Computer Visualization Report

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1 Introduction

Criminology is the study of causes, nature and prevention of criminal behaviour[5]. This study is important as it allows sociologists and psychologists to not only study the when and how crime occurs, but offers a way to predict crime trends in the future.

Crime is an evident part of our society and is an active topic during elections[4], even companies like IBM[1] and Palantir[3] are creating products to model, predict and prevent crimes before they happen.

As technology becomes more powerful, the cost of implementing systems capable of predicting crimes becomes more feasible. However these systems are difficult to build, as it is almost impossible to predict the future. Nevertheless companies have started building such systems.

Crime prediction systems generally consist of the following components:

- Identify areas with frequent crime[1]
- Match trends in national and regional crimes with local crimes
- Identify circumstances for the cause of crimes[1]

2 Aims

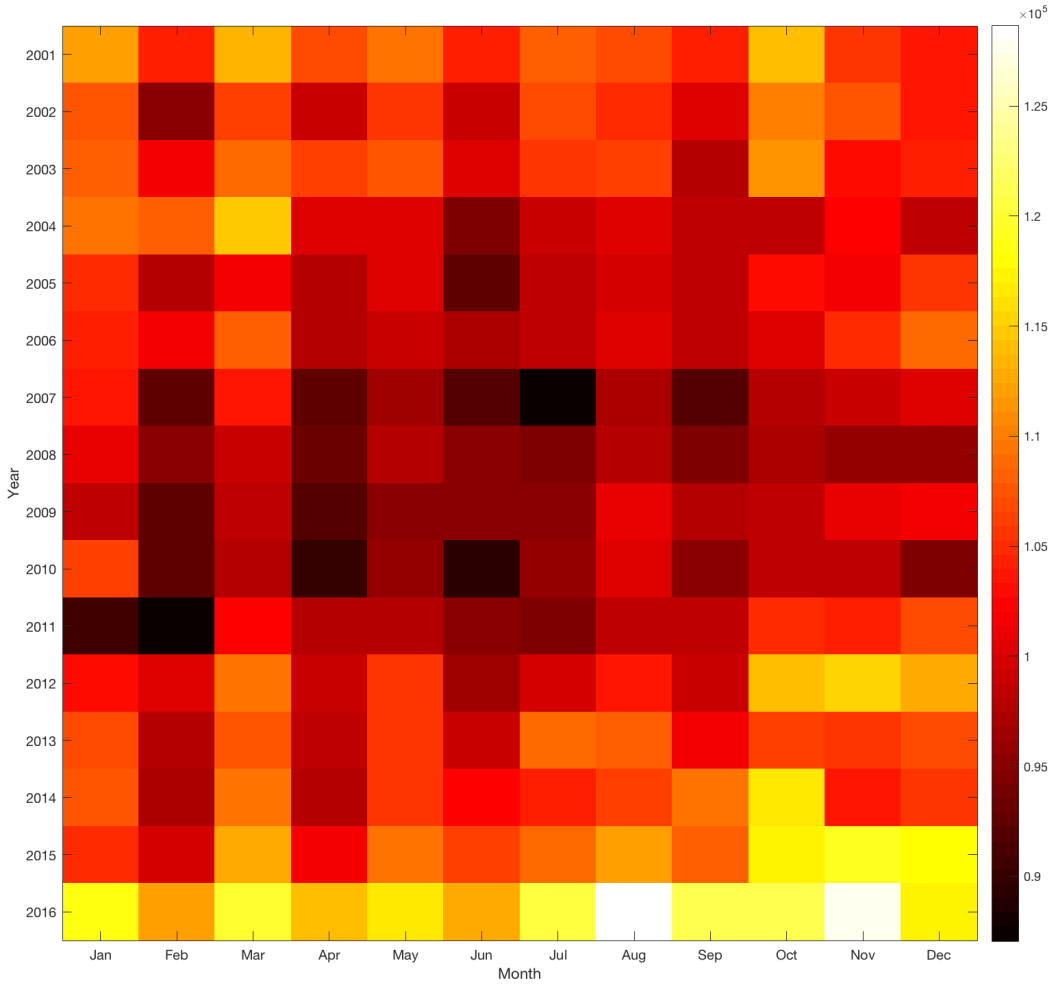
This report aims to analyse and explore crime data for Queensland. A variety of techniques and datasets will be used to explore this problem, including:

- Analyse reported offences by suburb, month and offence type to find relationships in crime over time.
- Analysis of geolocation data for crime locations and police districts

3 Methods

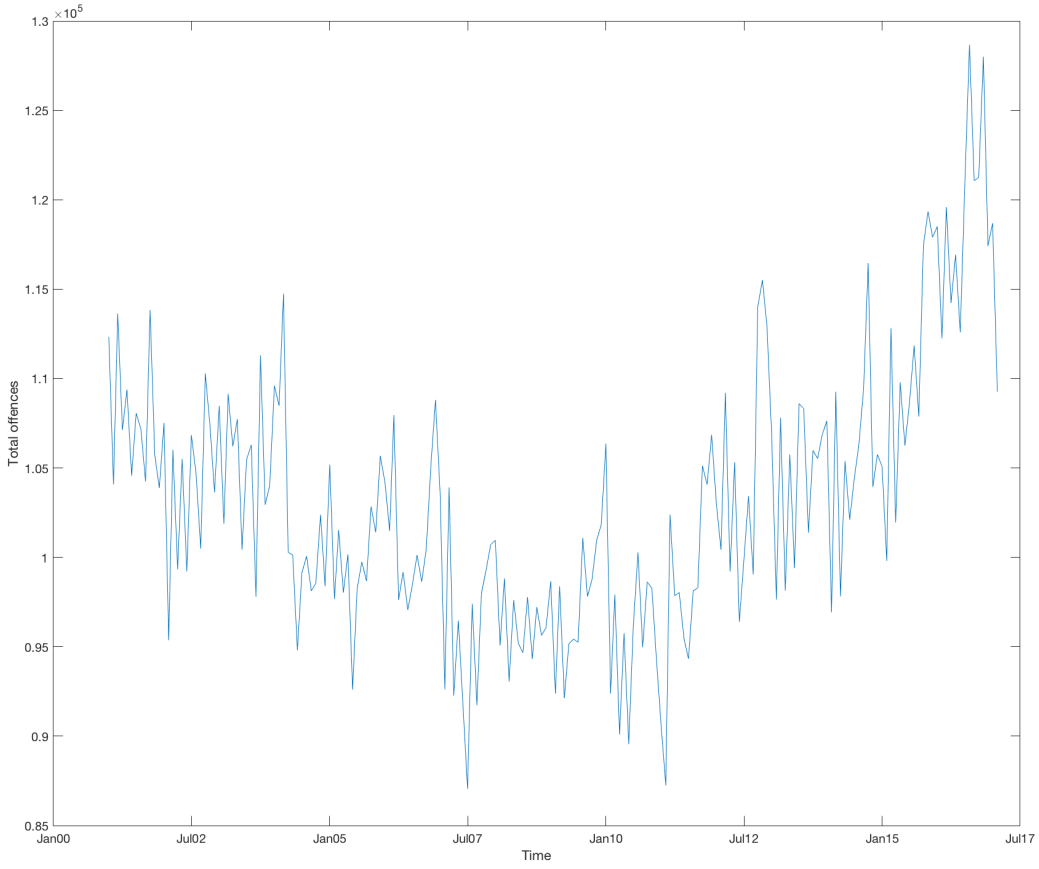
4 Results

Figure 1: Heatmap of crime over time



A spike in crime was noticed during March 2004, this can also be seen in the other charts below, historical records show that March was when the Brisbane City Council elections happened and Campbell Newman became the Lord Mayor of Brisbane[2]

