Los Angeles Crime and Arrest Report Analysis

By Tirth VishalBhai Dave (20BCE1548, VIT Chennai)

Vignesh S (20BCE1782, VIT Chennai)

Kancharla Naveen Kumar (20BPS1137, VIT Chennai)

Palesha Basumatary (20BCE1229, VIT Chennai)

1. INTRODUCTION

1.1 Overview

Los Angeles is a city in California and is largely diverse with people from all around the world. As much as the people like being there, it also experiences a wide range of crimes. According to various sources, it is said that Los Angeles experiences an 11% increase in its overall crime rate in 2022 which includes both violent crimes as well as physical crimes. Our project, "Los Angeles Crime and Arrest Report Analysis" uses a business intelligence tool to analyze the crime and arrest rate in order to spot trends, patterns, and relationships with various characteristics and also allows us to find various other insights.

1.2 Purpose

The main purpose of this project is to analyze the dataset and to identify the types of crimes committed, which locations are the most unsafe, during which time most crimes occur, and various other insights from it. This project aims to provide awareness for the overall safety of the society by analyzing the crime and arrest dataset.

## 2. LITERATURE SURVEY

2.1 Existing problem

Los Angeles being a diverse metropolitan area has higher crime rates compared to some other cities in the United States. It has a crime index of 52.2 which makes it neither safe nor dangerous. The city has struggled with homelessness and related problems, which can affect crime rates and public safety.

2.2   Proposed solution

To assess the situation in Los Angeles, we are going to analyze the crime and arrest rate in LA using Tableau and aim to address the safety concerns in the whole city.

3. THEORETICAL ANALYSIS

3.1   Block Diagram
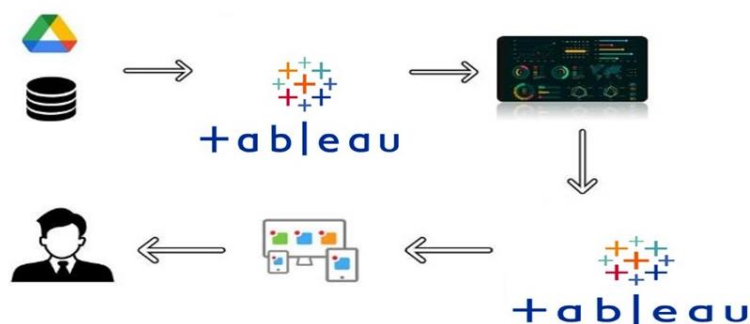
## 3.2   Hardware/ Software Designing
Hardware Designing: - NA
Software Designing: - VSCode, Tableau, Flask

4. EXPERIMENTAL INVESTIGATIONS

We analyzed both datasets, crime, and arrest datasets, using Tableau with various different visualization and lastly embedding it with Flask. We will discuss a few visualizations from our project.

- From the crime report story, the first three visualizations in the first scene are based on Year, Month, and Day Wise. From those visualizations, we can conclude that the total number of crimes is decreasing till 2019 and the crime rate is consistent throughout the whole year. Crime Rate peaks on Friday.

- 77th Street is the most dangerous place with 137513 crimes being committed there and amongst all the premises, the probability of crime occurring in the street is very high.

- Battery- Simple Assault occurs the most among all the crimes.

- Most Victims of most crimes are Male and mostly Hispanic/Latin/Mexican ethnic group

- Most crimes committed use bodily force to commit it.

- Now after analyzing the arrest report story, we can conclude that the number of arrests was also declining till 2019. The arrest rate drops on Monday.

- District no.1412 has the most reports. Places with zipcode,23446, and the Central area has the most arrest made.

- Council District 9 has the highest arrest count.

