

Testing - Sentiment Analytics

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A. Black box testing

(* the user inputs/actions in shades under the "Test cases" sections indicates the reasoning/triggers for the failed cases.)

a. Sign Up

Scenario	Expected Result	Actual Result
User does not have an existing account and sign up with correct information	Sign up successfully User information is stored into the user database	Sign up successfully User information is stored into the user database
User enters different passwords for password and confirm password field	Cannot sign up successfully. Remind user to double confirm they have input the same passwords for the two fields	Cannot sign up successfully. Remind user to double confirm they have input the same passwords for the two fields
User already has an existing account but try to sign up with the same username	The username has already existed	The username has already existed
User did not fill in all the required field	Please fill in all the required information!	Please fill in all the required information!

Test cases:

Username	Password	Confirmed Password	Email	Verification information (nickname)	Plan	Expected result	Actual result
Jack	111111	111111	jackyy123@gmail.com	Ja	1	Welcome,Jack!	Welcome,Jack!
Mary	222222	222222	mary123@gmail.com	Ma	2	Welcome,Mary!	Welcome,Mary!

Jack	122222	122222	jackyyy12@gmail.com	Ja	2	The username has already existed!	The username has already existed!
Kate	333331	333333	kate123@gmail.com	Ka	1	Passwords don't match!	Passwords don't match!
(EMPTY)	233333	233333	123@gmail.com	yes	1	Please fill in all the required information!	Please fill in all the required information!
test1	(EMPTY)	113333	test1@gmail.com	te1	3	Please fill in all the required information!	Please fill in all the required information!
test2	233333	(EMPTY)	test2@gmail.com	te2	2	Please fill in all the required information!	Please fill in all the required information!
Mary	222222	222222	(EMPTY)	Ma	2	Please fill in all the required information!	Please fill in all the required information!
Linda	666666	666666	linda123@gmail.com	(EMPTY)	1	Please fill in all the required information!	Please fill in all the required information!

b. Log In

Scenario	Expected Result	Actual Result
User has an existing account and log in with correct information	Welcome, {username}!	Welcome, {username}!
User key in the correct username but wrong password	Display message: Password is incorrect. Please retry.	Display message: Password is incorrect. Please retry.
User try to log in with a username that does not exist	Display message: The user does not exist. Please sign up as a new user.	Display message: The user does not exist. Please sign up as a new user.

User did not fill in all the required field	Display message: Please fill in all the required information!	Display message: Please fill in all the required information!
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Test cases:

Username	Password	Expected result	Actual result
Jack	111111	Welcome, Jack!	Welcome, Jack!
Max	12222	The user does not exist. Please sign up as a new user.	The user does not exist. Please sign up as a new user.
Mary	333334	Password is incorrect. Please retry.	Password is incorrect. Please retry.
(EMPTY)	111111	Please fill in all the required information!	Please fill in all the required information!
Max	(EMPTY)	Please fill in all the required information!	Please fill in all the required information!

c. Edit Password

Scenario	Expected Result	Actual Result
User edit password with correct information	Edit password successfully.	Edit password successfully.
User key in a wrong password (old password)	Display message: Please check your password.	Display message: Please check your password.
User key in the wrong verification information	Display message: The verification information is incorrect. Please retry!	Display message: The verification information is incorrect. Please retry!
Use key in different passwords for new password and confirm new password	Display message: Passwords don't match!	Display message: Passwords don't match!
User did not fill in all the required field	Display message: Please fill in all the required information!	Display message: Please fill in all the required information!

Test cases:

Username	Old Password	Verification information (nickname)	New password	Confirm new password	Expected result	Actual result
Jack	111111	Ja	111116	111116	Edit password successfully.	Edit password successfully.
Mary	222223	Ma	222226	222226	Please check your password.	Please check your password.
Jack	111116	Ja	111117	111118	Passwords don't match!	Passwords don't match!
Mary	222222	Mar	222226	222226	The verification information is incorrect. Please retry!	The verification information is incorrect. Please retry!
Mary	222222	Ma	222226	(EMPTY)	Please fill in all the required information!	Please fill in all the required information!
Mary	222222	Ma	(EMPTY)	222226	Please fill in all the required information!	Please fill in all the required information!
Mary	222222	(EMPTY)	222226	222226	Please fill in all the required information!	Please fill in all the required information!
Mary	(EMPTY)	Ma	22226	222226	Please fill in all the required information!	Please fill in all the required information!
(EMPTY)	222222	Ma	222226	222226	Please fill in all the required information!	Please fill in all the required information!

d. Forget Password

Scenario	Expected Result	Actual Result
User key in correct verification information(nickname)	Password is verified successfully.	Password is verified successfully.
User key in the incorrect verification information(nickname)	Display message: Please check your verification information.	Display message: Please check your verification information.
User did not fill in all the required field	Display message: Please fill in all the required information!	Display message: Please fill in all the required information!

