User Manual
NSW Traffic Insight System

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Program Requirements

This program displays data and information from the NSW Traffic Penalty Data set. A csv file can be downloaded from the following link:

https://www.kaggle.com/datasets/llihan/australia-nsw-traffic-penalty-data-20112017

After downloading and unzipping the file, place the penalty_data_set_2.csv in the mainapp.py directory.

Several libraries and modules are required before attempting to run this program. Please see the requirements below:

- Python3
- Tkinter
- Pandas
- Tkcalendar
- Matplotlib

User Controls

Window Controls

The window controls are displayed at the top of the program.

Using these controls in order from left to right users can:

- Minimise the program window.
- Maximise the program window.
- Exit the program.

These controls are accessible from every page in the software.

Program Navigation

There is a navigation bar in the home page that allows users to navigate to each function.

Clicking on a button in the navigation bar will take you to a page for the specific function.
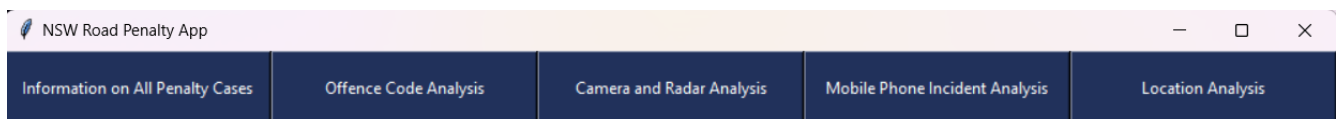
The five functions that this software can display are:

- Information on All Penalty Cases
- Offence Code Analysis
- Camera and Radar Analysis
- Mobile Phone Incident Analysis
- Location Analysis

After selecting a function users can return to this navigation bar by selecting the "Back Home" button.
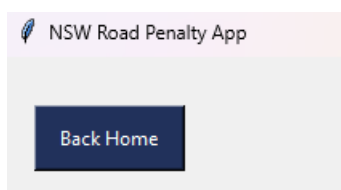
This button can be found at the top left on each of the function pages.
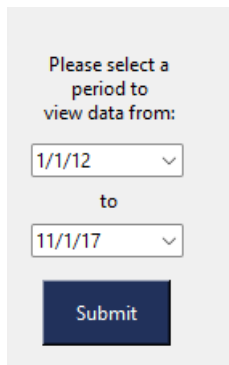
Date Range

The primary user input that is taken to filter data is a date range. Users can choose a start and end date to filter the data.

Note: Mobile Phone Incident Analysis does not provide an option to filter by date.

Valid dates range from 1/1/12 to 11/1/17.

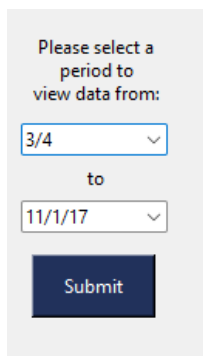By default, the date range is set to the maximum date range.

Users can manually type or paste in a date.
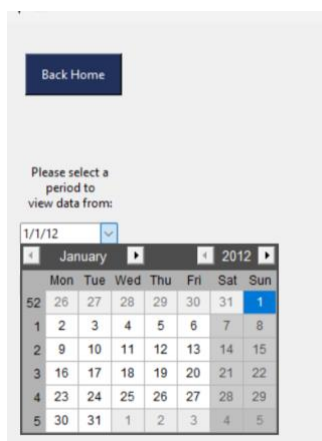
Upon clicking on the down arrow, a drop down will appear.

Users can use the arrows to scroll through each valid month and year. Users cannot scroll past the valid date range.

A valid day can then be selected by clicking on the number.

If date outside of the valid date range is manually entered the program will automatically select the next closed valid date.

Program Pages

Home Page

Upon launching the program users are greeted with a home page.

