Testing Report

Automated Testing

Locations

Automated Test Suite: source_code/bicycle_trip_planner/test
Coverage Report: source_code/bicycle_trip_planner/coverage/html
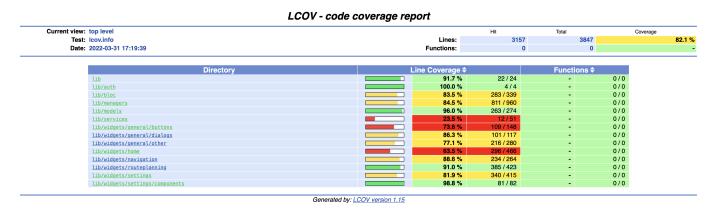
Automated Test Suite

Our testing suite is broken into **Model**, **Manager** and **Widget** Tests

Model Tests: ensure that our data models build from JSON /or XML correctly and maintain valid types to midigate regression bugs from model changes.

Manager Tests: ensure that the operations on the programs main controlling datasets are operating as intended

Widget Tests: ensure the UI has the necessry components and is displaying the appropriate data

Through these test sets we can ensure that from API data in to displayed changes on screen the application is working as intended

LCOV - code coverage report

		Hit	Total	Coverage
Current view:	top level			
Test:	lcov.info			
Date:	2022-03-31 17:19:39			
Lines:		3157	3847	82.1 %
Functions:		0	0	-

Directory	Line Coverage ⬍		Functions ⬍	
lib	91.7 %	22 / 24	-	0 / 0
lib/auth	100.0 %	4 / 4	-	0 / 0
lib/bloc	83.5 %	283 / 339	-	0 / 0
lib/managers	84.5 %	811 / 960	-	0 / 0
lib/models	96.0 %	263 / 274	-	0 / 0
lib/services	23.5 %	12 / 51	-	0 / 0
lib/widgets/general/buttons	73.6 %	109 / 148	-	0 / 0
lib/widgets/general/dialogs	86.3 %	101 / 117	-	0 / 0
lib/widgets/general/other	77.1 %	216 / 280	-	0 / 0
lib/widgets/home	63.5 %	296 / 466	-	0 / 0
lib/widgets/navigation	88.6 %	234 / 264	-	0 / 0
lib/widgets/routeplanning	91.0 %	385 / 423	-	0 / 0
lib/widgets/settings	81.9 %	340 / 415	-	0 / 0
lib/widgets/settings/components	98.8 %	81 / 82	-	0 / 0

Generated by: LCOV version 1.15

Note: User Setting Tests only run on an Non MacOS device as a result of a macOS shared preferences issue and the test coverage report was generated on a mac therefore those tests will not be reflected in it

Manual Testing

Manual testing allows for the application to be tested to ensure the real API data is working within the application and the overall application responds as it should.

General

View Current Location Test

Preconditions: On Home/Route Planning/or Navigation

Input: Press View Current Location Button

Expected Output: Camera Views users current location

No Internet Connection Test

Preconditions: None

Input: Disconnect Internet Connection

Expected Output: Display no Internet Connection Screen

Input: Reconnect to Internet

Expected Output: No Internet Screen Disappears and application resumes

Home Page

Search Test

Preconditions: On application open on the main landing page

Input: In the Search bar type Bush House and select 'Bush House, Aldwych, London ...'

Expected Output: Should be brought to the Route Planning Page with 'Bush House, Aldwych, London ...' set as destination and a marker displayed

Station Card Test

Preconditions: On application open on the main landing page

Input: Pressing on Station from station card

Expected Output: Pop up message to select between Start, Intermediate, End should appear

Station Marker Test

Preconditions: On application open on the main landing page

Input: Pressing on Station Marker on the map

Expected Output: Pop up message to select between Start, Intermediate, End should appear

Station Select Popup Test

Preconditions: On home page having pressed a station marker or station card

Input: Pressing Start, Intermediate or End

Expected Output: Should be brought to the Route Planning Page with 'Santander Cycles: ' then the station name you selected being displayed in the corresponding field and a marker displayed

Favourite Stations Test

Preconditions: On Home page, Logged in

Input: Favourite a Station, Switch to Favourite Stations

Expected Output: The Station favourited should be displayed

Input: Unfavourite the Station

Expected Output: The Station unfavourited should no longer be displayed (under favourite stations)

Route Planning

Basic Route Test

Preconditions: On Route Planning Screen

Input: Search and Select Bush House as start destination and Buckingham Palace as end destination

Expected Output: A marker should be placed at Buckingham Palace, a station near Buckingham Palace, Bush House, and a station near Bush House. A polyline should be drawn passing through them and should follow the road system.

Route w/ Intermediate Test

Preconditions: Basic Route Test

Input: press add intermediate and on the newly displayed search bar, search and select Waterloo Station

Expected Output: Along with the already displayed markers from Basic Route Test there should be an addition marker at Waterloo Station and the polyline should update to connect that marker to the route.

