Presentation

P1

Hello, my name is Jiangyun Wang and I will present my individual project, crime incident reports. The report aims to provide some recommendations to help BPD manage their distribution of available police resources effectively.

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Generally, the project is to analyze crime incidents in Boston by finding some patterns on different aspects: like time, offense group and location.

This project includes two data sources and both of them are from the Boston government website -- Analyze Boston. The primary source of data (like shown in the slide) is issued by BPD, Boston Police Department, which reports the preliminary details of an incident to BPD officers are reacting to. The primary data source contains multiple columns: like incidents number, Offense code, offense group, date, duration, place and so on.

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It is spilt to three broad parts to finding some patterns of Boston crime incidents, such as the Relation of time and crime incident numbers, the

Relation of offense group and crime incident numbers and the relation of location and crime incident numbers.

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The first part: Relation of time and crime incident numbers. There are four different colors to represent four seasons.

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So at first, it looks through the relation of months and crime incident numbers.

Since the project is done in Dec. 2019, the data in 2019 is not complete right now. Thus, the following analysis only focuses on 2016 – 2018

From the graph, it shows that

- From May to October, there are always more than 8000 incidents happened monthly.

-The February is always the month with the least crime incident numbers

From the graph, I got one hypothesis, that is the total incident numbers might related with the seasons

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- From the graph, Summer has the most incident numbers and Winter has the least incident numbers.

- My Hypothesis for future study based on the incident numbers in winter is that the reason why Winter has the least incident numbers is because the geography of Boston. Boston is in the north-east of America, which is snowy and chilly in winter, thus people in Boston prefer or have to stay at home in Winter. Therefore, severe weather condition might reduce the crime incident numbers

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Besides, the month and seasons. How about day of week

The graph indicates

- Friday in Spring, Summer, and Fall occurs more crime incidents. And Monday in Winter occurs more incidents.

- Generally, there are less incidents happened from Tuesday to Thursday in each season.

Therefore, my conclusion of the relation of time and crime incident numbers is that there is a high volume of incident numbers in specific months, seasons and day of week. Therefore, BPD could deploy their police resource wisely based on the pattern of time.

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The second part is the relation of offense group and crime incident numbers

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Let take a look at Top 5 offense groups with the most incident numbers in each season in 2018

Sorry for the small font size of the graph

Basically, it shows that

1. Motor Vehicle Accident Response, Medical Assistance, and Larceny are always the top 3 offense groups with the most incident numbers in each season.

1. Motor Vehicle Accident Response's incident numbers are far beyond other offence groups'.

It raises my curiosity that why Motor Vehicle Accident Response is the top one?

Accoording to an insurance company Allstate’s 'America’s Best Driver Report': Boston drivers are the worst.

1. \*The annual survey listed which of the 200 major U.S. cities had the best riders, placing Boston down from No. 199 in 2014 at the bottom of the barrel at No. 200. The study was based on Allstate's review over a two-year period from January 2012 to December 2013 of property damage reports from the 200 major U.S. cities[1].\*

1. \*While the average U.S. driver experiences a collision every 10 years, about every three years, Boston drivers get an average frequency in one accident. That means that motorists here are more likely to get into a crash by 157.7 percent[1].\*

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This research just surprises me, and drive me to analyze deeper

The pie chart of The top five offense descriptions of Motor Vehicle Accident that happen most shows that:

- 48.9% and 21.3% of Motor Vehicle Accident are caused by 'M/V - LEAVING SCENE - PROPERTY DAMAGE' and 'M/V ACCIDENT \- PROPERTY DAMAGE'. Both of them are only PROPERTY DAMAGE. However, there are 14.6% Motor Vehicle Accidents causes people injured and 4.7% Motor Vehicle Accidents causes predesrian injured as well.

Which means About 70% of Motor Vehicle Accidents only causes property damage, while about 19% of Motor Vehicle Accidents causes people injured.

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Besides Motor Vehicle Accidents, Larceny is one of top 3 offense group with the most incident numbers in Boston.

In addition, larceny’s UCR is part one.

UCR means The Uniform Crime Reporting which is issued by the Federal Bureau of Investigation (FBI), compiles government crime data in the United States.

And part one means criminal offenses which are broken into two categories: violent and property crimes.

Thus larceny is severer than motor vehicle accidents

According to the pie chart, The major victims of 'LARCENY SHOPLIFTING' and 'LARCENY THEFT FROM BUILDING'(about 67%) are merchants and the other group of victims of 'LARCENY THEFT OF BICYCLE' and 'LARCENY PICK-POCKET'(about 10%) are individuals.

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The Last part is Relation of Location and crime incident numbers

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This is a scatter of Top 5 streets hold most incident numbers of Larceny and all offense groups in 2018.

Washington st: it is the top one among all offense groups with the most incidents, and it is the second most larceny incident numbers.

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Let look into the Washington st

top 3 offense groups with the most incident numbers are: Larceny, Drug Violation, and Moto Vehicle Accident Response.

Larceny and Moto Vehicle Accident Response are also the top two offense groups with the most incident numbers in the Boston. Besides those two, Drug Violation is a new offense group showed up in the project.

For the future project, it will be analyzed in detail.

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Let’s combine the time with the top 3 streets with the most incident numbers in Boston.

It indicates Each street has different pattern of the crime incident numbers in each season.

However, Compare to Washington street and Boylston street, each season's incident numbers in Washington street is twice as the one in Boylston street.

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Like they can allow more police have their vocation in February