The home page contains the program name along with the course code, course name, and all students in the group.
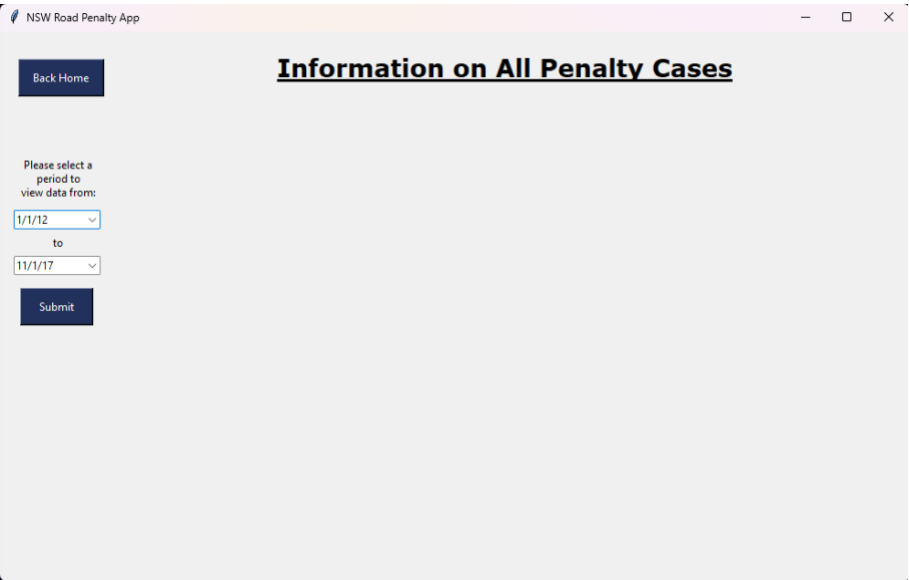

At the top of the program are the window controls.

Below the window controls is the main navigation bar.

Function 1 Page - Display Information on All Penalty Cases

Users can navigate to this page by selecting the first button in the navigation bar, "Information on All Penalty Cases".

After selecting this button, the initial screen will appear.

After inputting a valid date range all cases and all case information between this range is displayed.
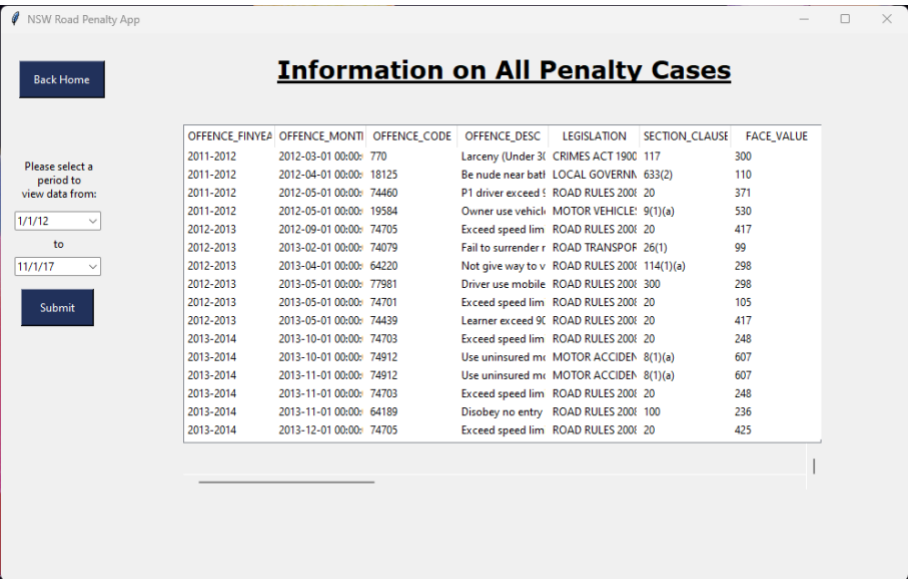
As the information being displayed takes up far more than the program screen size, a scroll bar has been implemented.

