

CAB230 Client side report

Queensland University of Technology

Samuel James Terbio Holden

n10110381

Introduction

Firstly react is being used in the web page, with react I have used a multitude of different packages that will go hand in hand to display the crime statistics. Firstly react-select is used to create a single filter dropdown with colours to distinguish the different filter groups. This can be seen in image 1 below.

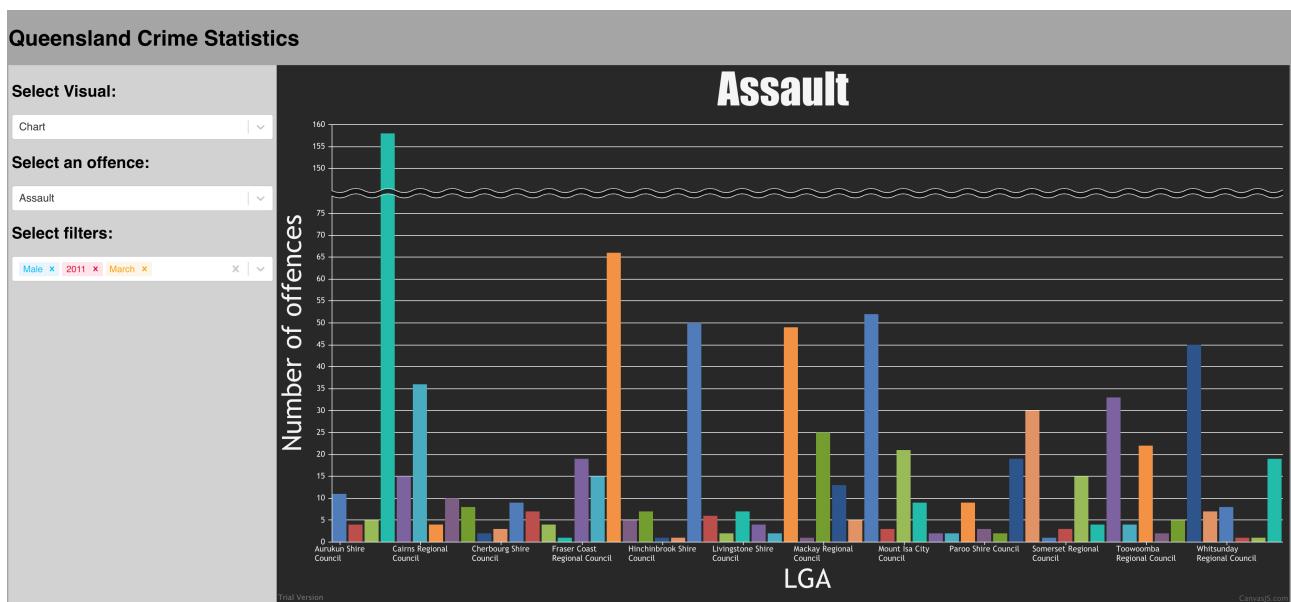


Image 1

With this multi select for filters the app is able to query the API via the secure search endpoint. Of course the user will need to login prior to viewing this page this is done using standard forms and inputs for the user to provide their credentials. The same method is used for the registration. All offence and filter data is taken from the API prior to displaying to the user, which allows for the data to be updated in API and displayed to the users easily.

The data can be displayed in 3 different ways; via a table, a chart, or a heat map. Each of these visuals are using react-table, canvasJS with react, and react-leaflet respectively. Each of these packages takes advantage of react's rendering techniques. The use of canvasJS can be seen in image 1 above. The following 2 images, image 2 & 3 showcase the use of react-table and react-leaflet for the table and map respectively.

Queensland Government

Select Visual: Table

Select an offence: Assault

Select filters: Select...