- Miscellaneous other violation charge group has the most number of arrests made while charges which were mostly made were drunk driving and drinking in public.
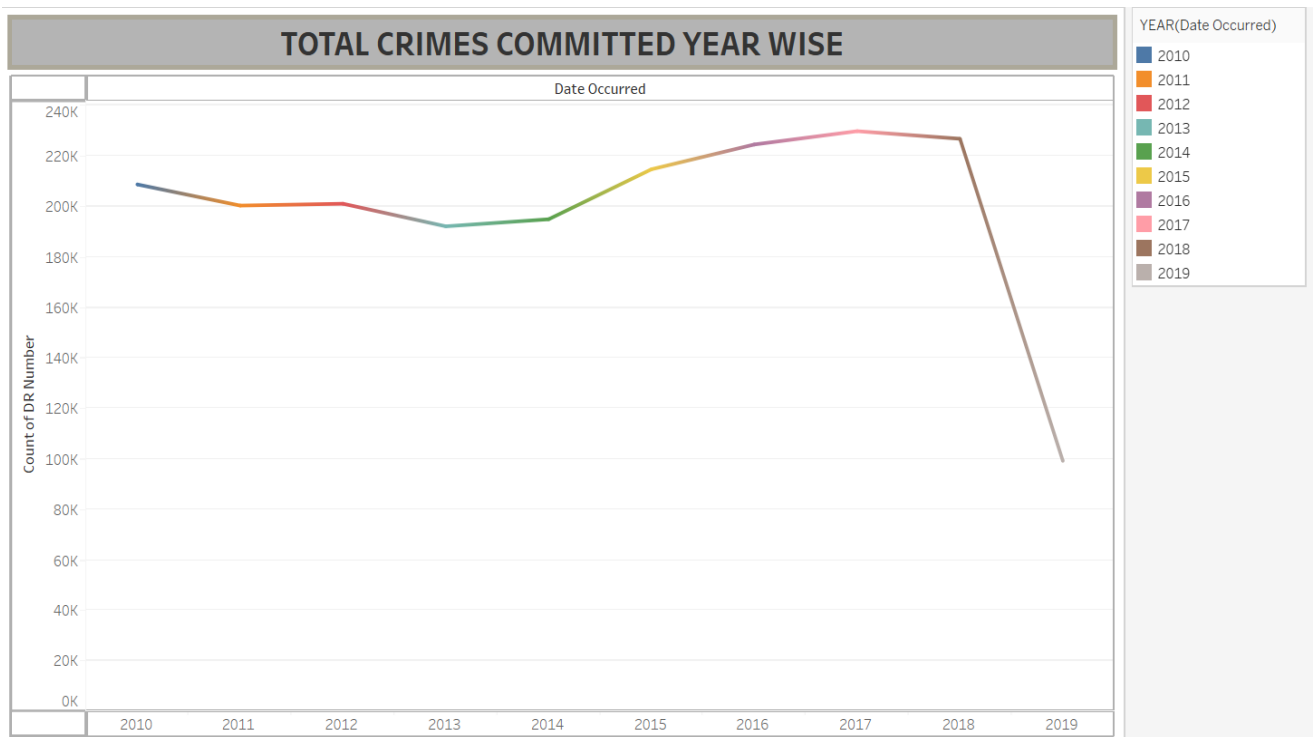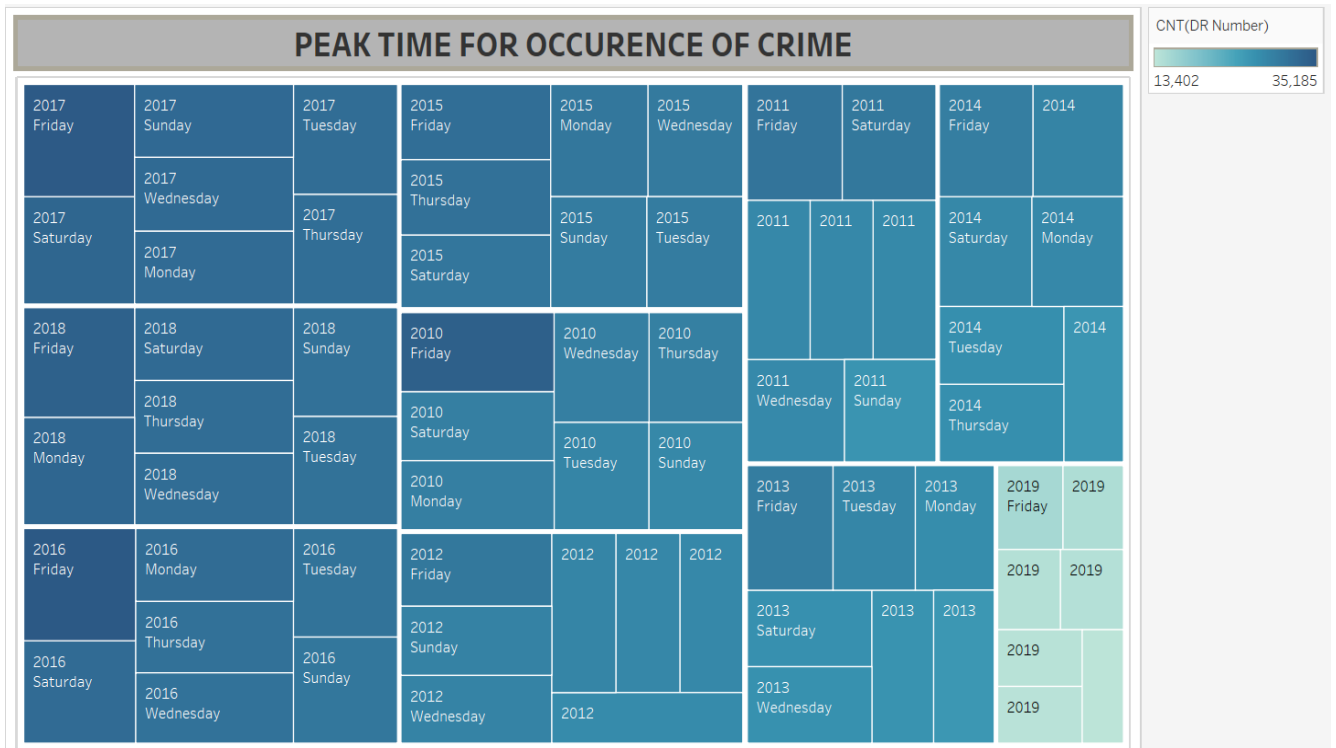
5. FLOWCHART
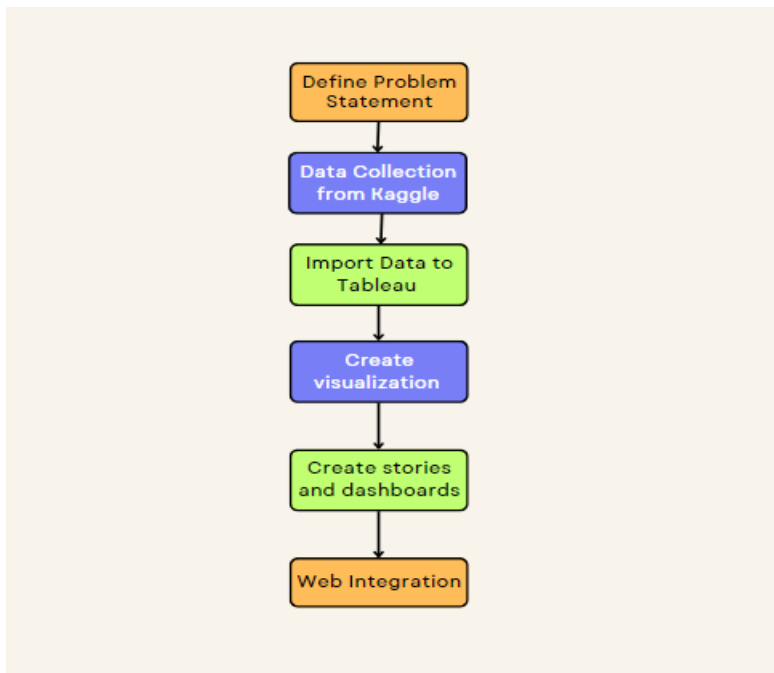
6. RESULTS