Users can scroll from left to right using the scroll bar or buttons at the bottom of the screen.
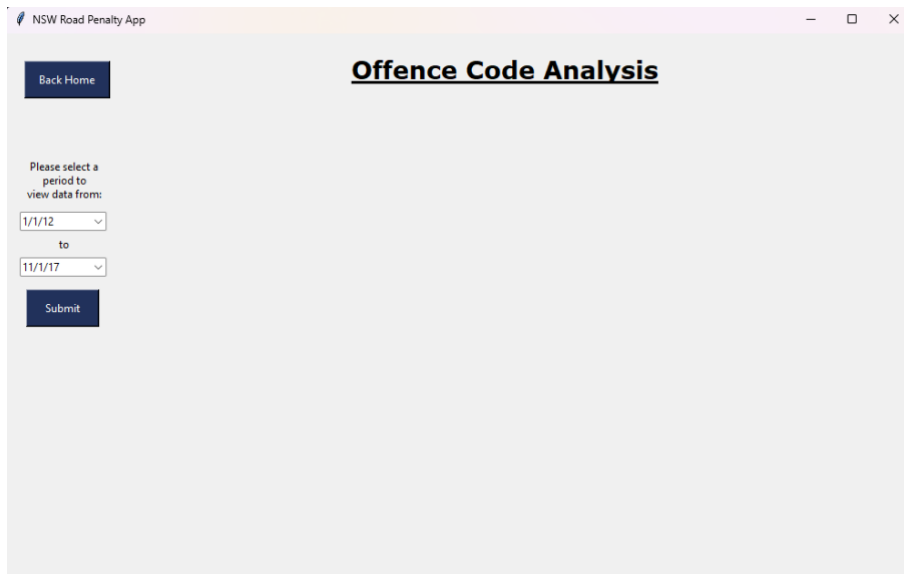
Users can scroll up and down using the scroll bar or buttons at the bottom right of the screen.
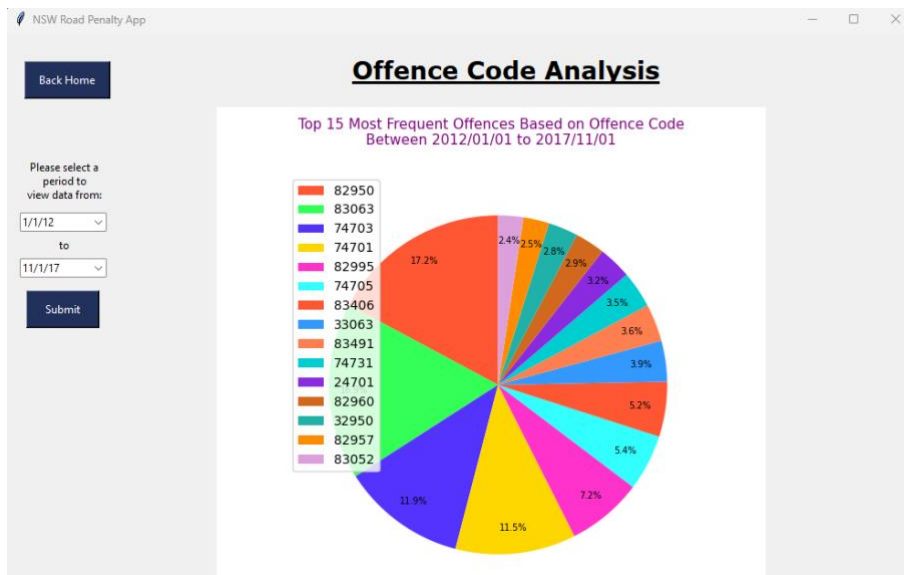
Function 2 Page - Offence Code Analysis

Users can navigate to this page by selecting the second button in the navigation bar, "Offence Code Analysis".

After selecting this button, the initial screen will appear.

After inputting a valid date period, a pie chart that breaks down 15 most frequent offences based on offence code will appear.