LGA	Total	Longitude	Latitude
Aurukun Shire Council	1911	141.729058	-13.354875
Balonne Shire Council	710	148.189292	-28.464607
Banana Shire Council	732	150.512584	-24.399962
Barcaldine Regional Council	112	145.289026	-23.55371
Barcoo Shire Council	13	142.361338	-25.031228
Blackall Tambo Regional Council	116	145.463564	-24.42259
Boulia Shire Council	148	139.041312	-22.753044
Brisbane City Council	40989	153.022455	-27.470812
Bulloo Shire Council	27	143.822286	-27.996669
Bundaberg Regional Council	4966	152.282663	-24.958116
Burdekin Shire Council	1125	147.406473	-19.577286
Burke Shire Council	239	139.545746	-17.740903
Cairns Regional Council	13257	146.114225	-17.01522
Carpentaria Shire Council	1167	141.080196	-17.668838
Cassowary Coast Regional Council	2460	146.382423	-17.973932
Central Highlands Regional Council	1610	148.737363	-24.033049
Charters Towers Regional Council	940	146.257893	-20.07249
Cherbourg Shire Council	1206	151.95566	-26.29018
Cloncurry Shire Council	690	140.348184	-21.249499
Cook Shire Council	1182	143.045893	-14.281491

Previous Page 1 of 4 20 rows Next

Image 2

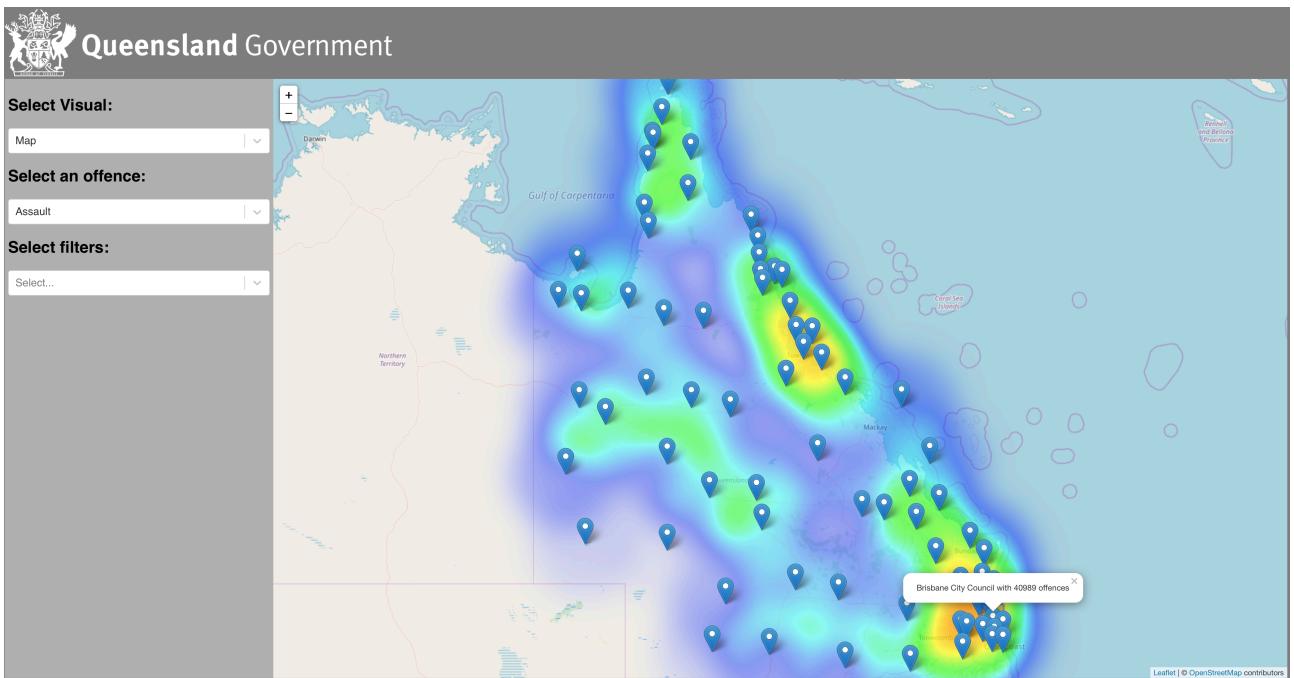


Image 3

With react-table each column can sorted through in ascending or descending order. The map has a heat map with markers that say the LGA and total number offences, these are placed based on the coordinates from the API.