Visualizations:-

1. Which year has the highest crime count??

Explanation Video:

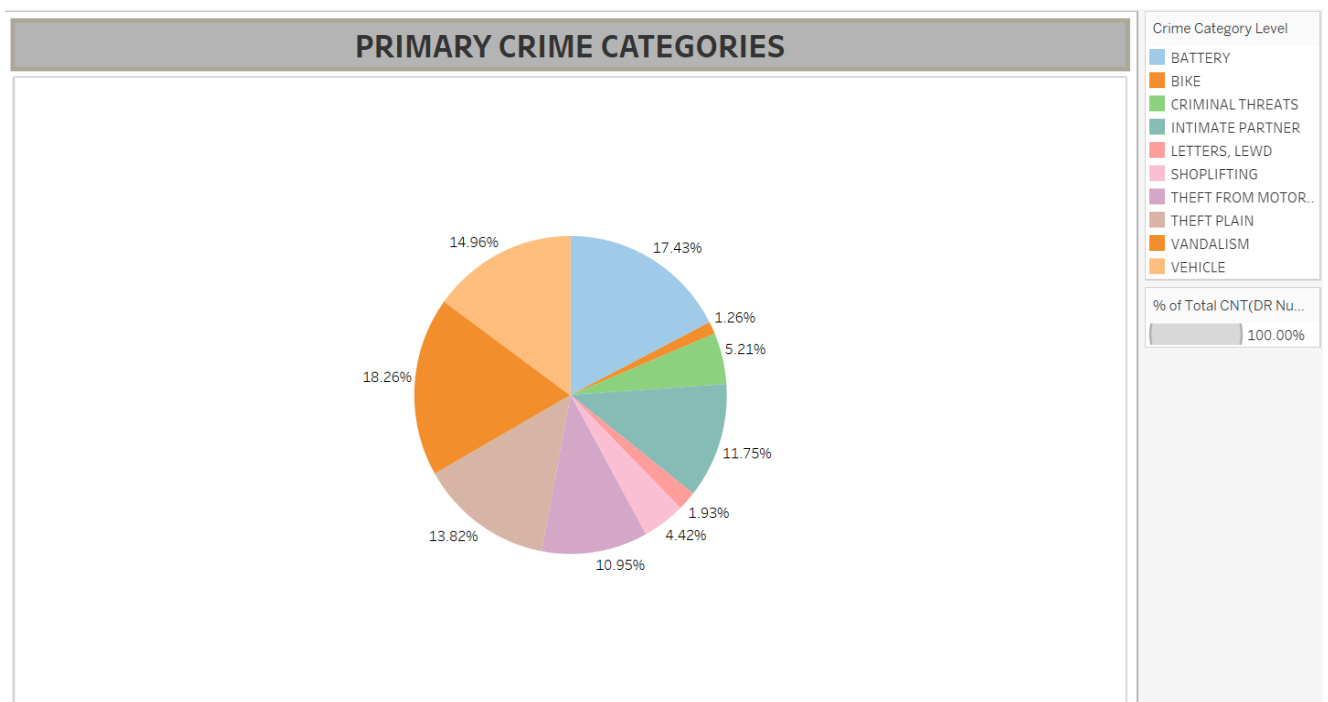https://drive.google.com/file/d/1aib4zq2RRfRZ9M8_klqFIZlbRNu0pG1_/view?usp=sharing

2. What is peak time for occurrence of crimes?

Explanation Video:

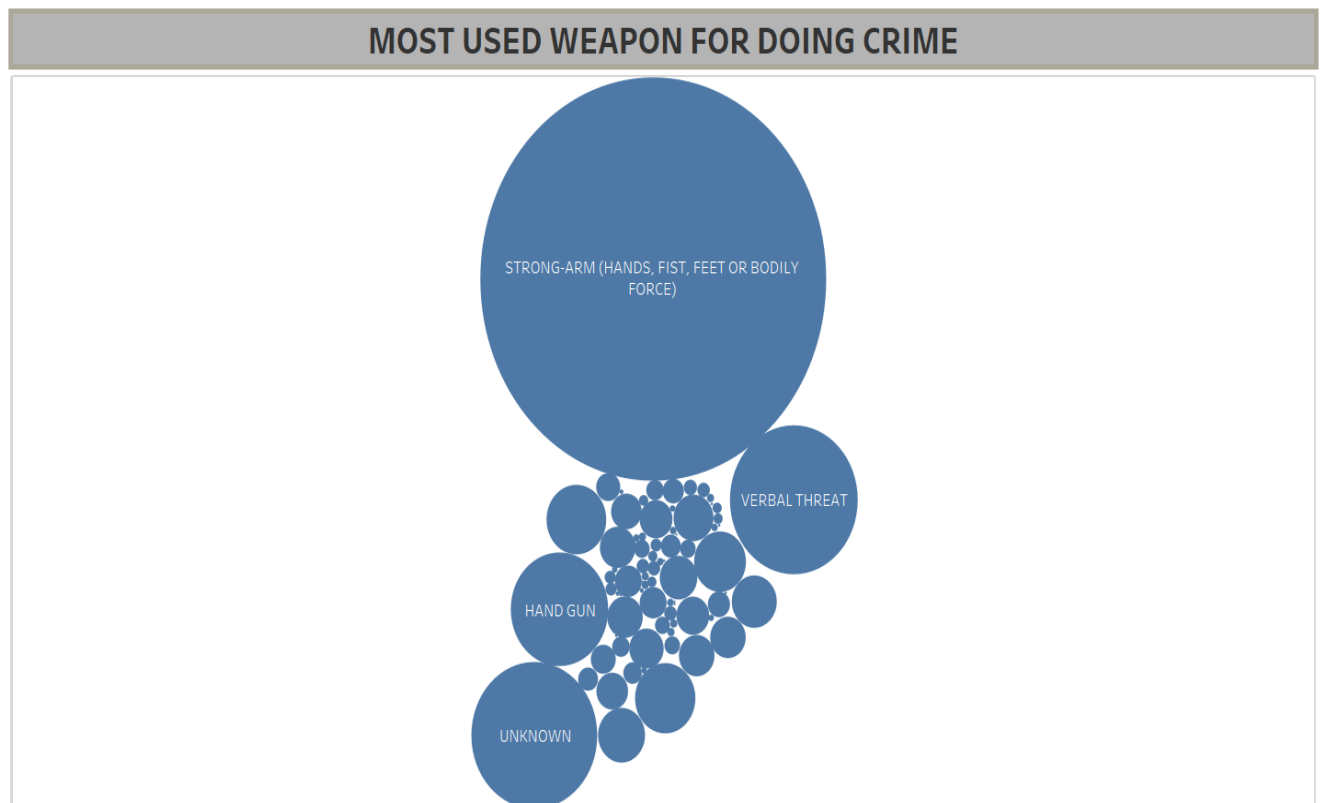https://drive.google.com/file/d/1xi1pC7xHQBgabcyETL1XXwc5Cg3Jz9oO/view?usp=sharing

3. What are the primary categories of crime?

Explanation Video:
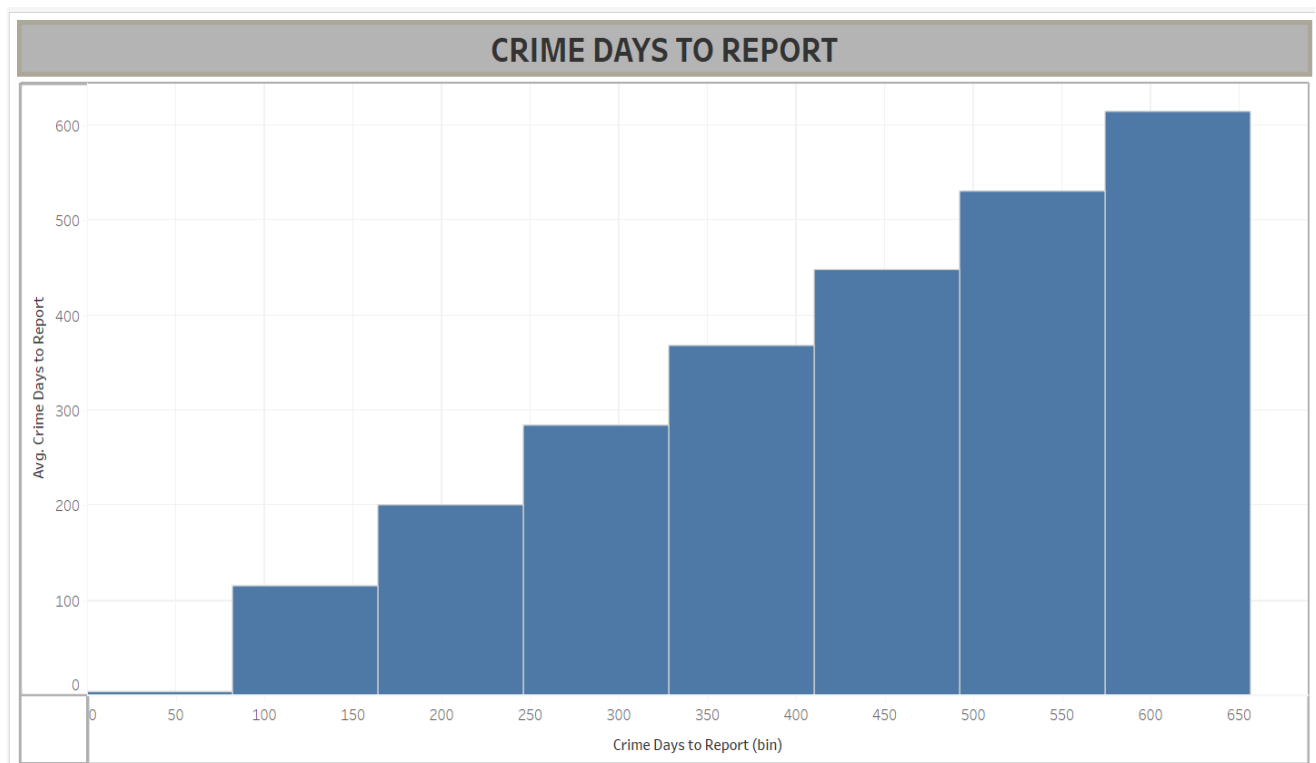https://drive.google.com/file/d/1aPDV6sbu9Fa6fXrq7TxHxQ5tKX_319oN/view?usp=sharing

