

CAPSTONE PROJECT- BOSTON CRIME IN 2019

1. Introduction: Business Problem

The purpose of this project is to analyze the Boston Crime data report in 2019. This project will show different analysis using various types of plotting to demonstrate the cluster of crimes in specific district.

This project more or less will help the people who want to relocate to Boston, at least they will have some idea about the location they want to move in for safety concern. This analysis will show you detail of specific correlation number of crimes vs. district, offense_code, time of the day, month...

2. Data Collection

The data has been downloaded from the <https://www.kaggle.com/boston-crime-data>.
It will show:

- The total number of crimes committed in different districts
- Area with most crimes are committed.

Below is detail of the file

- INCIDENT_NUMBER:
- OFFENSE_CODE:
- OFFENSECODEGROUP:
- OFFENSE_DESCRIPTION:
- DISTRICT:
- REPORTING_AREA:
- SHOOTING:
- OCCURREDONDATE:
- YEAR:
- MONTH:
- DAYOFWEEK:
- HOUR:
- UCR_PART:
- STREET:
- LATITUDE:
- LONGITUDE:
- LOCATION:

	INCIDENT_NUMBER	OFFENSE_CODE	OFFENSE_CODE_GROUP	OFFENSE_DESCRIPTION	DISTRICT	REPORTING_AREA	SP
0	I192082859	724	Auto Theft	AUTO THEFT	E18	519	
1	I192082751	724	Auto Theft	AUTO THEFT	E18	493	
2	I192082680	727	Auto Theft	AUTO THEFT - LEASED/RENTED VEHICLE	D14	794	
3	I192082577	724	Auto Theft	AUTO THEFT	D4	130	
4	I192079582	727	Auto Theft	AUTO THEFT - LEASED/RENTED VEHICLE	A15	47	

3. Exploratory

```
df1.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 73586 entries, 0 to 426837
Data columns (total 10 columns):
 #   Column                Non-Null Count  Dtype
---  -
 0   INCIDENT_NUMBER       73586 non-null  object
 1   OFFENSE_CODE_GROUP    73586 non-null  object
 2   DISTRICT              73244 non-null  object
 3   YEAR                  73586 non-null  int64
 4   MONTH                 73586 non-null  int64
 5   DAY_OF_WEEK           73586 non-null  object
 6   HOUR                  73586 non-null  int64
 7   STREET                72400 non-null  object
 8   Lat                   68912 non-null  float64
 9   Long                  68912 non-null  float64
dtypes: float64(2), int64(3), object(5)
memory usage: 6.2+ MB
```

```
df1.isnull().sum()
```

```
INCIDENT_NUMBER    0
OFFENSE_CODE_GROUP  0
DISTRICT           342
YEAR               0
MONTH              0
DAY_OF_WEEK        0
HOUR               0
STREET            1186
Lat                4674
Long              4674
dtype: int64
```

```
df1.dropna(inplace=True)
```

Total Crimes in each District

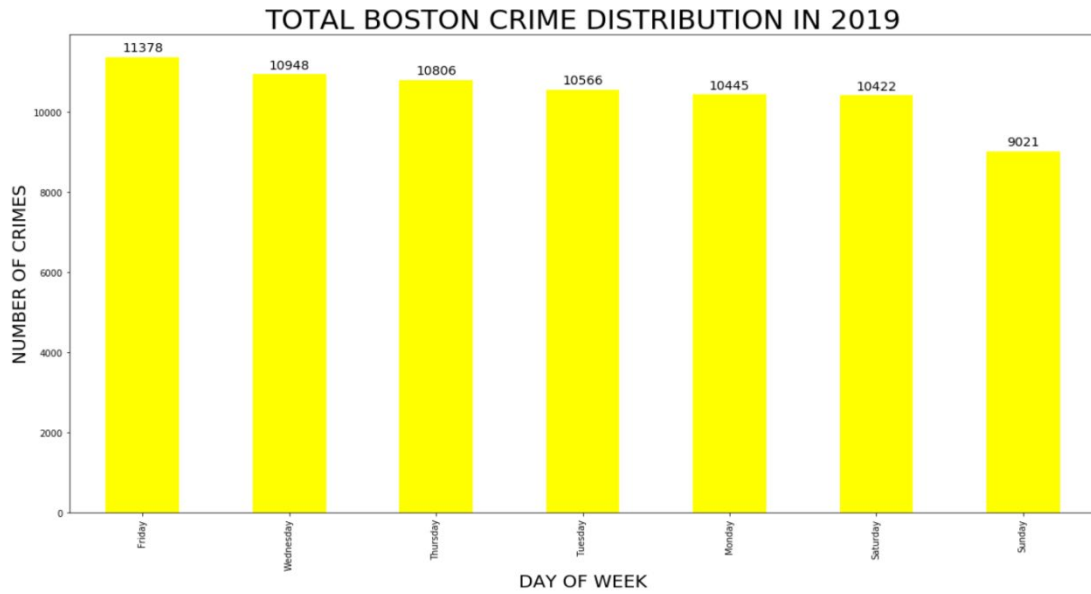
```
] df1['DISTRICT'].value_counts()
```

```
] B2      10931
   C11      9136
   D4      8636
   B3      7967
   A1      7348
   C6      4980
   D14     4299
   E18     4154
   E13     3836
   E5      3003
   A7      2701
   A15     1315
   Name: DISTRICT, dtype: int64
```

