

## Using data mining techniques to analyze of crime patterns in Sri Lanka

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Data mining has become one of the most popular technologies for statistical analysis and prediction for the future during last few decades. Its applications can vary from health to many important fields. Crime is one of the dangerous factors for any country. Moreover, data mining can be efficiently applied to those data in order to develop different strategies. The ultimate goal of crime analysis is to identify likely targets for police intervention and prevent crime or solve past crimes by making statistical predictions. Criminals follow common life patterns and most of the time, overlaps in those patterns indicate an increased likelihood of crime.

Our proposed solution consists of four major modules namely; 'Hotspot Analysis Module', 'Offender Profiling Module', 'Victim Profiling Module' and 'Suspect Predicting Module'. Data related to past crimes, which was used for the analysis was collected from Department of Police, Sri Lanka. Hotspot analysis module identifies crime hotspots considering geographical data of past crimes where victim profiling and suspect profiling modules identify the patterns or groups of victims who are most vulnerable and suspects who share same characteristics. The first three modules were developed based on simple k-means clustering algorithm whereas the fourth module is based on simple k-means clustering and j48 algorithm to generate the classifier model which can be used to predict the cluster of suspects of a crime.

The results of this analysis can be used by law enforcers to find general and specific crime trends, patterns, and series in an ongoing, timely manner in order to maximize the use of limited law enforcement resources, to have an objective means to access crime problems locally, regionally, nationally within and between law enforcement agencies, to be proactive in detecting and preventing crime, to meet the law enforcement needs of a changing society and to understand the criminal behaviors.

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