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Boston Crime Analysis

(2015 – 2019/04/16)



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Purpose of Document:

The purpose of this document is to explore the geographical areas in Boston that are the most unsafe places to live and the safest places to live. This was accomplished by using a dataset found off an official Boston website called, “Analyze Boston”. Using Microsoft SQL Server Management Studios, we were able to write a plethora of queries that pulled relevant data out of the dataset. Accompanied by Microsoft Visual Studios, we created embedded dashboards with multiple reports that portray the data in a way that answers our initial question. In this document we will explain how we came to our results to the question and how we used queries, reports and dashboards to accomplish this.

Dataset Details:

The dataset included in this report is from a campaign called, “Analyze Boston”. Analyze Boston is an official government website that features a variety of datasets that come from government organizations. On the website they invite users to explore and find new information about important topics that are related to the different government organizations in Boston. The dataset we used came from the Boston Police Department and includes several thousands of crime incident reports that date from June 2015 to April of 2019. A crime incident report documents the initial details surrounding an incident to which Boston Police Department officers must respond to. The incident report includes a reduced set of fields that focuses on capturing the type of incident as well as when and where it occurred.

Sample Queries:

In this report we had to write a plethora of queries using Microsoft SQL Server Management Studios. In order to find an answer to the question of, “What is the most unsafe geographical area to live in Boston”, we first had to answer a variety of sub-questions that guided us in writing our queries. For example, what districts in Boston had the most total crime? What was the most common criminal offenses in each district? Which streets in the district had the most total crime? What was the most common criminal offenses in each street? In Turn, using the answers to these questions, we were able to decipher the most unsafe places to live and the safest places to live.

Which districts in Boston had the most total crime?

```
SELECT Count(INCIDENT_NUMBER) TotalNumberOfCrime, DISTRICT
FROM BostonCrimeData2
Group BY DISTRICT
Order BY TotalNumberOfCrime DESC
```

What was the most common criminal offenses in each district?

```
CREATE PROCEDURE usp_OffenseCodeGroupbyDistrict
    @District varchar(50)
as
BEGIN
SELECT TOP 8
    Count(INCIDENT_NUMBER) TotalCrime,
    OFFENSE_CODE_GROUP
FROM BostonCrimeData2
WHERE DISTRICT = @District
Group BY OFFENSE_CODE_GROUP
Order BY TotalCrime DESC
END
```

Which streets in the district had the most total crime?