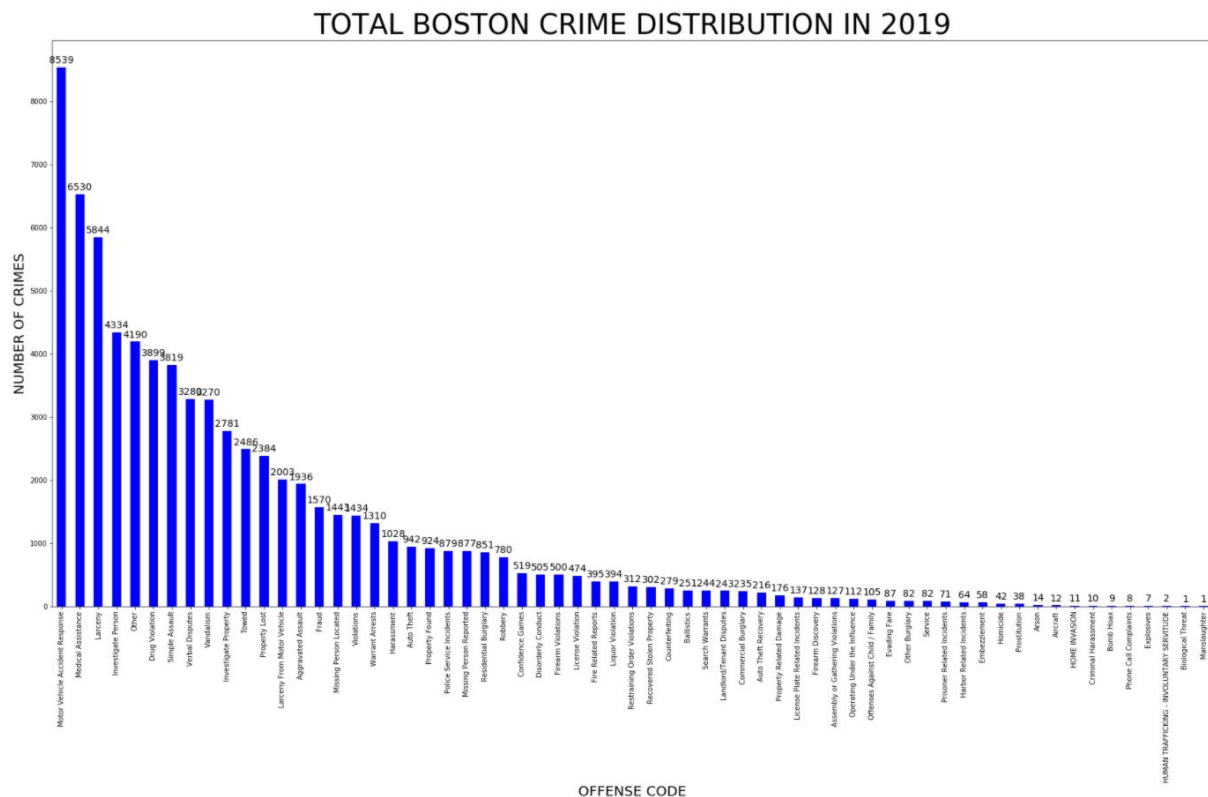
Total Crimes in each group

```
df1['OFFENSE_CODE_GROUP'].value_counts()
```