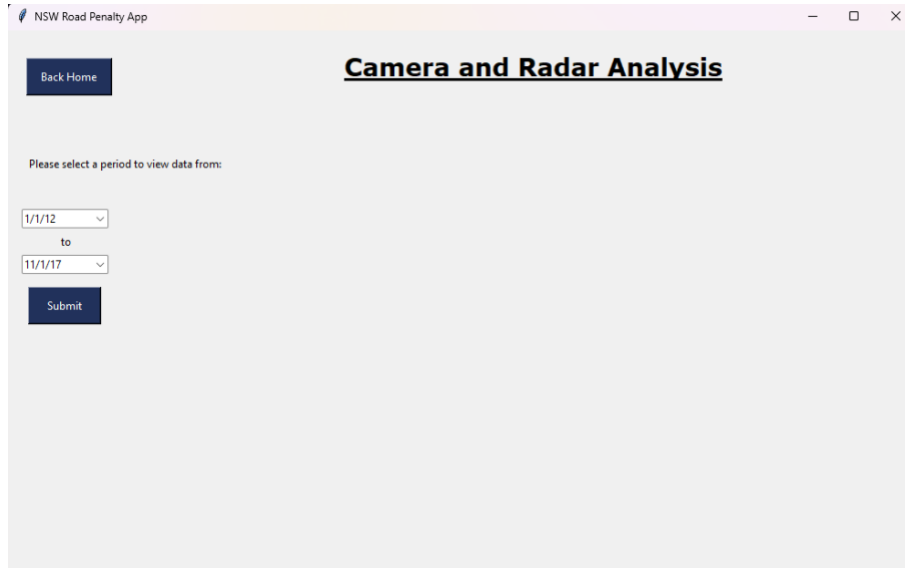The chart features a title at the top.

The offence codes are shown on the left. The codes are colour coordinated to match each section of pie chart.

Percentages that show the share of each offence are shown over each section of the pie chart.

Function 3 Page - Camera and Radar Analysis

Users can navigate to this page by selecting the third button in the navigation bar, "Camera and Radar Analysis".

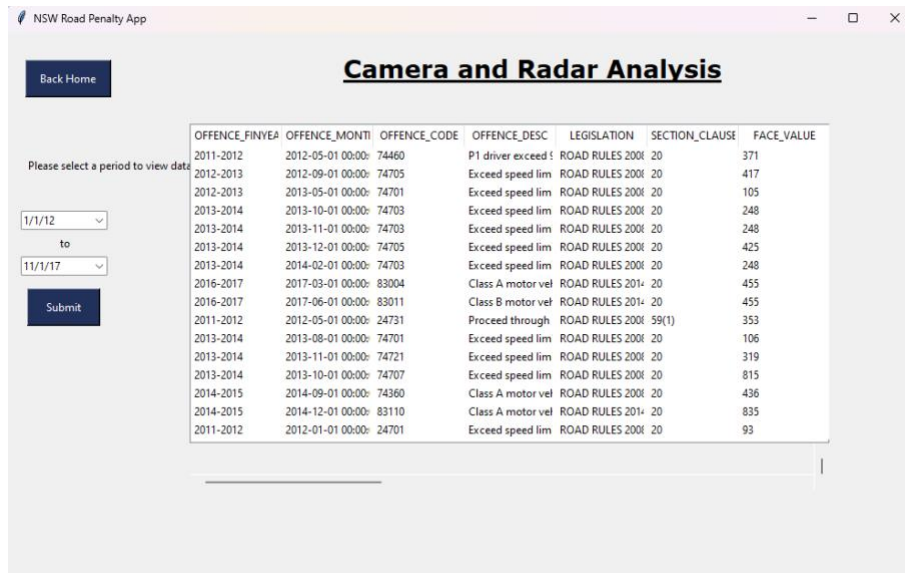After selecting this button, the initial screen will appear.

After inputting a valid date period all cases and all cases captured by radar or camera based on offense description are displayed.

As the information being displayed takes up far more than the program screen size, a scroll bar has been implemented.

Users can scroll from left to right using the scroll bar or buttons at the bottom of the screen.

Users can scroll up and down using the scroll bar or buttons at the bottom right of the screen.