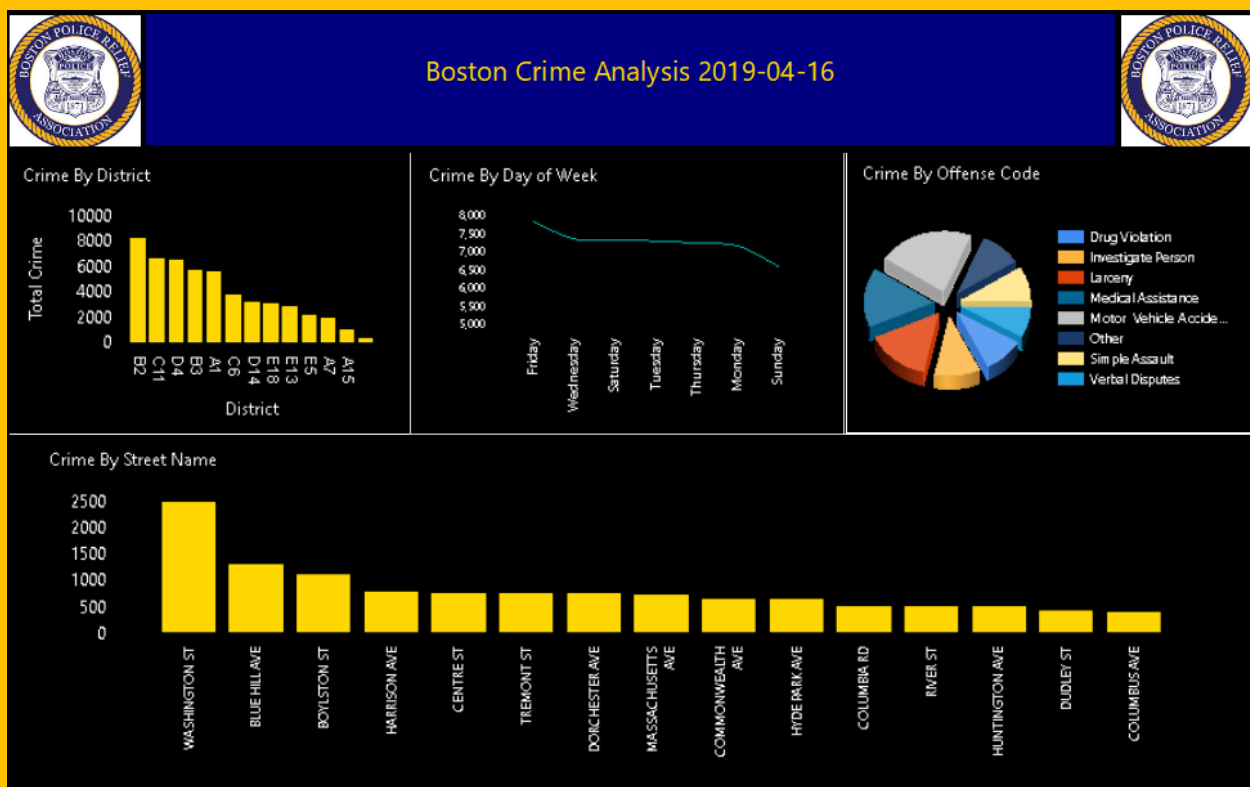
```
SELECT top 15 STREET,
    Count(INCIDENT_NUMBER) TotalCrime
FROM BostonCrimeData2
WHERE STREET is not null
GROUP BY STREET
Order By TotalCrime desc
```

What was the most common criminal offenses in each street?

```
CREATE PROCEDURE usp_OffenseCodebyStreetName
    @Street varchar(50)
as
Begin
SELECT TOP 8
    Count(INCIDENT_NUMBER) TotalCrime,
    OFFENSE_CODE_GROUP
FROM BostonCrimeData2
WHERE DISTRICT is not NULL
    AND OFFENSE_CODE_GROUP != 'Other'
    AND STREET = @Street
Group BY OFFENSE_CODE_GROUP
Order BY TotalCrime DESC
End
```

Dashboard:

Using the queries stated above and several others, we were able to put together a dashboard. The dashboard shows a series of graphs and charts that include details about the total crime in each District, Street, Day of Week, and Offense Code Group. Here is where our initial question will be answered and explained through a series of graphs. Each graph is embedded, which means when it is clicked on it will bring you to a report that goes into more details about the specific District, Day of week, or Offense Code Group that you have more questions about. For example, if you were to click on B2 in the Crime by District graph it would bring you to the District Report.



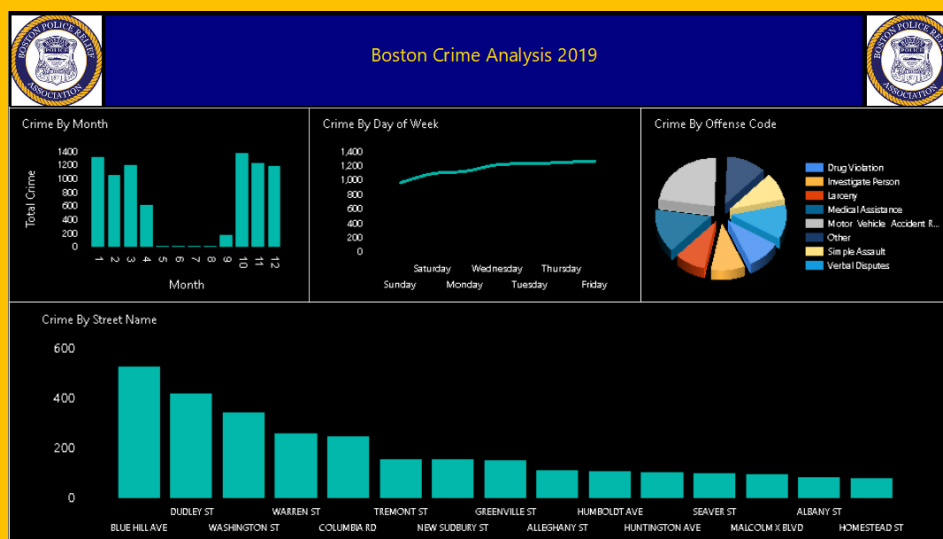
Reports:

Again, by using the queries, we were able to build multiple reports that are tailored to answering several questions about each District, Street, and Offense Code Group (type of criminal offense). Each report uses parameterized stored procedures that show data based on the District, Street, or Offense Code Group that you would like to learn more about. All of which, provide answers to our initial question and more.

District Report:

The district report shows details about crime in every district in Boston. It includes Crime by month in each district, Crime by the day of week in each district, Crime by Offense Code in each district, and Crime by the Street in each district.

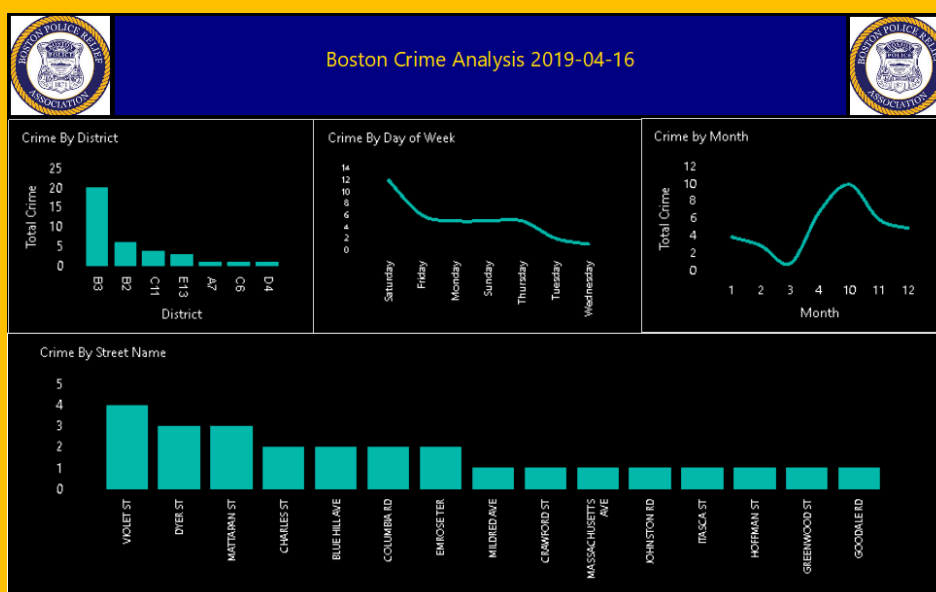
Example District = 'B2' (Dorchester)



Offense Code Group Report:

The Offense Code report shows details about crime that is specific to an Offense Code Group. It includes Total Offense Code Group Crime by District, Total Offense Code Group Crime by the day of week, Total Offense Code Group Crime by Month, and Total Offense Code Group Crime by Street.