Technical Description

Using react-select allows for the user to select filters from one single dropdown menu, each of the groups of filters are grouped and colour coded for ease of use. The user is also able to type in their search and find a specific filter they are looking for. Users are able to add and remove filters as they please and the visual will update as they add and remove filters. React-select is also used for the visual select and offence select to bring all dropdown menus to the same style.

React-router was used so that the user can go to the login or registration page directly. Cookies would be useful so that the user's token can be stored for the duration of its validity and can be used to redirect the user to the app page when the token is valid and redirect back to the main landing page when invalid. I decided against implementing them as testing their expiration is something that I haven't been able to test easily. Overall react-router makes it easier to view what page is being viewed and allow direct site navigation.

CanvasJS is a package that allows for the visual data representation in different chart forms. In this web app I have used it to display the data visually via a bar graph with X-axis being the LGAs, and Y-axis being the total count of offences. There has been one small limitation with canvasJS, there isn't a package that can be downloaded via npm for their react implementation.

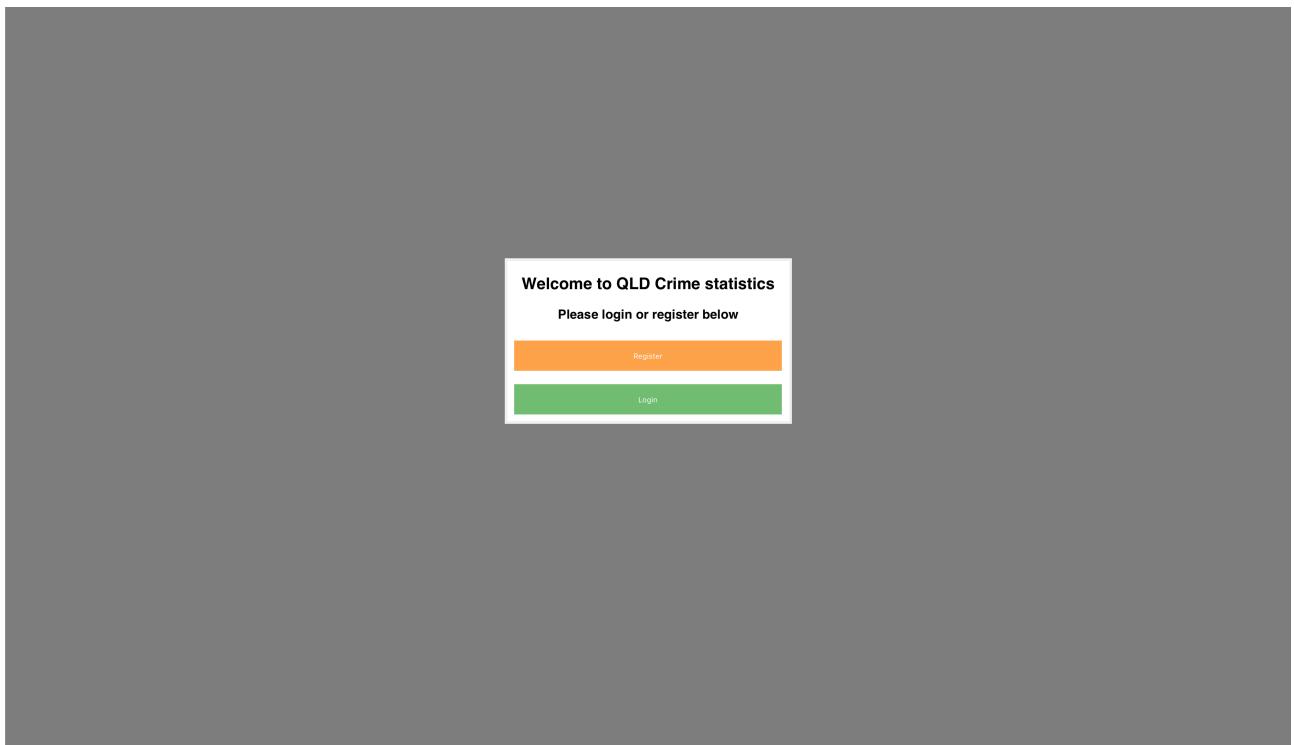
I have used react-leaflet instead of utilising any form of google maps and react because I have had some problems with getting google maps cooperating well with the map being watermarked with "For developmental purposes only". With react-leaflet it utilises OpenStreetMap. Which I have found to be a very good alternative to using google maps. React-leaflet also has a very good documentation that is very easy to read through and was very easy to implement properly into my web app.