4. Which weapon is often used for doing crimes?

MOST USED WEAPON FOR DOING CRIME

Explanation Video:
https://drive.google.com/file/d/11sOSzGuK_wfQcCgVl_IYx8_pvuKbVr8L/view?usp=sharing
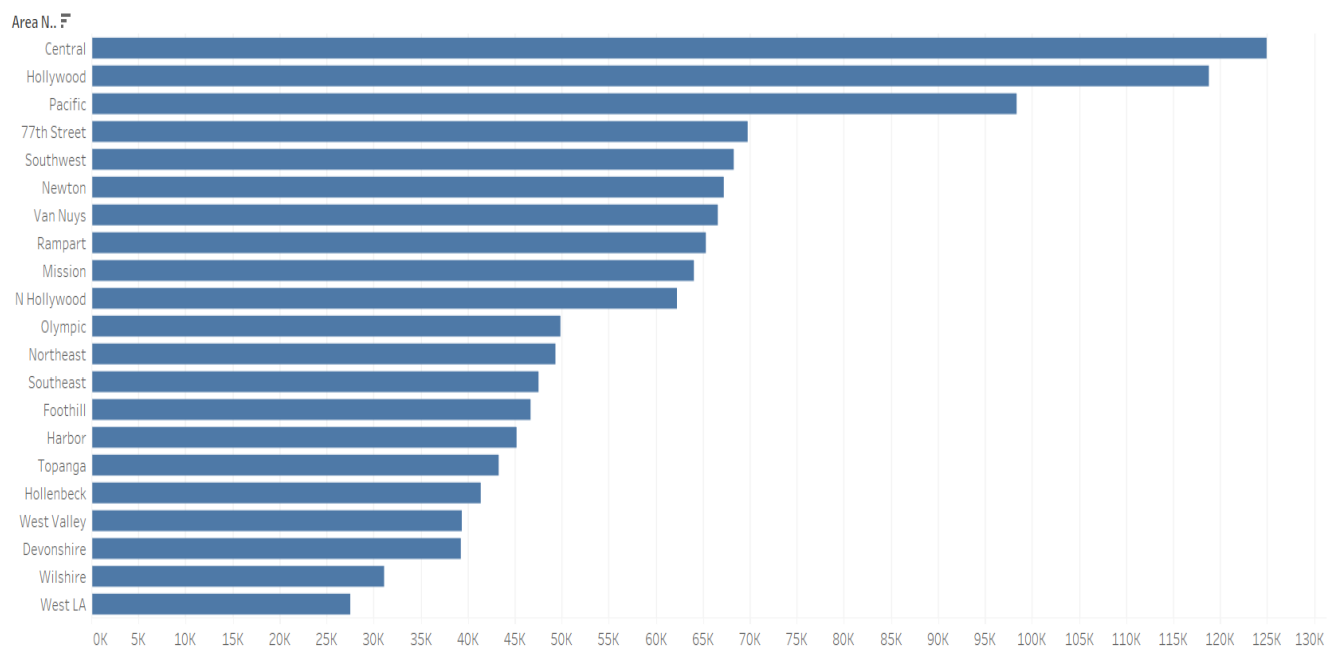
5. How many days it took to report a crime?

CRIME DAYS TO REPORT

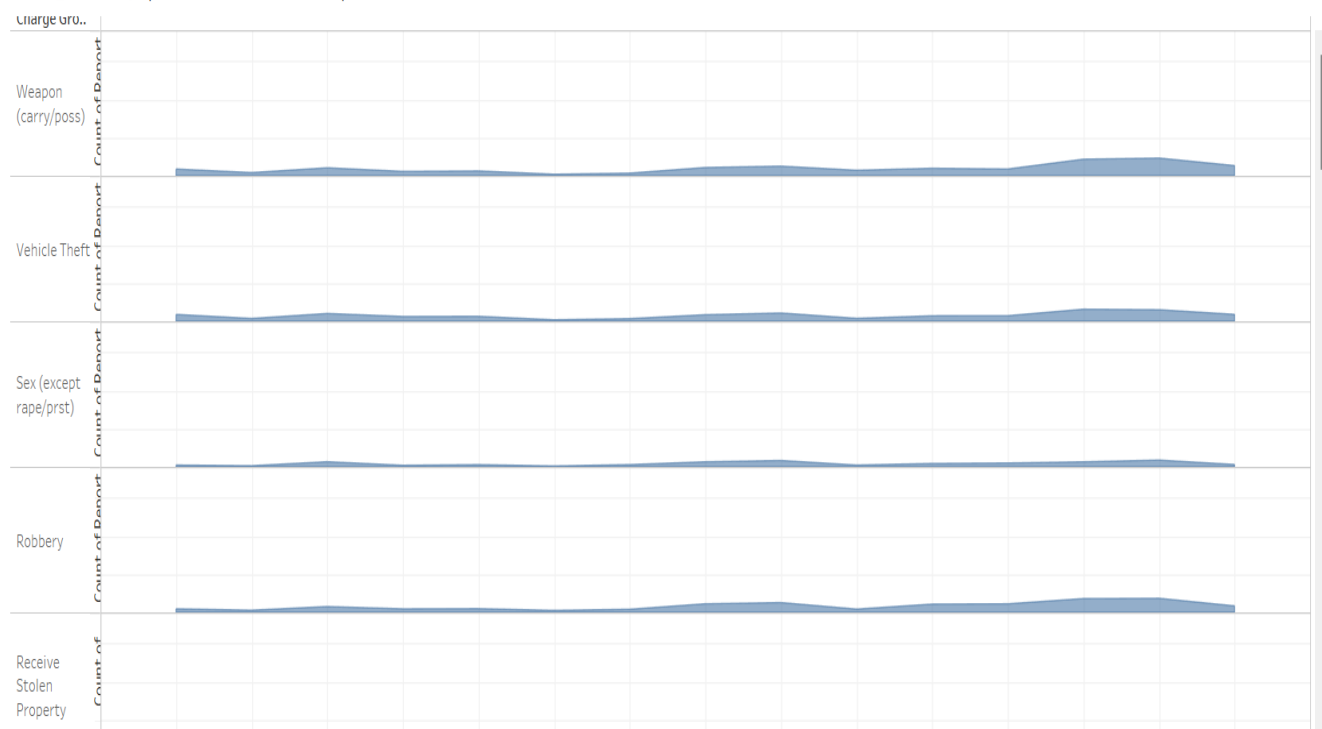Explanation Video:

