



**Compare neighborhoods of city of Baltimore
and predict probability of crime**

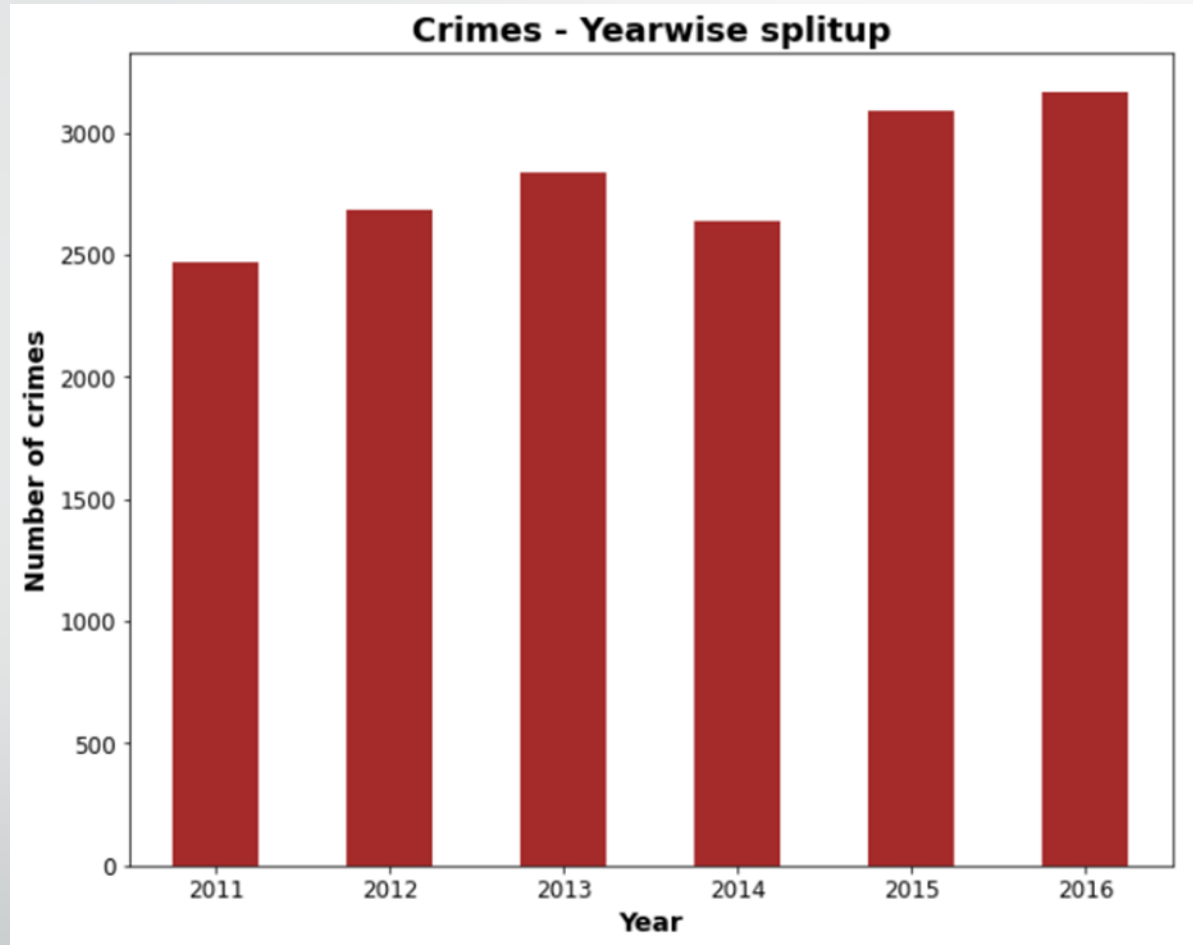
Crime in the city is a concern

- Crime in the city of Baltimore is becoming a concern in the recent times. The crime rate is steadily increasing over years
- Understanding the crimes at different neighborhoods is important to take appropriate measures and create awareness to public
- Predicting the crime at different parts of the city helps police in controlling the crime

