A "comment box" containing an input box, an "Image" button and a "Reply" button will be displayed under the content of the tweet, but no comments will be displayed.

Case 11: The "comment box" will be displayed, and under the "comment box" the comments will be listed in ascending order of their comment time.

Case 12: The "Reply" button will be unclickable.

Case 13: The "Reply" button will be unclickable.

Case 14: A comment with the commented user's information will be created and shown at the bottom of the page.

Case 15: A comment with picture will be created and shown.

Case 16: Another comment box containing a input box, a "Cancel" button and a "Send" button will appear under this comment.

Case 17: Another comment will be created and shown. This comment contains the information of the current user and the comment author being commented.

Case 18: The text of the tweet will be displayed under this comment.

Case 19: The text of the comment being replied will be displayed under this comment.

The test is passed if the application behaves as suggested in the expected outputs and takes less than 5 seconds. Additionally, if information has changed (in this case, increment of likes and retweets, new retweet, new comment), it should keep in the new state even after refreshing.

2.7 Case-7 Following System

2.7.1 Purpose

Test cases in this section check the features in following system. After logging in, the user can access their profile page by clicking the bottom at left pane. The user can then see their following/follower page by clicking the buttons. Then, they can choose to view other users' profile page as well, by clicking the user avatars. They can change their following list by clicking unfollow/follow bottom beside the other user avatar.

2.7.2 Inputs

Inputs in this test case includes various clicks, under the assumption that the user has logged in.

1. Click "profile" button
2. Click "Follower"

3. Click "Following"
4. Click "Unfollow" on some users in following page
5. Click another user in following list
6. View this user's following/follower list by clicking the page
7. Follow one user in the other user's following list
8. Try to follow the user himself by clicking the "follow" bottom

2.7.3 Expected Outputs & Pass/Fail Criteria

(Ordered correspondingly)

1. Enter user's profile page
2. Show user's followers list
3. Show user's following list
4. The unfollowed user will disappear in user's following page
5. Route to the other user's profile page
6. The followers/following list will be shown
7. The "Follow" button of the target user will turn to "Following", and user's following list will be modified correspondingly (Figure 1)
8. Nothing will happen and the console will output an error message

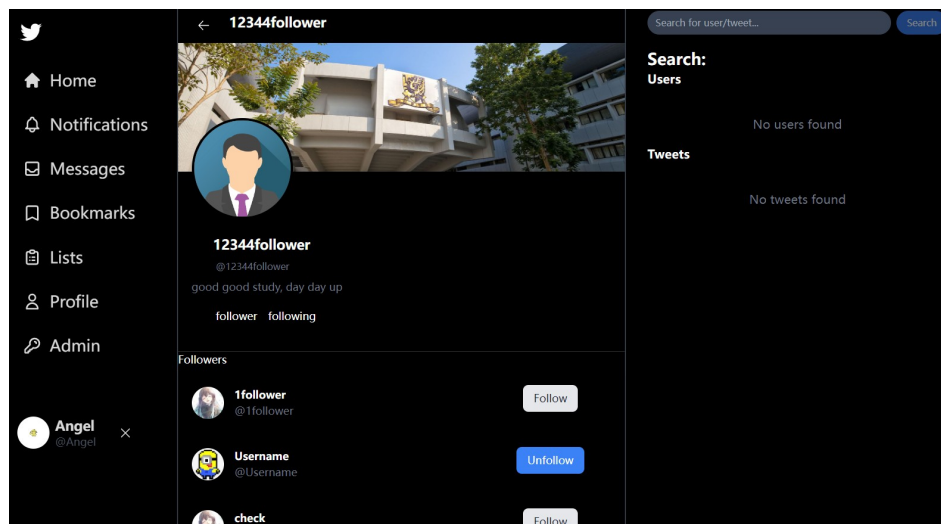


Figure 1: A representative caption of test result for following system. The logged in user is viewing other user's profile page, and followed one user in the follower list. This test case test the Comprehensive ability of the following system.

Pass/Fail Criteria: Because render/re-render would take some time depends on the network speed, some delay is possible. But if the expected outputs did not show after 10 seconds, it indicates program fail due to network error, or internal exception happens. On last circumstance, it means the program fail, and the user can open the console for details, or contact developers.

2.8 Case-8 Show following user tweets

2.8.1 Purpose

Test cases in this section comprehensively check the features in following system and the tweet system. If the user has logged in, then he can click the following button in the main page, and will be route to the "Show following user tweets page". This page will display all the tweets from the users that is followed by current user. The test case will be designed to check the robustness of the application, namely, the user logged out and the user has no user. Then we will test the Reset ability of this feature, by clicking the button "Following" again, and "for you" back.

2.8.2 Inputs

Inputs in this test case includes various clicks, under the assumption that the user has logged in before.

1. Click "following" button at the top of the main page
2. Click One tweet content
3. Return to previous page
4. remove all following users, then click "following"
5. click "for you"
6. Click logout
7. Click "following" again

2.8.3 Expected Outputs & Pass/Fail Criteria

(Ordered correspondingly)

1. Show all tweets from the users that are followed by current user
2. Enter the tweet page
3. Return to "following" page
4. Nothing will be shown
5. show all tweets
6. Logged out
7. Nothing will be displayed

Pass/Fail Criteria: Following circumstances will be considered as Fail: (By order correspondingly)

1. Nothing changes, or no directing
2. No redirecting
3. No directing
4. Something unexpected is shown
5. Still showing the following users' tweets
6. Did not log out current user, and left pane does not change
7. Something unexpected is shown