6. In which area more arrests are made?

Area Wise - Arrest Count

Explanation Video: https://drive.google.com/file/d/1cxu5-nxelzQZ8VayA-Ris-oEtDm0uAsh/view?usp=sharing

7. What are the charges made with respect to District wise?
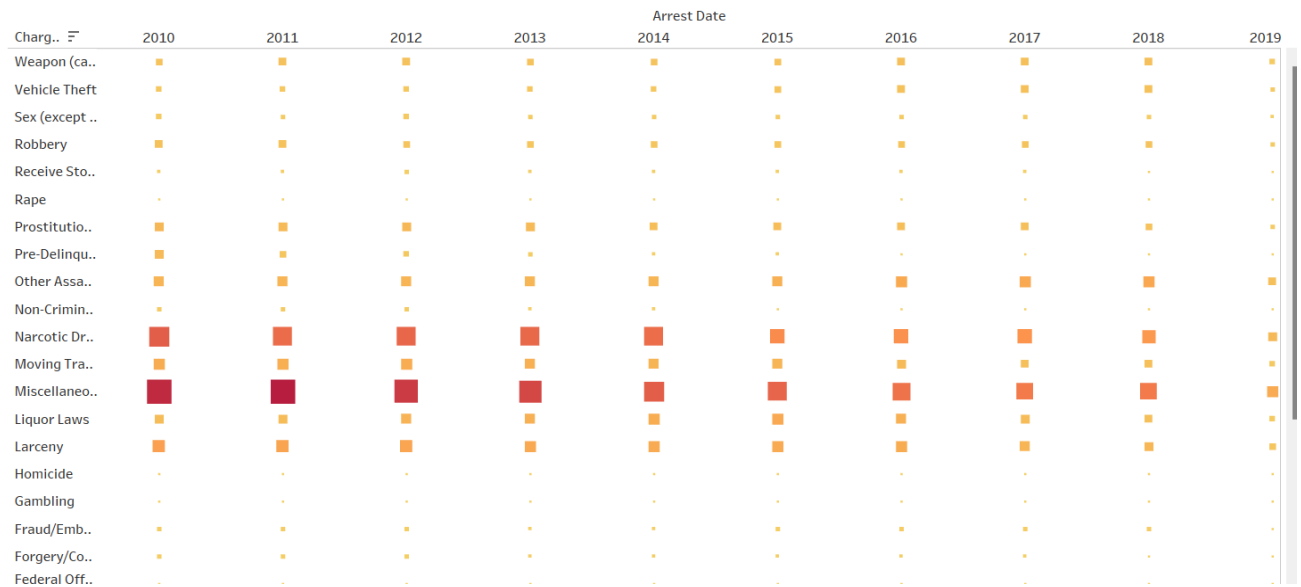
Charge Group (Council DistrictWise) - Arrest Count

Explanation Video:
https://drive.google.com/file/d/1pGm5I3NgZ_g41mh1SZHXPkmUeNX4sL-o/view?usp=sharing

8. What are the type of charges which has highest arrests year wise?

Charge Group (Year Wise) - Arrest Count

| Charg..	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Weapon (ca..	■	■	■	■	■	■	■	■	■	▪
Vehicle Theft	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Sex (except ..	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Robbery	■	■	■	■	■	■	■	■	■	▪
Receive Sto..	·	·	▪	·	·	·	·	·	·	·
Rape	·	·	·	·	·	·	·	·	·	·
Prostitutio..	■	■	■	■	■	■	■	■	■	▪
Pre-Delinqu..	■	■	■	▪	▪	·	·	·	·	·
Other Assa..	■	■	■	■	■	■	■	■	■	■
Non-Crimin..	▪	■	■	▪	·	·	·	·	·	·
Narcotic Dr..	■	■	■	■	■	■	■	■	■	■
Moving Tra..	■	■	■	■	■	■	■	■	■	▪
Miscellaneo..	■	■	■	■	■	■	■	■	■	■
Liquor Laws	■	■	■	■	■	■	■	■	■	▪
Larceny	■	■	■	■	■	■	■	■	■	▪
Homicide	·	·	·	·	·	·	·	·	·	·
Gambling	·	·	·	·	·	·	·	·	·	·
Fraud/Emb..	▪	▪	▪	▪	·	▪	▪	▪	▪	·
Forgery/Co..	▪	▪	▪	▪	·	▪	·	·	·	·
Federal Off..	·	·	·	·	·	·	·	·	·	·