Testing

Test case	Input	Expected	Actual
Login	Email and password provided	Logged into app page	As expected
Register	Email and password provided	Redirect to login page with successful account creation	As expected
Login without email or password	Email or password provided with other not provided	Unable to progress	As expected
Register without email or password	Email or password provided with other not provided	Unable to progress	As expected
Change selected offence	Change selected offence	Displays data for new offence	As expected
Change selected visual	Change selected visual	Displays data in new visual format	As expected
Change selected filter	Change selected filter	Displays new data based on filter	As expected
Add second filter	Add second filter	Displays new data based on filter, more refined	As expected
Click column headers	Click column headers	Table sorts data by clicked column	As expected

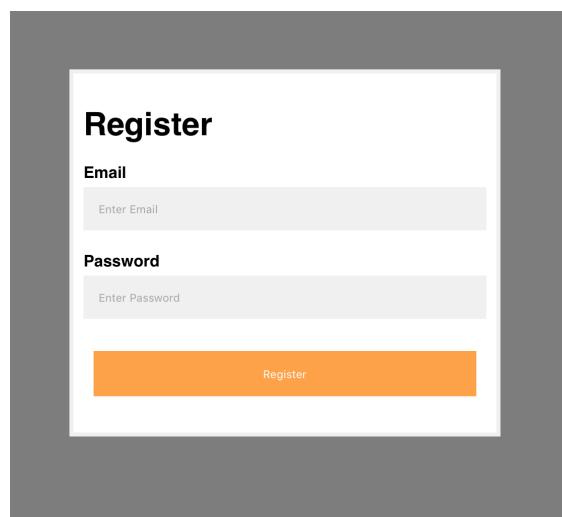
Appendix: brief user guide

When opening the webpage you will be greeted with this welcome page

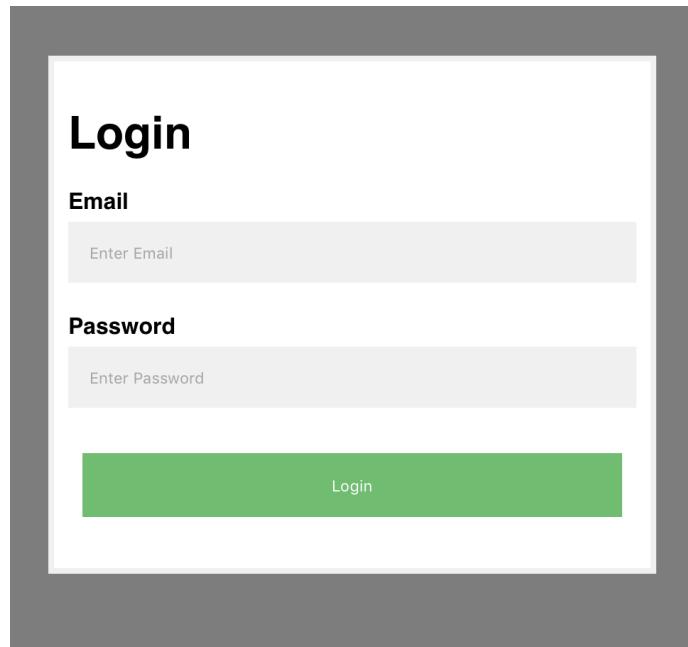


You can choose to register to a new account or login to an existing account.