Manual Intermediate Reorder Test

Preconditions: Route w/ Intermediate Test, Set Optimised to False, Add another Intermediate at Hyde Park

Input: Drag Hyde Park Intermediate above Waterloo Station on the intermediates list

Expected Output: The route will update and will route from Bush House to Hyde Park back to Waterloo then finally go to Buckingham Palace

Multiple Intermediate Optimised Route Test

Preconditions: Manual Intermediate Reorder Test

Input: Press Optimise Button and Set to True

Expected Output: The route will update and will route from Bush House to Waterloo Station to Hyde Park to Buckingham Palace. Even though Hyde Park appears first the on the list the optimise should go to Waterloo first for time efficiency.

View Route Test

Preconditions: Basic Route Test

Input: Press View Route Button

Expected Output: The map camera should centre and display the route

Clear Route Test

Preconditions: Basic Route Test

Input: Press the Clear button on either the start or end destination

Expected Output: The relevant marker should be removed and the polyline should be cleared

Walk to Distant Start Test

Preconditions: Basic Route Test, Current Location not at Bush House

Input: Press the walk/route to start button, on pop up select walk option

Expected Output: Route should display a walk polyline from current location to the nearest Bush House Bike Station available then the rest of the route as in Basic Route Test

Route to Distant Start Test

Preconditions: Basic Route Test, Current Location not at Bush House

Input: Press the walk/route to start button, on pop up select route option

Expected Output: Route should display a walk polyline to a station near current location and display a bike polyline to Bush House then the rest of the route as in Basic Route Test (without the Bush House Bike Station as user would have already picked up a bike)

Navigation

Navigation Walking Start Test

Preconditions: Basic Route Test, with start set to current location

Input: Start Navigation Press

Expected Output: Redirected to Navigation screen, Walking polyline from current location to nearest station, Camera centred on user location, Directions displayed at top

Toggle to Biking Test

Preconditions: Navigation Walking Start Test

Input: set current location to station, press toggle to bike

Expected Output: Biking polyline end destination station that passes through intermediates, Directions updated, ETA update

Waypoint Arrival Test

Preconditions: Toggle to Biking Test

Input: Change location to first waypoint

Expected Output: Clear the waypoint from the route and show route to next waypoint, Directions update, ETA update

Toggle to Walk Test

Preconditions: Waypoint Arrival Test

Input: Press Toggle to walk

Expected Output: Walking waypoint to final destination, Directions update, ETA update

Arrive at Final Destination Test

Preconditions: Toggle to Walk Test

Input: Set current location to final destination

Expected Output: Pop up displaying you have arrived at destination, redirect to the home screen

Log In / Setting

Sign up Test

Preconditions: On Signup page

Input: Enter an email, password and confirmed password

Expected Output: Be brought to the user setting screen logged in as the user you signed up

Logout Test

Preconditions: Logged in as an user

Input: Press signout

Expected Output: Logged out, offer to login or sign up where account info used to be

Login Test

Preconditions: Have Signed up with credentials and logged out, currently on log in screen

Input: Input credentials entered when signing up, press log in when complete

Expected Output: redirected to the user setting screen with user info displayed

Login w/ Google Test

Preconditions: Have a valid google account and logged out, currently on log in screen

Input: Press login with google button and enter complete google's log in form

Expected Output: redirected to the user setting screen with user info displayed

Change Nearby Station Range Test

Preconditions: Current Location is central london, Set the Range to the min, observe the number of station markers displayed

Input: Change the Range to the max

Expected Output: The station markers should cover most of London on the map

Change Unit Test

Preconditions: None

Input: Change display unit in settings

Expected Output: On Home screen the station cards should reflect the unit change, On route planning and navigation the eta card should also change to reflect that unit

Favourite Stations Test

Preconditions: On Home page, Logged in

Input: Switch to Favourite Stations, tap on a Favourite station

Expected Output: A modal should ask whether the user wants to set that station as start, destination, or cancel the operation

Input: Switch to Favourite Stations, tap on a Favourite station, select start station from model

Expected Output: Redirection to RoutePlanning with start field box filled with favourite station

Input: Switch to Favourite Stations, tap on a Favourite station, select end station from model

Expected Output: Redirection to RoutePlanning with destination field box filled with favourite station

Favourite Routes Test

Preconditions: On Home page, Logged in

Input: Select 'Favourite Routes' from StationBar

Expected Output: The routes favourites should be displayed

Input: Remove the route from favourited

Expected Output: The Station unfavourited should no longer be displayed (under favourite stations)

Input: Select a favourite route

Expected Output: Redirection to RoutePlannig already filled with start, destination (and in case midway stops) from the favourite route

Preconditions: On RoutePlanning page, Logged in, starting point and destination filled
Input: Favourite the route

Expected Output: The route should have been added to favourite routes (visible from Home)

Preconditions: On Home page, Not Logged in

Input: none

Expected Output: No dropdown menus appear on StationBar, it is not possible to select Favourite Stations view