**Mall-E**

Test Cases and Requirements Test Coverage report

Version 1.0

## **By Runtime Error**

# **Revision History**

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| --- | --- | --- | --- |
| **Name** | **Date** | **Primary Authors** | **Comments** |
| 1.0 | 09/04/21 | Das Atrik, Padhi Abhinandan | Initial version. |
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## **Blackbox Testing**

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| **Test Case ID:** | BB01-Auth |
| **Test Scenario:** | Login |
| **Created By:** | Das Atrik |
| **Tested By:** | Das Atrik |
| **Test Step:** | 1. Enter email address 2. Enter password 3. Hit “Login” button |
| **Input Parameters:** | 1. Email address entered by user 2. Password entered by user |
| **Equivalence Classes:** | Case 1: Correct email address & correct password  Case 2: Correct email address & incorrect password  Case 3: Incorrect email address & correct password  Case 4: Incorrect email address & incorrect password |
| **Expected Results:** | Case 1: User redirected to the map page of the mobile application  Case 2: Invalid password. Prompt user to enter correct password or email address  Case 3: Invalid credentials. Prompt user to enter correct password or email address  Case 4: Invalid credentials. Prompt user to enter correct password or email address |
| **Actual Results:** | All test cases are working as expected |
| **Status (Pass / Fail):** | Pass |

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| --- | --- |
| **Test Case ID:** | BB02-Auth |
| **Test Scenario:** | Register |
| **Created By:** | Das Atrik |
| **Tested By:** | Das Atrik |
| **Test Step:** | 1. Enter name  2. Enter email address  3. Enter password  4. Hit “Register” button |
| **Input Parameters:** | 1. Name entered by user  2. Email address entered by user  3. Password entered by user |
| **Equivalence Classes:** | Case 1: Email address already in database.  Case 2: Email address and password invalid.  Case 3: Email address and password valid. |
| **Expected Results:** | Case 1: Show prompt this user has already been registered.  Case 2: Show prompt “Fill up the fields in the correct manner”.  Case 3: Redirect user to “Created User Successfully” page and show the login page. |
| **Actual Results:** | All test cases are working as expected |
| **Status (Pass / Fail):** | Pass |

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| **Test Case ID:** | BB03-Auth |
| **Test Scenario:** | Logout |
| **Created By:** | Das Atrik |
| **Tested By:** | Das Atrik |
| **Test Step:** | 1. Select “Logout” button in the drawer |
| **Input Parameters:** | N/A |
| **Equivalence Classes:** | N/A |
| **Expected Results:** | Case 1: Redirected to login page |
| **Actual Results:** | All test cases are working as expected |
| **Status (Pass / Fail):** | Pass |

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| **Test Case ID:** | BB01-Map |
| **Test Scenario:** | Display Map with Map Markers |
| **Created By:** | Padhi Abhinandan |
| **Tested By:** | Padhi Abhinandan |
| **Test Step:** | 1. Login successfully. |
| **Input Parameters:** | N/A |
| **Equivalence Classes:** | Case 1: Location services working as expected, and all APIs working correctly.  Case 2: Location services working as expected, but Google Places API not working as expected.  Case 3: Location services not working as expected.  Case 4: Google Maps API not working as expected. |
| **Expected Results:** | Case 1: Google Maps UI is shown, with the map of Singapore in the center of the screen. Map Markers are drawn onto the map, where each marker represents a mall, and is coloured according to the crowd density at that mall (Red, Green, or Yellow).  Case 2: Google Maps UI is shown, with the map of Singapore in the center of the screen. No map markers are drawn.  Case 3: Google Maps UI is shown, but no map or markers are displayed.  Case 4: Google Maps UI is not shown. |
| **Actual Results:** | All test cases are working as expected. |
| **Status (Pass / Fail):** | Pass |

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| **Test Case ID:** | BB02-Map |
| **Test Scenario:** | Select Mall from Markers on Map Screen |
| **Created By:** | Padhi Abhinandan |
| **Tested By:** | Padhi Abhinandan |
| **Test Step:** | 1. User navigates around the map displayed on the screen. 2. User taps on any map marker, and is shown a pop-up. 3. If the user wants to select a different mall, tap on the close button on the pop-up window, and repeat steps 1-3. |
| **Input Parameters:** | N/A |
| **Equivalence Classes:** | Case 1: All APIs working.  Case 2: Best Time API not working as expected. |
| **Expected Results:** | Case 1: A pop-up window shows information about the chosen mall: mall photo, name, address, opening hours, and crowd density trend.  Case 2: A pop-up window is produced with all basic details, but the crowd density trend is replaced by “Crowd density information not available right now”. |
| **Actual Results:** | All test cases are working as expected. |
| **Status (Pass / Fail):** | Pass |