Function 4 Page - Cases Caused by Phone Use

Users can navigate to this page by selecting the fourth button in the navigation bar, "Mobile Phone Incident Analysis".
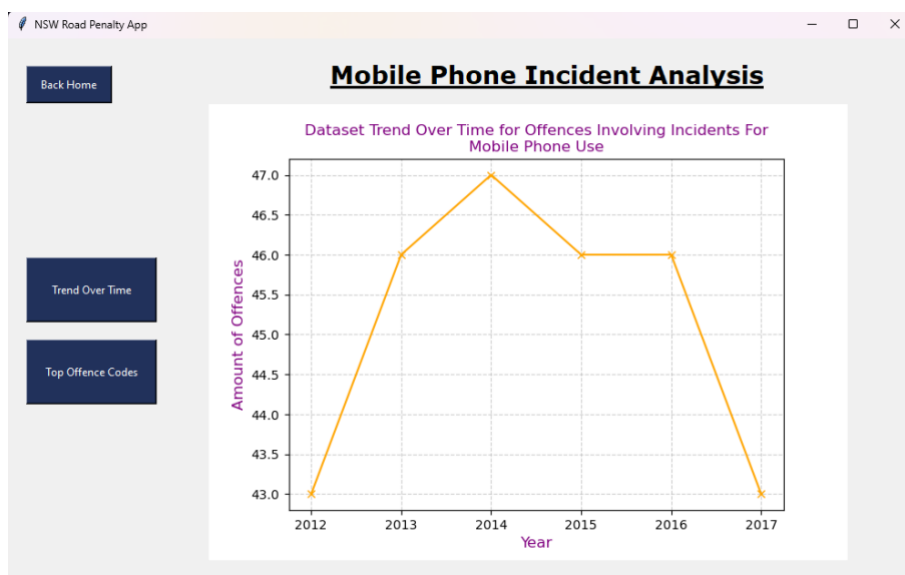
After selecting this button, the initial screen will appear.

This screen allows users to view one of two charts at a time depending on the option they select.

Trend Over Time

After selecting the "Trend Over Time" option a line chart that displays the trend over time for offences involving incidents for mobile phone use is displayed.
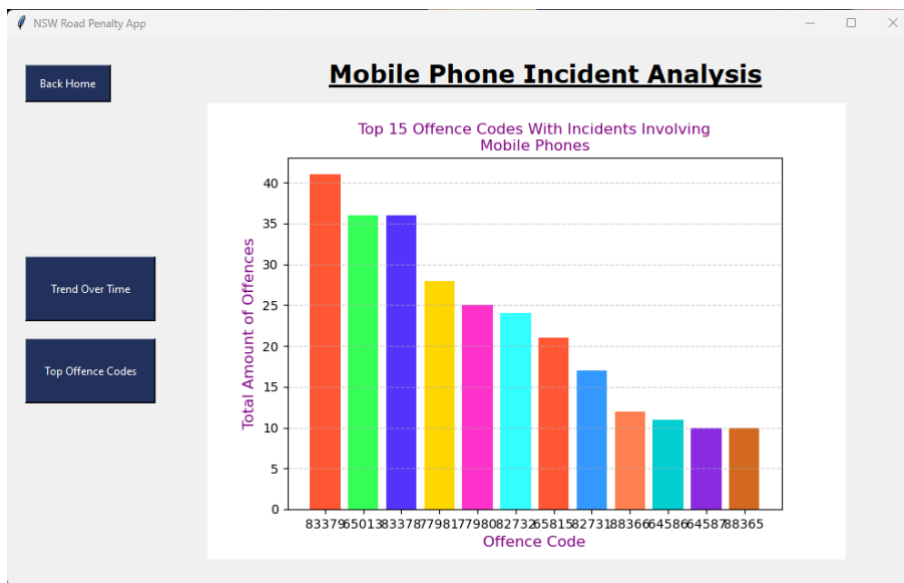

The chart features a title at the top.

Number of offences are plotted along the y axis.

Year of offence are plotted along the x axis.

The yellow line shows the trend.