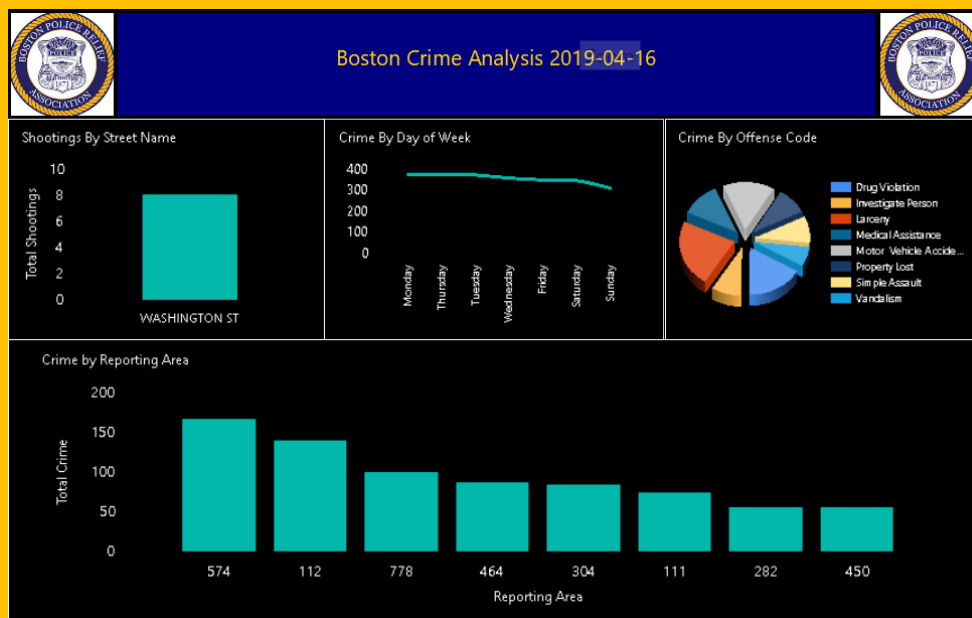
Example Offense Code = 'Homicide'



Street Report:

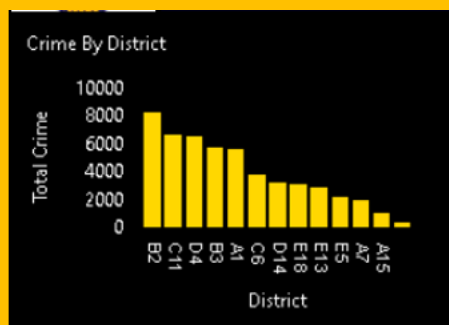
The Street report shows details about crime that is specific to a Street. It includes Total Shootings by Street, Total Crime by day of week of a Street, Total Crime in a Street by Offense Code Group, and Total Crime in a Street by its Reported Area.

Example Street = 'Washington St'

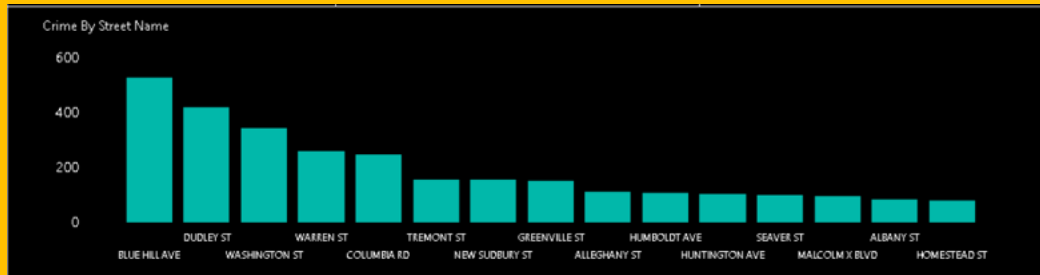


Conclusion:

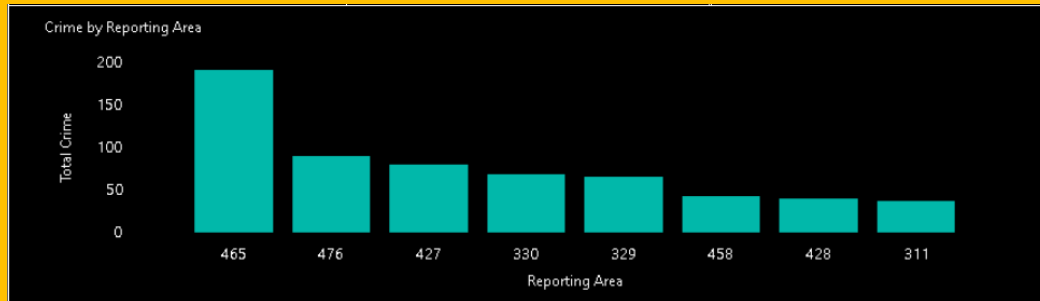
Where is the most dangerous place to live in Boston?



Most dangerous District = District B2



Most Dangerous Street = Blue Hill Ave



Most Dangerous Reporting Area = 465