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| **Test Case ID:** | BB03-Map |
| **Test Scenario:** | View More Information about Chosen Mall |
| **Created By:** | Padhi Abhinandan |
| **Tested By:** | Padhi Abhinandan |
| **Test Step:** | 1. User clicks on the “More Information” button in the pop-up for the chosen mall. |
| **Input Parameters:** | N/A |
| **Equivalence Classes:** | N/A |
| **Expected Results:** | Case 1: User is directed to the Mall Overview page, under the Malls tab in the bottom navbar.  Case 2: User is not directed to the Mall Overview page, under the Malls tab in the bottom navbar. |
| **Actual Results:** | All test cases are working as expected. |
| **Status (Pass / Fail):** | Pass |

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| **Test Case ID:** | BB01-Malls |
| **Test Scenario:** | View Mall Overview for Chosen Mall |
| **Created By:** | Padhi Abhinandan |
| **Tested By:** | Padhi Abhinandan |
| **Test Step:** | 1. Choose a mall from the Mall List. |
| **Input Parameters:** | N/A |
| **Equivalence Classes:** | Case 1: All APIs working correctly.  Case 2: Best Time API not working as expected. |
| **Expected Results:** | Case 1: Display detailed information about the mall, including the Mall’s photo, website, address, opening hours, contact number, ratings, today’s crowd density trend, and floor-by-floor crowd density.  Case 2: detailed information displayed, but graphs for crowd density not displayed. |
| **Actual Results:** | All test cases are working as expected. |
| **Status (Pass / Fail):** | Pass |

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| **Test Case ID:** | BB02-Malls |
| **Test Scenario:** | Display Mall List |
| **Created By:** | Das Atrik |
| **Tested By:** | Das Atrik |
| **Test Step:** | 1. Select “Malls” tab from the navbar (bottom of screen). |
| **Input Parameters:** | N/A |
| **Equivalence Classes:** | 1. Google Places API works correctly.  2. Google Places API does not work as intended. |
| **Expected Results:** | Case 1: The mall names and their corresponding information is shown as a list.  Case 2: The app displays an error message “No malls found”. |
| **Actual Results:** | All test cases are working as expected. |
| **Status (Pass / Fail):** | Pass |

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| **Test Case ID:** | BB03-Malls |
| **Test Scenario:** | Search for Malls |
| **Created By:** | Padhi Abhinandan |
| **Tested By:** | Padhi Abhinandan |
| **Test Step:** | 1. Type full name or part of name of some mall in the search bar. |
| **Input Parameters:** | Search string |
| **Equivalence Classes:** | Case 1: matches found for search string.  Case 2: no matches found for search string. |
| **Expected Results:** | Case 1: display list of matching malls.  Case 2: display message “No malls found. Please check the search query.” |
| **Actual Results:** | All test cases are working as expected. |
| **Status (Pass / Fail):** | Pass |

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| **Test Case ID:** | BB01-Restaurants |
| **Test Scenario:** | Display Restaurants List |
| **Created By:** | Das Atrik |
| **Tested By:** | Das Atrik |
| **Test Step:** | 1. Select the “Malls” tab from the navbar below.  2. Select any mall from the list.  3. Move to the Restaurants page for that mall. |
| **Input Parameters:** | N/A |
| **Equivalence Classes:** | 1. Google Places API works correctly.  2. Google Places API does not work as intended. |
| **Expected Results:** | Case 1: The restaurant names and their corresponding information is shown as a list.  Case 2: The app displays an error message “No restaurants found”. |
| **Actual Results:** | All test cases are working as expected. |
| **Status (Pass / Fail):** | Pass |

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| **Test Case ID:** | BB02-Restaurants |
| **Test Scenario:** | View Details about Chosen Restaurant |
| **Created By:** | Padhi Abhinandan |
| **Tested By:** | Padhi Abhinandan |
| **Test Step:** | 1. Click on a restaurant in the restaurant list under the malls tab, after choosing a mall and switching to the “Restaurants” page. |
| **Input Parameters:** | N/A |
| **Equivalence Classes:** | Case 1: all APIs are working correctly.  Case 2: restaurant is closed, or Popular Times API is not working as expected. |
| **Expected Results:** | Case 1: the following information about the restaurant is displayed: location (within mall, and then mall address), whether restaurant is open or closed, average star rating, and estimated waiting time.  Case 2: waiting time is displayed as “N/A”. |
| **Actual Results:** | All test cases are working as expected. |
| **Status (Pass / Fail):** | Pass |