Top Offence Codes

After selecting the "Top Offence Codes" option a bar chart that shows the top 15 offence codes with incidents involving mobile phones is shown.

The chart features a title at the top.

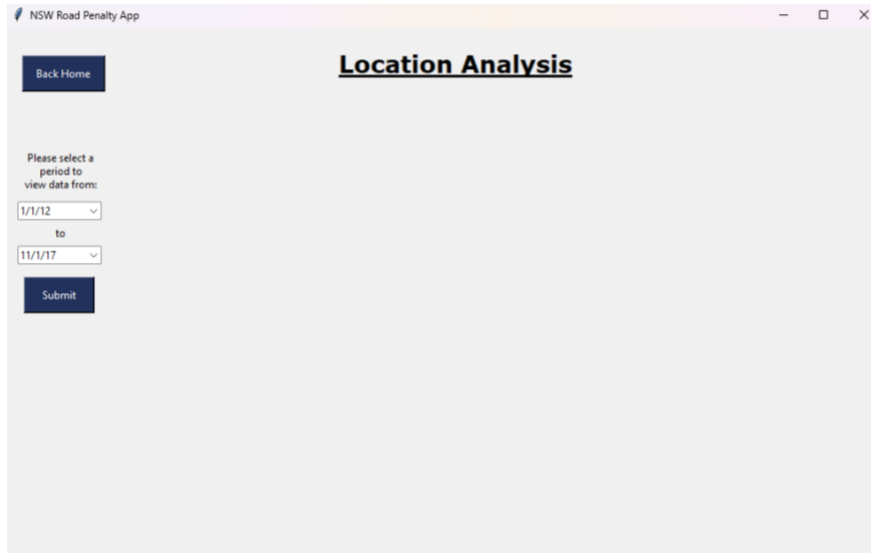Total amount of offences is plotted along the y axis.

Offence codes are plotted along the x axis.

Each bar shows the total amount of offences for each offence code.

Function 5 Page - Location Analysis

Users can navigate to this page by selecting the fifth button in the navigation bar, "Location Analysis".

After selecting this button, the initial screen will appear.

After inputting a valid date period, a line chart that shows the case location trend for the top 3 most frequent offences is displayed.
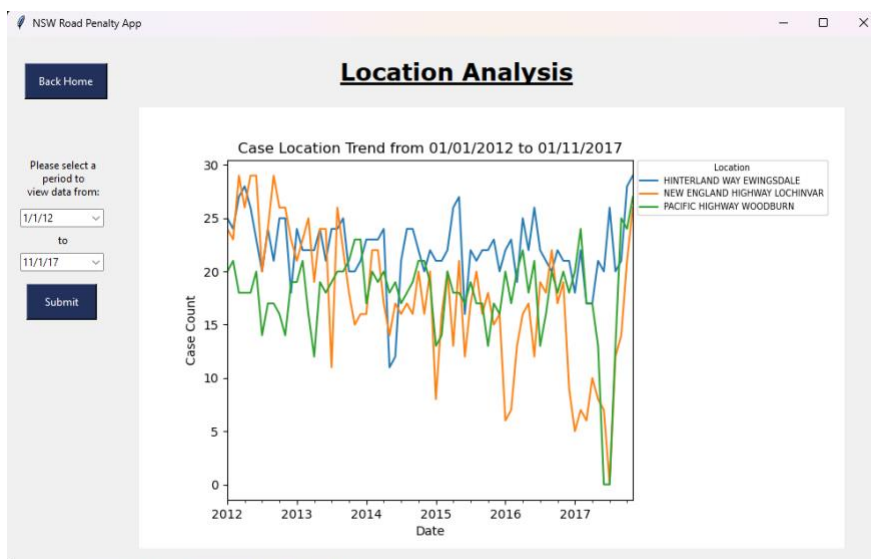
The chart features a title at the top canvas.

The locations are shown on the right. The locations are colour coordinated to match each line on the chart.

Case frequencies are plotted along the y axis.

Date is plotted along the x axis.

Each line shows the total amount of offences for each location in 6-month intervals.