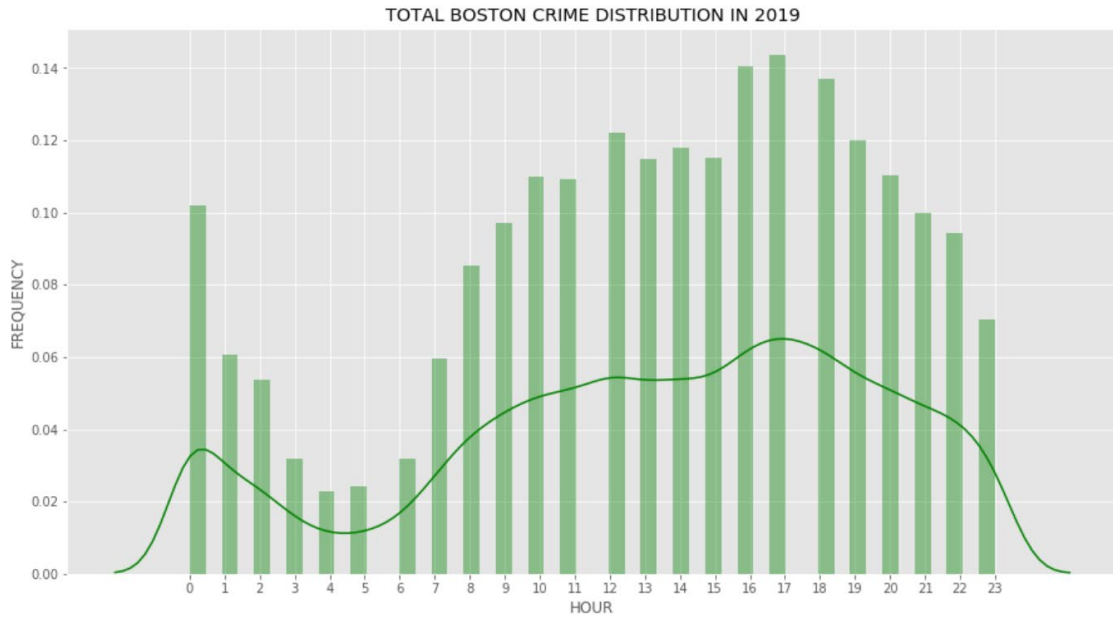
```
Motor Vehicle Accident Response      6976
Medical Assistance                    6215
Larceny                              5660
Investigate Person                   4155
Other                                3923
...
Phone Call Complaints                  8
Explosives                            6
HUMAN TRAFFICKING - INVOLUNTARY SERVITUDE 2
Biological Threat                      1
Manslaughter                          1
Name: OFFENSE_CODE_GROUP, Length: 63, dtype: int64
```



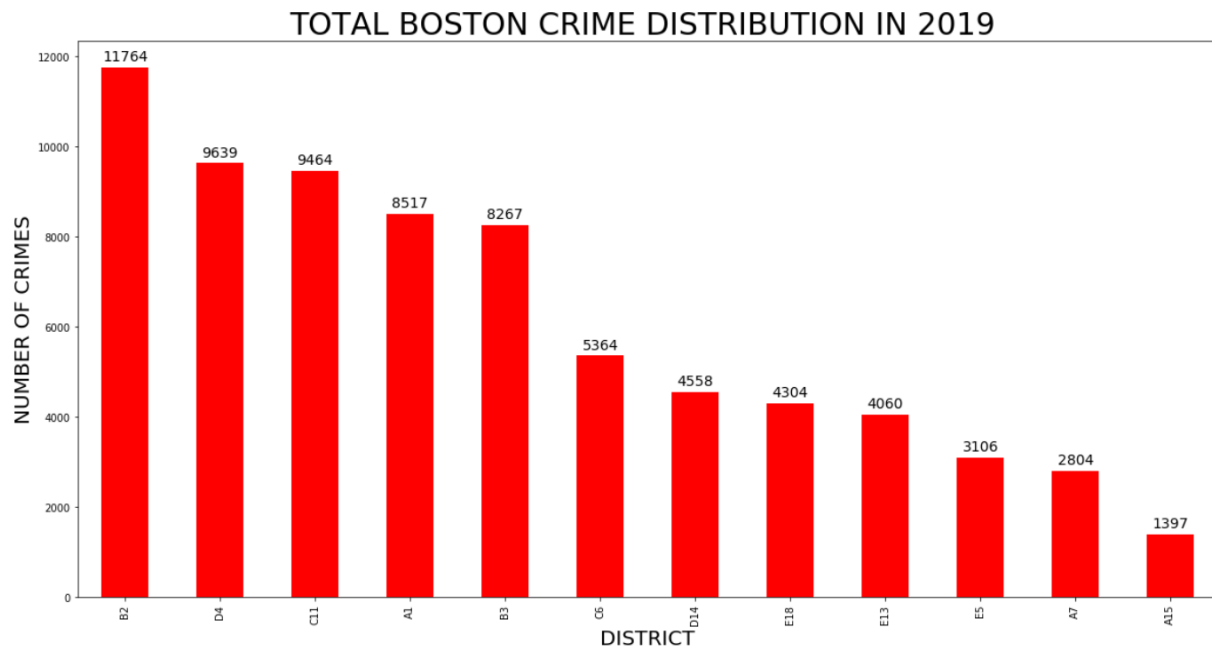
Observation : Sunday is considered the day has least crime recorded, maybe because people stay at home.



Observation: Motor vehicle Accidentt Responses is the highest incident, it means the traffic is very busy in Boston



Observation: The crime rate seem to be very slow around 4 to 5 AM in the morning.



Observation: District A15 is the area with the least crime in Boston area. It is recommended to buy house in this area for safety concern.

4. Results and Discussion

Base on all the analysis above :

- Crime rate vs day of week: Sunday has the lowest crime
- Crime rate vs offense code: Car accident is the highest incident in Boston
- Crime rate vs time in day: around 4 to 5 AM is the time has lowest crime
- Crime rate vs District district A15 is considered the safest district in Boston with lowest crime rate

The project is to help people who want to relocate to the safest place in Boston in 2019. Next is the district A15 location mapped in Boston.