For this tutorial we will go to register a new account



Enter in your preferred email and password and click the register button. If the email was used you will be notified if it has. If the registration is successful you will be redirected to the login page



You can then enter in your credentials you provided in the registration to login to access the main app



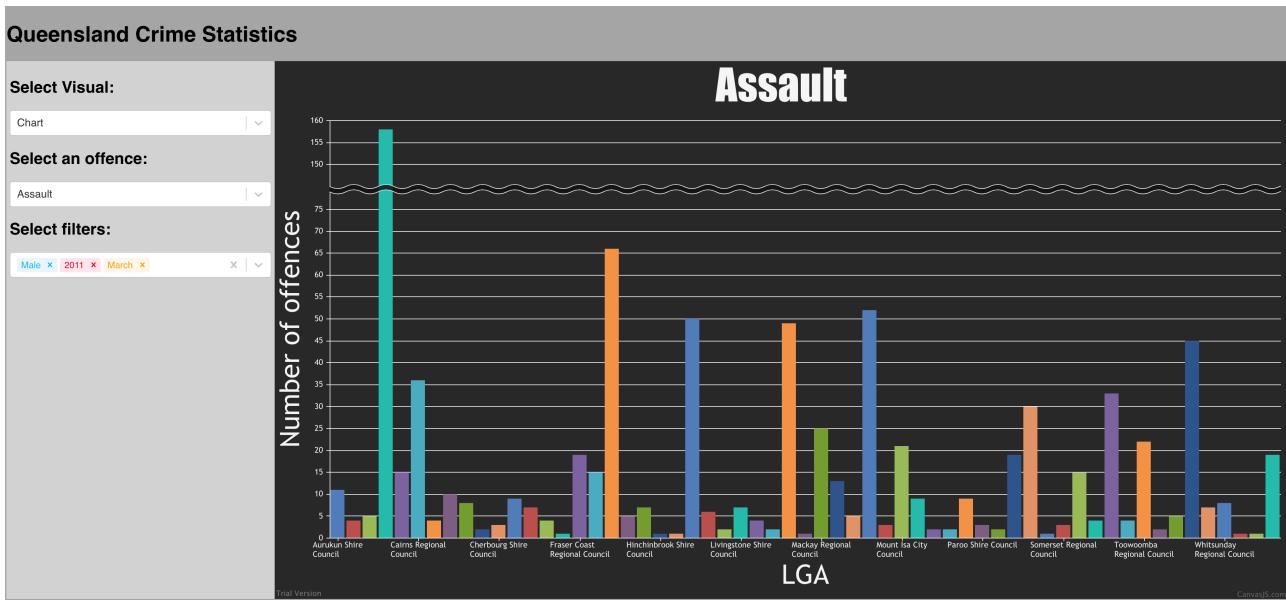
- 1: This is a dropdown menu where you can select what visual style you want to view the data in, the options available are: Table, Chart, or Map
- 2: This is a dropdown menu to select which offence to view data for. This is updated if any new offences are added to the database. This dropdown is also required to view any data.
- 3: The final dropdown menu is for you to select how you want to filter the data. You can filter by the area, age, gender, year, month of the crimes. You can type in the menu to find what filter you want to use and you can add multiple filters to narrow down the data you want to find.

4: This is where you can logout and end your session. This is if you want to return back to the main landing page as once you leave this page your session ends and you must login again to view the data.

