Software Testing Report

Victorian State Crash Data Set

A blue square with a white outline on it

Description automatically generated

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# Unit Tests



|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Test Case** | **Expected Results** | **Actual Results** |
| **1.0** | **Data Select and Time Period Functions** |  |  |
| **Backend** | | | |
| 1.1 | Select out of date range | Display error message: “Date not found” | Display error message: “No data found for specified date range” |
| 1.2 | Select in date range | Print “date found” | Prints “date found” |
| **2.0** | **Row Functions** |  |  |
| **Backend** | | | |
| 2.1 | Count number of rows in DataFrame | Print the number of rows | Prints the number of rows |
| 2.2 | Count number of rows in crash\_data table | Print the number of rows | Prints the number of rows |
| **3.0** | **Count number of accidents function** |  |  |
| **Backend** | | | |
| 3.1 | Count the number of total accidents | Print the number of total accidents | Prints the number of total accidents |
| 3.2 | Count the number of accidents within date range | Print the number of accidents within date range | Prints the number of accidents within the date range |
| 4.0 | **Keyword Selection Function** |  |  |
| Backend | | | |
| 4.1 | Select the keywords: “Collision with vehicle” and “Struck Animal” | Print “record found” | Prints “record found” |
| 4.2 | Select the keywords: “unicorn” and “banana” | Prints “records not found” | Prints “records not found” |
| **Frontend** | | | |
| 4.3 | Select all keywords | Display all keywords data in graph and map | Displays all keywords data in the graph and map |
| 4.4 | Select no keywords | Display all data in graph and map | Displays all data in graph and map |
| **5.0** | **Alcohol related Function** |  |  |
| **Backend** | | | |
| 5.1 | Select alcohol related data | Print “records found” | Prints “records found” |
| Frontend | | | |
| 5.2 | Select alcohol related data | Display only alcohol related data, including keywords selected | Displays all data no matter if the user selects the alcohol related filter |

# Coverage Report

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Number | Test Code | Description | Function | Statement | Branch | Condition |
| 1.0 | Data Select and Time Period Function | This function allows users to select specific dates that are already present in the crash data document | Test out of date and in date selections | Selecting an out of date range to test if the code for error handling works.  Selecting an in date range to test if the date selector displays the chosen dates | tests handle both scenarios: "out of date range" and "in date range", ensuring both branches of the logic are executed. | Provides conditions for both out-of-range and in-range date checks, ensuring the date condition is thoroughly tested. |
| 2.0 | Row Function | This function finds and counts all the data in the rows of the DataFrame and crash\_data table | Count all the data in the rows of the DataFrame and crash\_data | Counting all rows in the DataFrame and the crash\_data to test if the  codewill find and display all the data in the DataFrame and crash\_data table | Test handles both the areas for retrieving data, ensuring both branches of the logic are executed | Provides conditions for counting the number of rows for both the DataFrame and the crash\_data table, ensuring the conditions are thoroughly tested |
| 3.0 | Count number of accidents function | This function finds and counts the total number of accidents and the accidents within the date range | Count the total number of accidents   Count the number of accidents within a date range | Counting the total number of accidents to test if the code can locate the data and count all accidents  Counting the total number of accidents within a selected date to test if the code can filter the data | Test handles both the areas for counting the total number of accidents and if the number of accidents will change dependent on the start and end date | Provides conditions for courting the number of total accidents and the number of accidents within a start and end date. Ensuring the conditions are thoroughly tested |
| 4.0 | Keyword Selection Function | This function finds if the keywords exist within the date base and if not display record not found.  Tests if the user can select all the keywords or select no keywords at all | Tests for the selection of specific keywords, ensuring the retrieval function is invoked.  Tests ensure visual representation when all keywords or no keywords are selected | ‘Collision with vehicle' and 'Struck Animal'" ensures that the statements for keyword retrieval are executed  ‘unicorn’ and banana’ ensures a test to see if the database will execute the error handling for keywords no present in the database  Selecting all the keywords to see if the keywords can find and display all the keywords in the database  Selecting no keywords to see if the graph relies on a keyword to be selected to generate the report | Test handles both the frontend and the backend of the function. The backend test included testing the keyword retrieval and the error handling for finding a keyword that doesn’t exist in the database  The frontend test included testing how the report will handle generating all the keywords and if all the keywords are can display data. Testing to see if generating a report relies on a keyword to be selected | tests both the present and absent keywords in both the frontend and the backend, evaluating the condition for keyword presence. |
| 5.0 | Alcohol related Function | This function finds the alcohol related function works as intended | Tests for the filter of alcohol related data to be present in the database and if it can find the record  Tests to see if the report will only display the data for alcohol related accidents | Find if the database contains records of accidents linked to alcohol and displaying the results in the report | Tests for the display of alcohol-related data with or without selected keywords, providing branch coverage for different display conditions. | tests for the backend and frontend evaluate conditions based on data presence and UI representation, respectively. |

# Requirements Acceptance Testing

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Software**   **Requirement No** | **Test** | **Implemented (Full /Partial/ None)** | **Test Results (Pass/ Fail)** | **Comments (for partial implementation or failed test results)** |
| 1 | User Dashboard | Full | Pass | Uses are able to navigate around the application, selecting each option in the navigation bar will take users to the appropriate pages |
| 2 | Data Selection and Time Period | Full | Pass | Users are able to select a start and end date that corresponds with the generate report. The data displayed fits in the dates selected. If a user selects an out of date range, an error message displays saying “date out of range” |
| 3 | Accident types graph | Partial | Pass | Users are able to generate the accidents types graph that corresponds with the start and end date. However the user selected filters for the types of accidents have no affect on the graph, displaying all the types of accidents no matter what the user selects |
| 4 | Hourly Accident trends graph | None | Fail | The graph doesn’t display anything. |
| 5 | Keyword-Based search | Partial | Pass | Users are able to select the keywords but the charts display all the data no matter what the user chooses. It primarily functions with the date select range, which changes the number of accidents displayed based on whether the accident occurred within the start and end date. |
| 6 | Alcohol Impact Filtering | Partial | Pass | Users are able to select the alcohol impact filter, but the report doesn’t change to only display alcohol related accidents. |
| 7 | Geospatial Accident visualisation | Partial | Fail | The map only shows a line chart displaying all the longitude and latitude data, but nothing happens when the user generates the report for the map. |