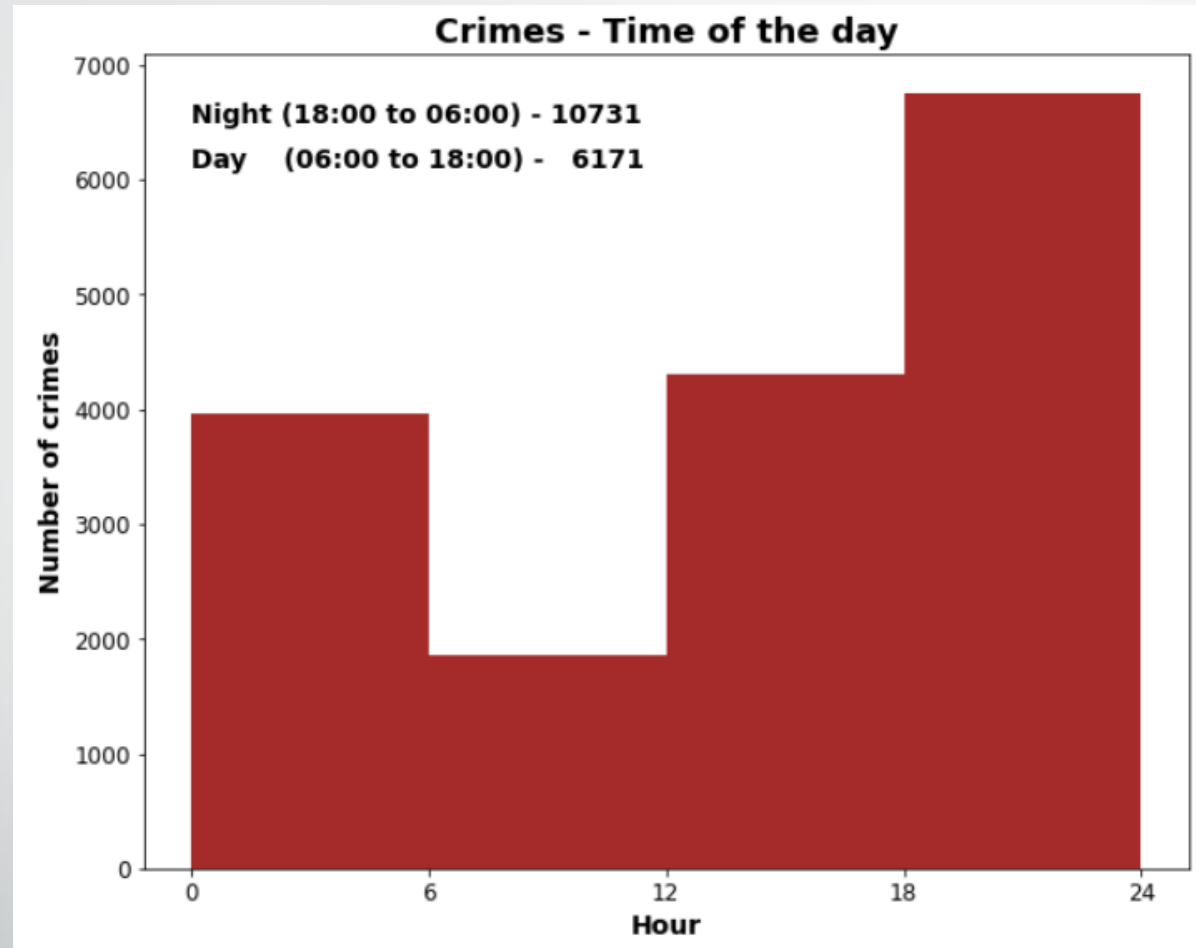
Data gathering and cleaning

- City of Baltimore Crime Data from 2011-2016 is published by Baltimore police department
- Data is collected from <https://data.world/data-society/city-of-baltimore-crime-data>
- The data has minute details of the location and date & time of crime, needed to get insight of crimes based on the location
- Popular venues around a location is gathered using foursquare APIs
- APIs of foursquare are used to explore venues, their locations, and categories
- Location of crime and number & type of popular places around it are important features included in data analysis
- Crimes specific to 'STREET ROBBERY' is relevant for this analysis so it is retained and rest all crimes are dropped