Explanation Video:

https://drive.google.com/file/d/1LyAWkMmtvWk4lQuPGVr5kK5i2cmVCwf0/view?usp=sharing

9. Which Council District has highest arrest count?
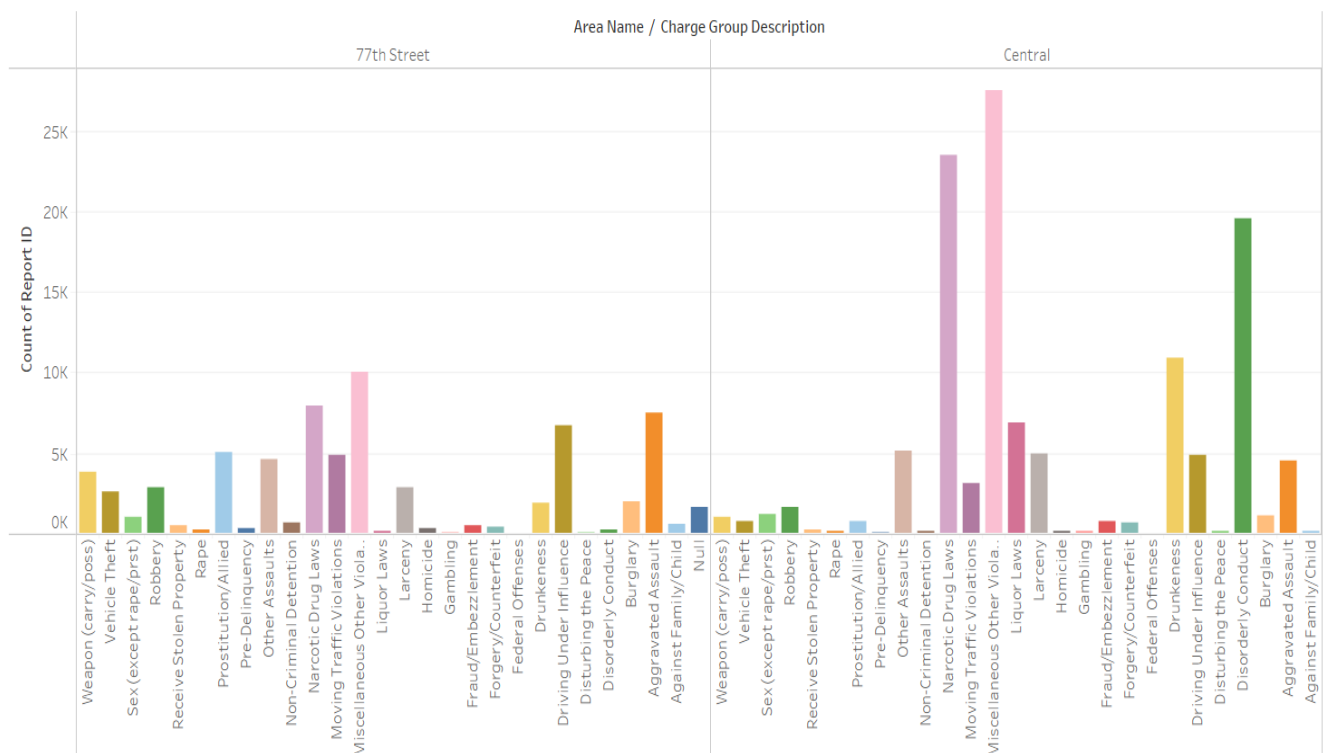
Council District Wise - Arrest Count
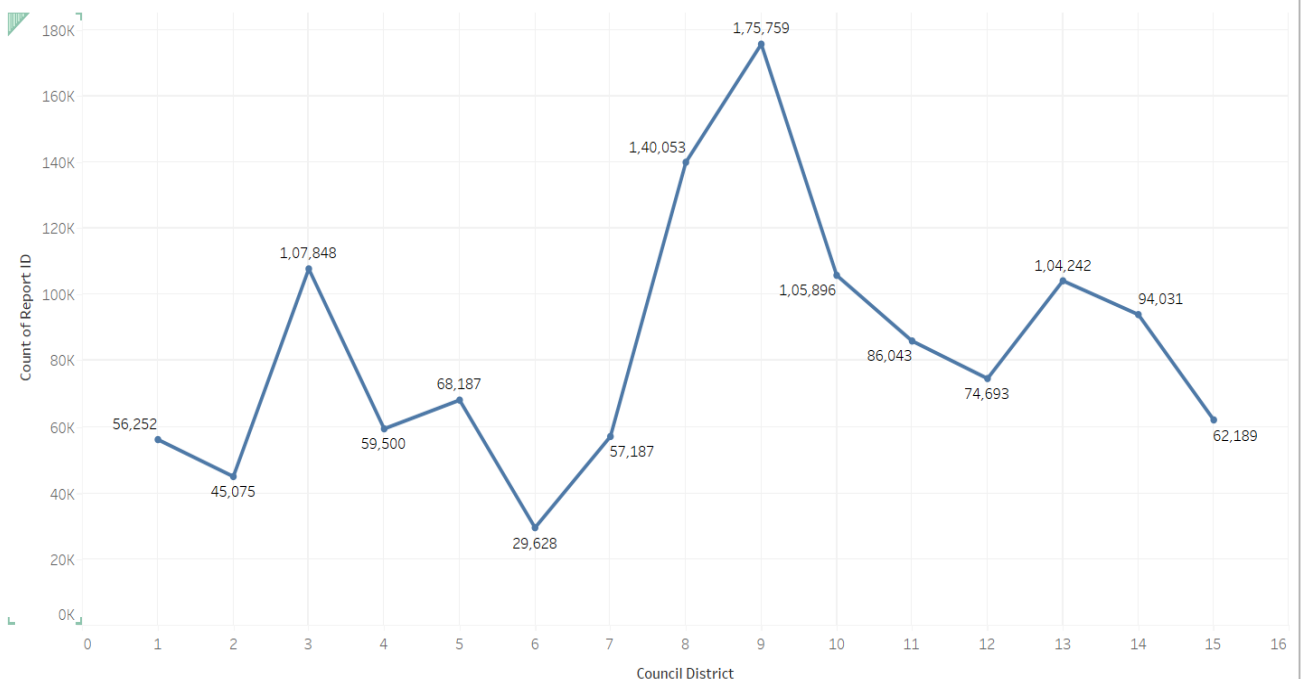
10. Which charge group has highest arrests area wise?