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| **Test Case ID:** | BB03-Restaurants |
| **Test Scenario:** | Search for Restaurants |
| **Created By:** | Padhi Abhinandan |
| **Tested By:** | Padhi Abhinandan |
| **Test Step:** | 1. Type full name or part of name of some restaurant in the search bar. |
| **Input Parameters:** | Search string |
| **Equivalence Classes:** | Case 1: matches found for search string.  Case 2: no matches found for search string. |
| **Expected Results:** | Case 1: display list of matching restaurants.  Case 2: display message “No restaurants found. Please check the search query.” |
| **Actual Results:** | All test cases are working as expected. |
| **Status (Pass / Fail):** | Pass |

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| **Test Case ID:** | BB01-News |
| **Test Scenario:** | Display News (Headlines) about COVID-19 |
| **Created By:** | Padhi Abhinandan |
| **Tested By:** | Padhi Abhinandan |
| **Test Step:** | 1. Click on the News Tab on the bottom navbar. |
| **Input Parameters:** | N/A |
| **Equivalence Classes:** | Case 1: News API is working correctly, and news articles relevant to COVID-19 (within the past 30 days) are available.  Case 2: News API is not working as expected.  Case 3: No news articles relevant to COVID-19 published within the past 30 days are found. |
| **Expected Results:** | Case 1: a list of news headlines is displayed, with a button to view each article.  Case 2: no news articles are displayed, and an error message is displayed: “No recent COVID-19 news articles found.”  Case 3: no news articles are displayed, and an error message is displayed: “No recent COVID-19 news articles found.” |
| **Actual Results:** | All test cases are working as expected. |
| **Status (Pass / Fail):** | Pass |

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| **Test Case ID:** | BB02-News |
| **Test Scenario:** | View A Specific News Article |
| **Created By:** | Padhi Abhinandan |
| **Tested By:** | Padhi Abhinandan |
| **Test Step:** | 1. Tap on the “View” button on the right side of a news headline in the news list, under the news tab on the navbar. |
| **Input Parameters:** | N/A |
| **Equivalence Classes:** | N/A |
| **Expected Results:** | Case 1: A pop-up window with the device’s default browser is produced. The chosen news article is shown in the browser window. |
| **Actual Results:** | All test cases are working as expected. |
| **Status (Pass / Fail):** | Pass |

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| **Test Case ID:** | BB01-Profile |
| **Test Scenario:** | Add Bookmarks |
| **Created By:** | Das Atrik |
| **Tested By:** | Das Atrik |
| **Test Step:** | 1. Select a map marker on the map page 2. Click on “Add to bookmark” checkbox 3. Hit “Show bookmarks” button on the profile page |
| **Input Parameters:** | 1. Name of map marker selected by user |
| **Equivalence Classes:** | Case 1: Bookmark displayed correctly  Case 2: Bookmark not displayed |
| **Expected Results:** | Case 1: User can see the list of bookmarks he has selected  Case 2: User sees a blank list |
| **Actual Results:** | All test cases are working as expected |
| **Status (Pass / Fail):** | Pass |

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| --- | --- |
| **Test Case ID:** | BB02-Profile |
| **Test Scenario:** | Delete Bookmarks |
| **Created By:** | Das Atrik |
| **Tested By:** | Das Atrik |
| **Test Step:** | 1. Have multiple markers bookmarked already  2. Hit “Show bookmarks” button on the profile page  3. Hit “Delete bookmarks” button on the profile page |
| **Input Parameters:** | 1. Names of map markers selected by user |
| **Equivalence Classes:** | Case 1: Bookmarks get deleted  Case 2: Bookmarks are still shown |
| **Expected Results:** | Case 1: User sees a blank list  Case 2: User can still see the list of bookmarks he has selected |
| **Actual Results:** | All test cases are working as expected |
| **Status (Pass / Fail):** | Pass |

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# **Test Coverage - Requirement Traceability Matrix (RTM)**

The Requirements Traceability Matrix (RTM) is a key part of the Test Coverage Report that traces functional requirements in relation to the test cases. The RTM ensures that all requirements are checked via test cases such that no functionality is unchecked during Software testing.

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| --- | --- | --- | --- | --- |
| **Functional Requirement ID** | **Functional Requirement Use Case** | **Test Case ID** | **Priority** | **Outcome** |
| F1 | The latest Crowd Density data of Shopping Malls must be pulled from the Best Time API. | BB03-Map and BB01-Mall | High | Pass |
| F2 | The latest Waiting Time of Restaurants in Shopping Malls must be pulled from the Popular Times API. | BB02- Restaurant | High | Pass |
| F3 | The latest news articles related to COVID-19 must be pulled using the News API. | BB01- News | High | Pass |
| F4 | The user must be able to log into their account or create an account. | BB01 to BB03 for Auth | High | Pass |