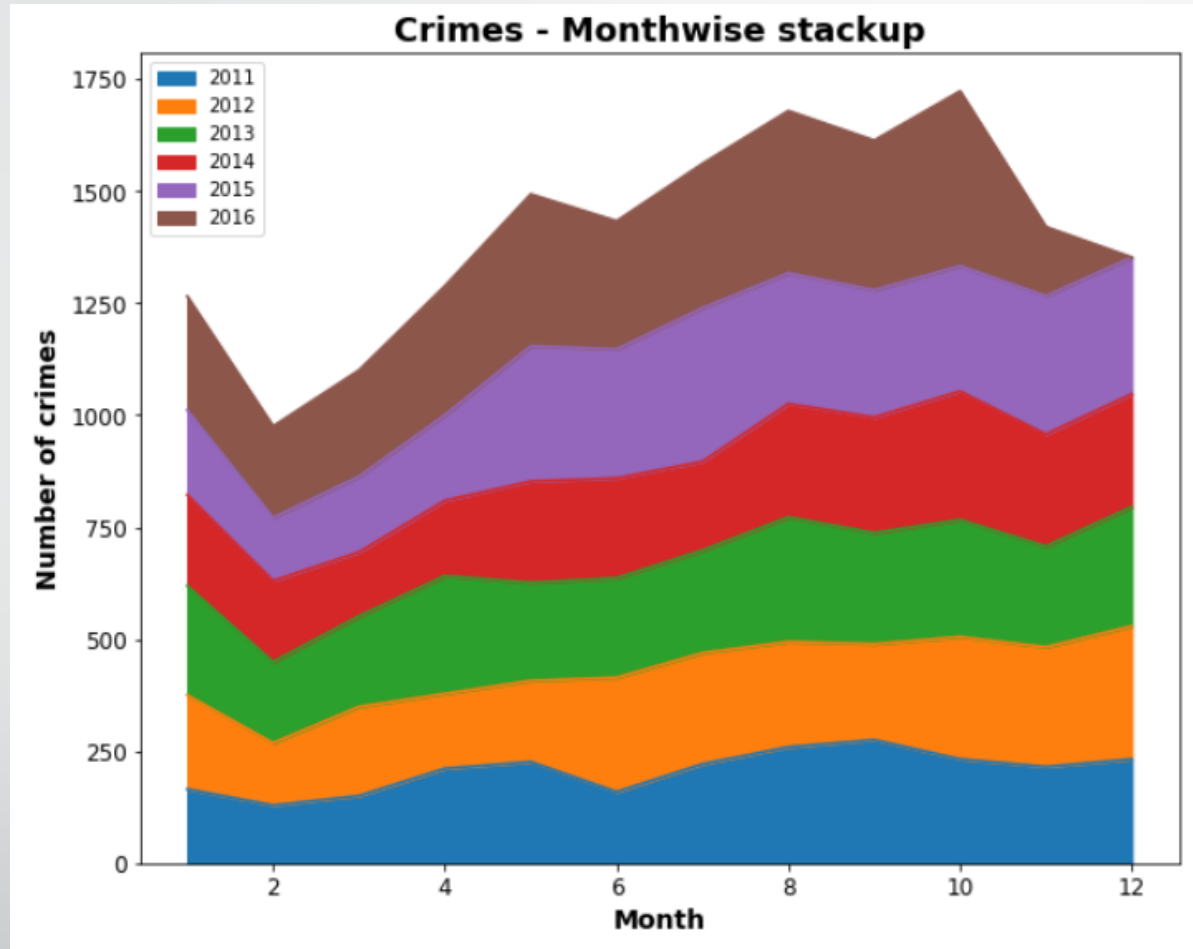
Year on year crime is increasing



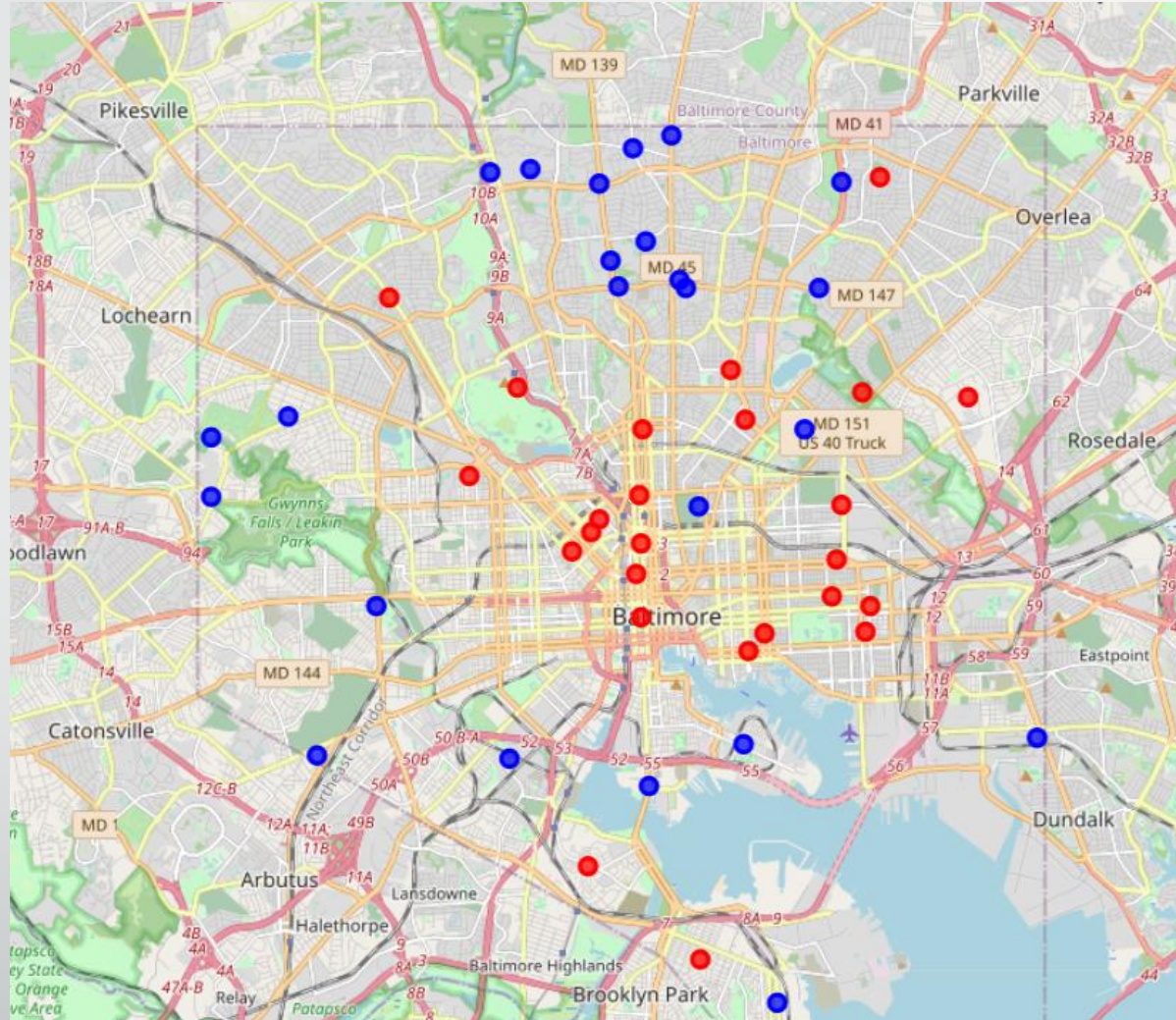
More crimes after sunset



More crimes in summer

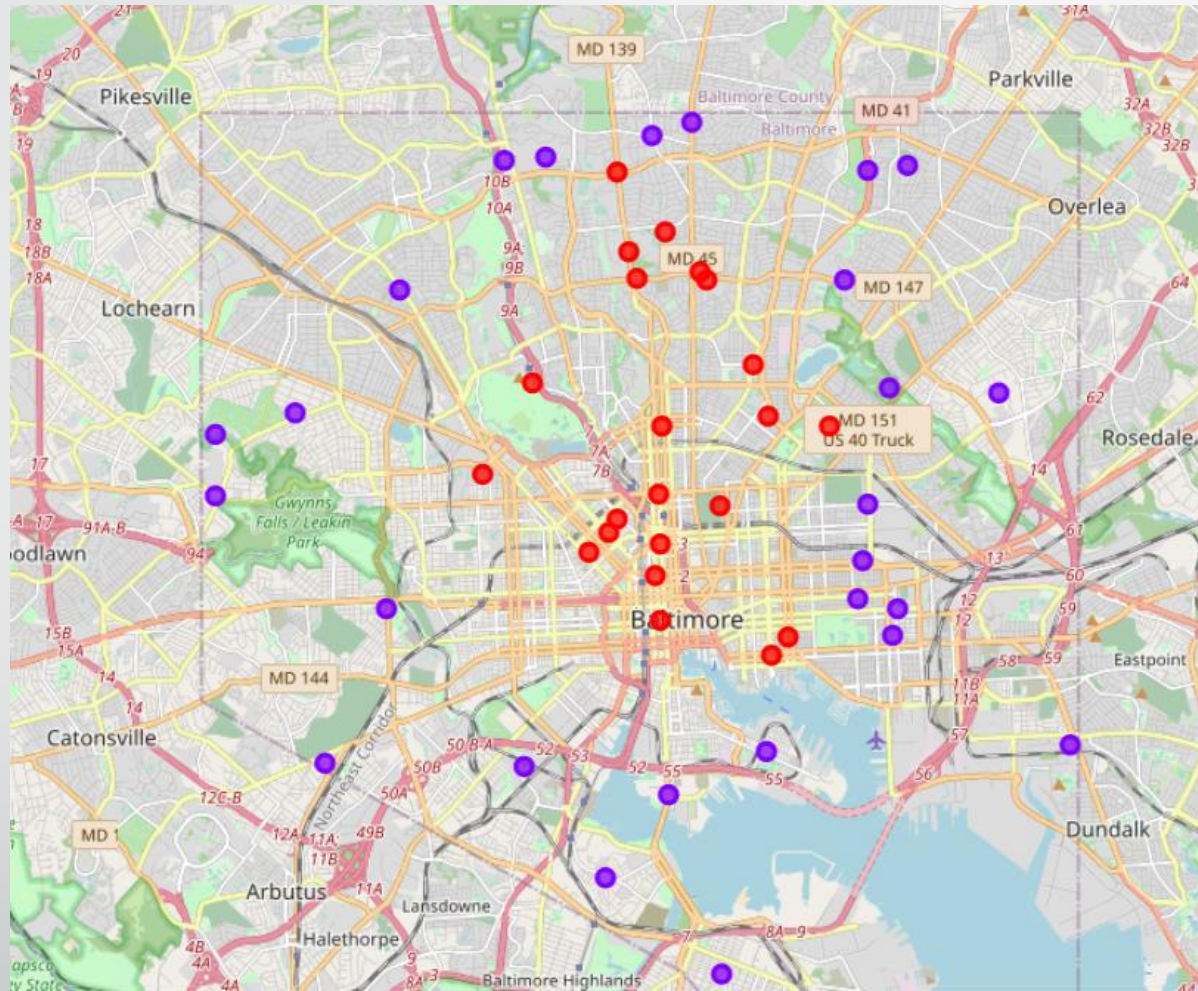


Central parts of city – Centre to crimes



- Crimes on street - reported more in the central parts of the city

K means clustering

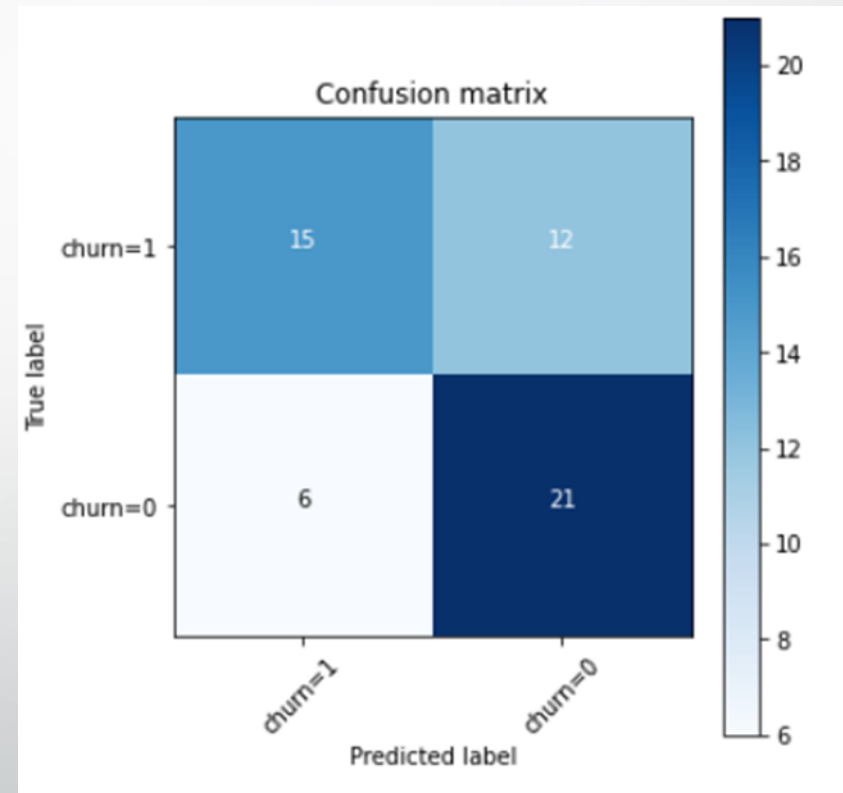


- Neighborhoods closer to city center and has more popular venues prone to have more crimes on streets compared to ones in the outskirts of city

Predict crime – Logistic regression

- Predict the probability of crime using logistic regression
- Accuracy of prediction listed below

Evaluation techniques	Values
Jaccard index	0.67
F1 score	0.63
Log loss	0.69



Conclusion and way forward

- Analyzed data and created models to group neighborhoods and predict crime.
- These models can be used to create awareness and guidance to people and travelers
- Police can use the classifier to predict crime and control it
- Accuracy of prediction can be improved by bringing in demographics data of all the neighborhoods