Figure 2: Total offences over time

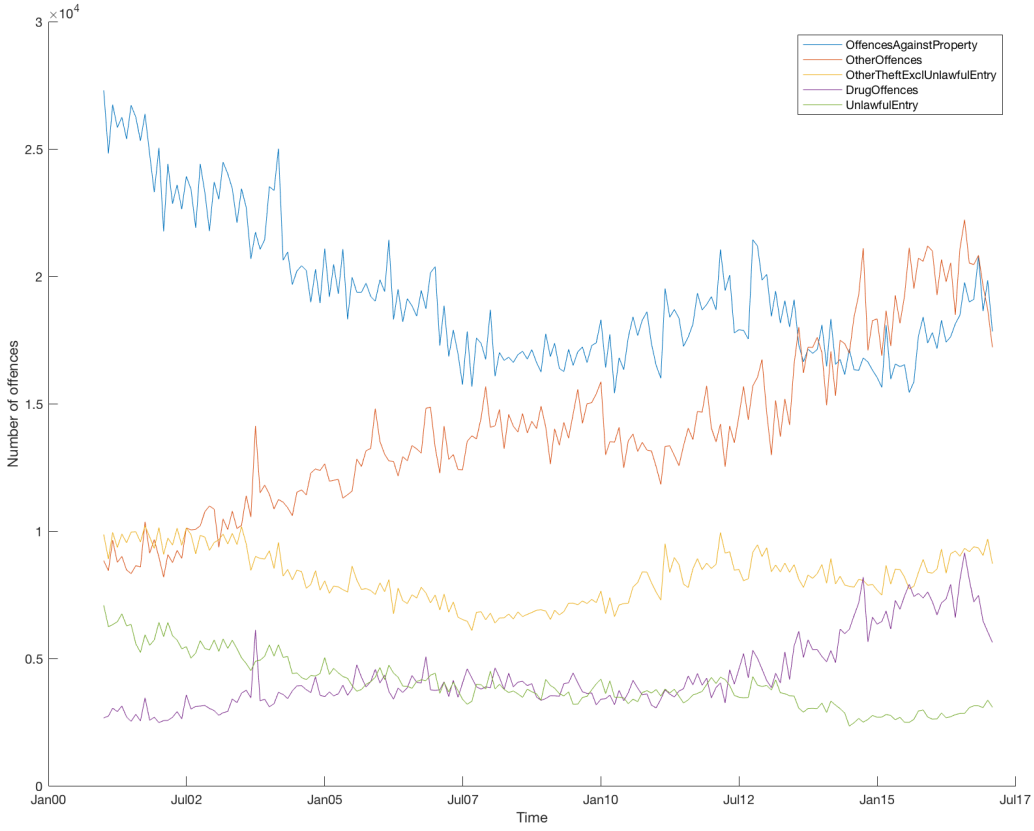


Sorting the crimes by the average number of offences determined that the most common crimes are

1. Offences against property
2. Other offences
3. Other theft exculding unlawful entry
4. Drug offences
5. Unlawful entry

These offences can be plotted against the months to see how they change over time.

Figure 3: Top offences over time



5 Limitations

6 Conclusions

7 References

References

[1] IBM SPSS Crime Prediction and Prevention, Mar. 2012. URL: `http://www.ibm.com/software/analytics/spss/11/na/cpp/`.

[2] 2004 in Australia, Mar. 2017. Page Version ID: 768677697. URL: `https://en.wikipedia.org/w/index.php?title=2004_in_Australia&oldid=768677697`.

[3] Palantir Technologies. Law Enforcement. URL: `https://palantir.com/solutions/law-enforcement/index.html`.

[4] A. Remeikis. Queensland crime statistics not black and white. *Brisbane Times*, Aug. 2016. URL: http://www.brisbanetimes.com.au/queensland/queensland-crime-statistics-not-black-and-white-20160807-gqn2g7.html.

[5] T. Roufa. The Early History of Crime and Criminolgy. URL: https://www.thebalance.com/the-history-of-criminology-part-1-974579.