Test cases:

Username	Verification information (nickname)	New password	Confirm new password	Expected result	Actual result
Jack	Ja	111116	111116	Edit password successfully.	Edit password successfully.
Jack	Ja	111117	111118	Passwords don't match!	Passwords don't match!
Mary	Mar	222226	222226	The verification information is incorrect. Please retry!	The verification information is incorrect. Please retry!
Mary	Ma	222226	(EMPTY)	Please fill in all the required information!	Please fill in all the required information!
Mary	Ma	(EMPTY)	222226	Please fill in all the required information!	Please fill in all the required information!
Mary	(EMPTY)	222226	222226	Please fill in all the required information!	Please fill in all the required information!

e. Search Keyword

Scenario	Expected Result	Actual Result
Default scenario where user	Shows scatter plot for "ntusg"	Shows scatter plot for "ntusg"

can only see the plots for default keyword		
User keys in the keyword which exist in the database	Shows scatter plot using dataframe called from database	Shows scatter plot using dataframe called from database
User keys in the keyword which does not exist in the database	The user can choose to pull tweets via tweepy using url and perform sentiment reasoning then display graphs. A progress bar is displayed to inform the user how many tweets have been fetched.	The user can choose to pull tweets via tweepy using url and perform sentiment reasoning then display graphs. A progress bar is displayed to inform the user how many tweets have been fetched.

Test cases:

Keyword	Expected result	Actual result
"ntusg"	Shows scatter plot for "ntusg"	Shows scatter plot for "ntusg"
"cybertruck"	Shows scatter plot for "cybertruck"	Shows scatter plot for "cybertruck"
"leehsienloong"	User can choose to pull tweets and the progress bar is displayed.	User can choose to pull tweets and the progress bar is displayed.

f. Select Indicators

Scenario	Expected Result	Actual Result
The user press on the indicator button to select the indicator to be shown on plot	The corresponding plot is generated and displayed on the main plot	The corresponding plot is generated and displayed on the main plot

Test cases:

Keyword	Indicator	Expected Result	Actual Result
"ntusg"	Moving average 5	The scatter plot for sentiments and overlaying (red) line plot for moving average (sliding width = 5)	The scatter plot for sentiments and overlaying (red) line plot for moving average (sliding width = 5)

		are displayed on the main plot.	are displayed on the main plot.
"ntusg"	Moving average 10	The scatter plot for sentiments and overlaying (red) line plot for moving average (sliding width = 10) are displayed on the main plot.	The scatter plot for sentiments and overlaying (red) line plot for moving average (sliding width = 10) are displayed on the main plot.
"ntusg"	Moving average 20	The scatter plot for sentiments and overlaying (red) line plot for moving average (sliding width = 20) are displayed on the main plot.	The scatter plot for sentiments and overlaying (red) line plot for moving average (sliding width = 20) are displayed on the main plot.
"ntusg"	Exponential Moving Average (EMA) 0.1	The scatter plot for sentiments and overlaying (blue) line plot for exponential moving average (smoothing factor = 0.1) are displayed on the main plot.	The scatter plot for sentiments and overlaying (blue) line plot for exponential moving average (smoothing factor = 0.1) are displayed on the main plot.
"ntusg"	Exponential Moving Average (EMA) 0.2	The scatter plot for sentiments and overlaying (blue) line plot for exponential moving average (smoothing factor = 0.2) are displayed on the main plot.	The scatter plot for sentiments and overlaying (blue) line plot for exponential moving average (smoothing factor = 0.2) are displayed on the main plot.
"ntusg"	Exponential Moving Average (EMA) 0.3	The scatter plot for sentiments and overlaying (blue) line plot for exponential moving average (smoothing factor = 0.3) are displayed on the main plot.	The scatter plot for sentiments and overlaying (blue) line plot for exponential moving average (smoothing factor = 0.3) are displayed on the main plot.
"ntusg"	MaxMin	The scatter plot for sentiments and the overlaying (pink) dotted horizontal line to show the position of overall maximum and minimum sentiment value are displayed on the main plot. The specific value of maximum and minimum sentiment points are printed above the horizontal line.	The scatter plot for sentiments and the overlaying (pink) dotted horizontal line to show the position of overall maximum and minimum sentiment value are displayed on the main plot. The specific value of maximum and minimum sentiment points are printed above the horizontal line.
"ntusg"	MaxMin/day	The scatter plot for	The scatter plot for