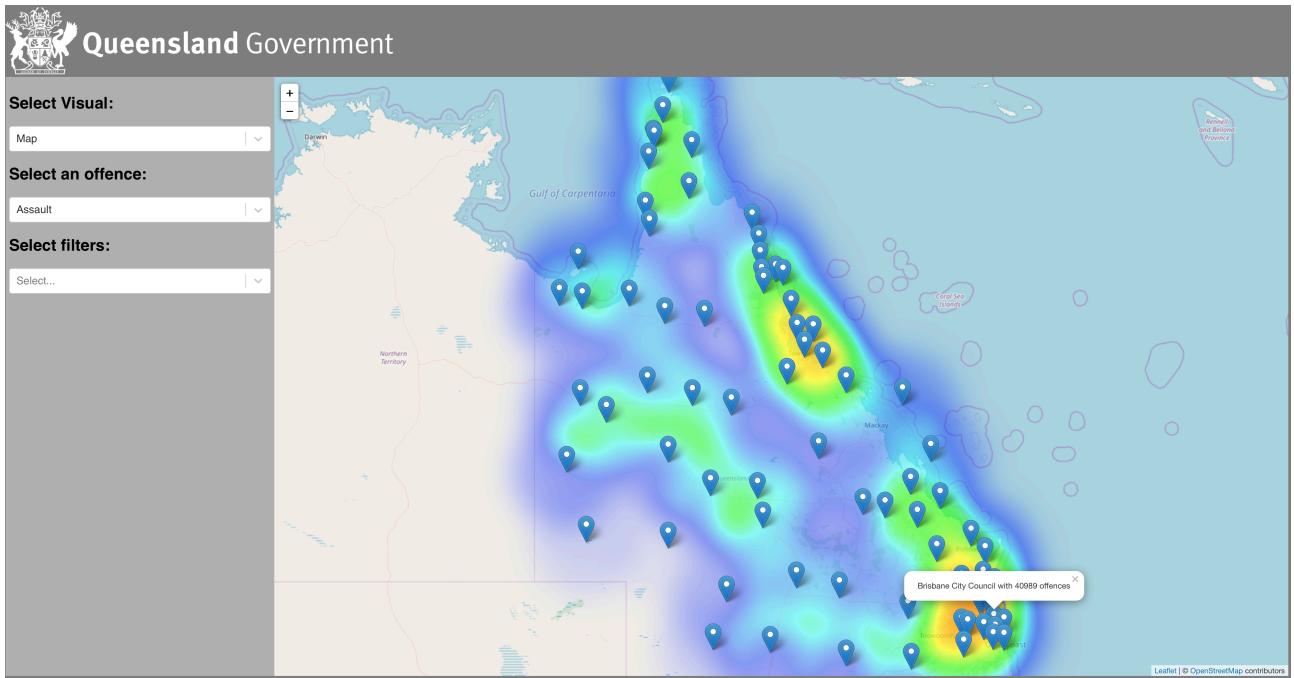
When the data displays in table format you are able to click the table columns and sort the data by that column. Click again and it reverses.

Select Visual:	LGA	Total	Longitude	Location
Select an offence:	Aurukun Shire Council	1911	141.729058	-13.354875
Select filters:	Balonne Shire Council	710	148.189292	-28.464607
Select...	Banana Shire Council	732	150.512584	-24.399962
Select...	Barcaldine Regional Council	112	145.289026	-23.55371
Select...	Barcoo Shire Council	13	142.361338	-25.031228
Select...	Blackall Tambo Regional Council	116	145.463564	-24.42259
Select...	Boulia Shire Council	148	139.041312	-22.753044
Select...	Brisbane City Council	40989	153.022455	-27.470812
Select...	Bulloo Shire Council	27	143.822286	-27.996869
Select...	Bundaberg Regional Council	4966	152.262663	-24.95816
Select...	Burdekin Shire Council	1125	147.406473	-19.577286
Select...	Burke Shire Council	239	139.545746	-17.740903
Select...	Cairns Regional Council	13257	146.114225	-17.01522
Select...	Carpentaria Shire Council	1167	141.080196	-17.668838
Select...	Cassowary Coast Regional Council	2460	146.382423	-17.973932
Select...	Central Highlands Regional Council	1610	148.737363	-24.033049
Select...	Charters Towers Regional Council	940	146.257893	-20.07249
Select...	Cherbourg Shire Council	1206	151.95566	-26.29018
Select...	Glorconbury Shire Council	690	140.348184	-21.249499
Select...	Cook Shire Council	1182	143.045893	-14.281491

When in chart format you can hover over a bar and it would display the exact LGA, and the total number of the offence selected.



In map format you will see a heat map when 2+ or all areas selected, there are also markers for all LGAs that have had 1 or more counts of the selected offence. These markers are all positioned based on the database given.



References

- (2019). "How TO - Popup Form." 2019, from https://www.w3schools.com/howto/howto_js_popup_form.asp.
- (2019). Queensland Government Logo - White. Queensland Government, Queensland Government.
- Watson, J. (2018). "Async - React Select." 2019, from <https://react-select.com/async>.