		sentiments and the overlaying line plots to show the positions of maximum and minimum sentiment values in each day are displayed on the main plot. Different markers and colours of the line plot are used to represent the different value types (Max/Min).	sentiments and the overlaying line plots to show the positions of maximum and minimum sentiment values of each day are displayed on the main plot. Different markers and colours of the line plot are used to represent the different value types (Max/Min).
"ntusg"	Quantile	The scatter plot for sentiments and the overlaying dotted horizontal line to show the position of different percentiles of overall sentiment values are displayed on the main plot. The specific value of maximum and minimum sentiment points are printed above the horizontal line.	The scatter plot for sentiments and the overlaying dotted horizontal line to show the position of different percentiles of overall sentiment values are displayed on the main plot. The specific value of maximum and minimum sentiment points are printed above the horizontal line.
"ntusg"	Quantiles/day	The scatter plot for sentiments and the overlaying line plots to show the positions of different percentiles of sentiment values in each day are displayed on the main plot. Different markers and colours of the line plot are used to represent the different value types (25th percentile–blue/ 75th percentile–green/ 50th percentile–yellow).	The scatter plot for sentiments and the overlaying line plots to show the positions of different percentiles of sentiment values of each day are displayed on the main plot. Different markers and colours of the line plot are used to represent the different value types (25th percentile–blue/ 75th percentile–green/ 50th percentile–yellow).
"ntusg"	Count	The stacked bar plot joining the 3 different bar plots (Positive, Negative and Neutral) will be displayed on the main plot (replacing the original scatter plot) along with a legend.	The stacked bar plot joining the 3 different bar plots (Positive, Negative and Neutral) will be displayed on the main plot (replacing the original scatter plot) along with a legend.
"ntusg"	Positive	The bar plot of the count of positive tweets for each day is displayed on the main plot	The bar plot of the count of positive tweets for each day is displayed on the main plot

		(replacing the original scatter plot).	(replacing the original scatter plot).
"ntusg"	Negative	The bar plot of the count of negative tweets for each day is displayed on the main plot (replacing the original scatter plot).	The bar plot of the count of negative tweets for each day is displayed on the main plot (replacing the original scatter plot).
"ntusg"	Neutral	The bar plot of the count of neutral tweets for each day is displayed on the main plot (replacing the original scatter plot).	The bar plot of the count of neutral tweets for each day is displayed on the main plot (replacing the original scatter plot).

Note: As the value of the sliding width for Moving Average increases, the line plot becomes smoother. Also, as the value of smoothing factor for Exponential Moving Average increases, more weight will be given to more recent sentiment value based on the timestamp of the tweet.

g. Select Date

Scenario	Expected Result	Actual Result
The user selects the day that they wish to view the sentiments for. There are enough tweets to generate a summary (≥ 5).	The summary is generated and displayed below the main dashboard.	The summary is generated and displayed below the main dashboard.
The user selects the day that they wish to view the sentiments for, but the number of tweets is not enough to generate a summary (< 5).	Display message: Not enough tweets to generate a summary.	Display message: Not enough tweets to generate a summary.

Test cases:

Keyword	Date selected	Expected Result	Actual Result
"ntusg"	15/4/2022	The summary of tweets with positive and negative sentiments are generated and displayed below the main dashboard in their respective text boxes.	The summary of tweets with positive sentiments is generated and displayed below the main dashboard. However, there are not enough tweets with negative sentiments to generate a

			summary. As such, the message “Negative Sentiment: there are not enough tweets for a summary” is displayed.
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h. Add to Favourite

Scenario	Expected Result	Actual Result
The user chooses one keyword to add into their favourite keywords.	The keyword chosen by the user will be added to the <i>users_info</i> database.	The keyword chosen by the user will be added to the <i>users_info</i> database.
The user chooses one keyword to remove from their favourite keywords.	The keyword chosen by the user will be removed from the <i>users_info</i> database.	The keyword chosen by the user will be removed from the <i>users_info</i> database.

Test cases:

Keyword selected	Action	Expected Result	Actual Result
“ntusg”	Add (to favourite list)	“ntusg” is added to the favourite list.	“ntusg” is added to the favourite list.
“ntusg”	Remove (from favourite list)	“ntusg” is removed from the favourite list.	“ntusg” is removed from the favourite list.

i. Generate Report

Scenario	Expected Result	Actual Result
The user chooses to generate a report based on the current selected indicators.	A pdf. report will be generated and downloaded	A pdf. report will be generated and downloaded
The user chooses to generate a report based on the current selected indicators, but they are not logged in.	The system will ask the user to log in, and the report is not generated.	The system will ask the user to log in, and the report is not generated.
The user chooses to generate a report based on	The system will ask the user to upgrade the subscription,	The system will ask the user to upgrade the subscription,

the current selected indicators, but they exceeds their maximum number of reports	and the report is not generated.	and the report is not generated.
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Test cases:

User's status	Keyword	Indicators chosen	Action	Expected Result	Actual Result
Logged in	"ntusg"	Moving average	Generate report	A .pdf Report with the main plot and summary of sentiment analysis is generated and downloaded.	A .pdf Report with the main plot and summary of sentiment analysis is generated and downloaded.
Logged in, but is using the professional account and has already generated 3 reports previously.	"ntusg"	Moving average	Generate report	Report cannot be generated. Display message: You have exceeded the maximum number of reports. Please upgrade your subscription.	Report cannot be generated. Display message: You have exceeded the maximum number of reports. Please upgrade your subscription.
Not logged in	"ntusg"	Count	Generate report	Report cannot be generated. Display message: Please sign in before generating a report.	Report cannot be generated. Display message: Please sign in before generating a report..

B. White Box Testing