Charge Group (Area Wise) - Arrest Count

Dashboard: -

Los Angeles Crime Report Dashboard:

Explanation Video:

Los Angeles Arrest Report Dashboard:

Explanation Video:

https://drive.google.com/drive/folders/1KjeXYk-3NrAHA6E9cNbJvcxelJBcktac?usp=sharing
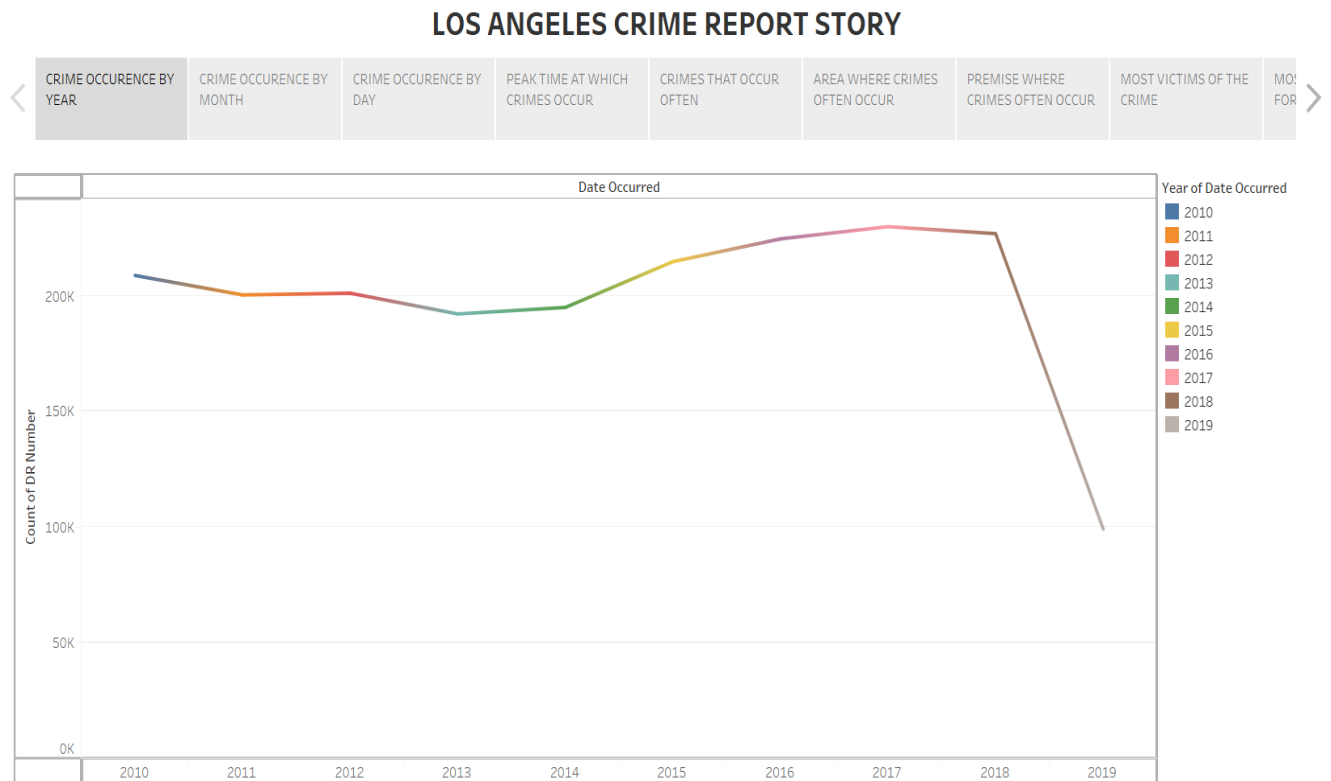
Story: -

Los Angeles Crime Report Story:

LOS ANGELES CRIME REPORT STORY

CRIME OCCURENCE BY YEAR	CRIME OCCURENCE BY MONTH	CRIME OCCURENCE BY DAY	PEAK TIME AT WHICH CRIMES OCCUR	CRIMES THAT OCCUR OFTEN	AREA WHERE CRIMES OFTEN OCCUR	PREMISE WHERE CRIMES OFTEN OCCUR	MOST VICTIMS OF THE CRIME	MO...FOR...

Date Occurred

Year of Date Occurred
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
- 2019
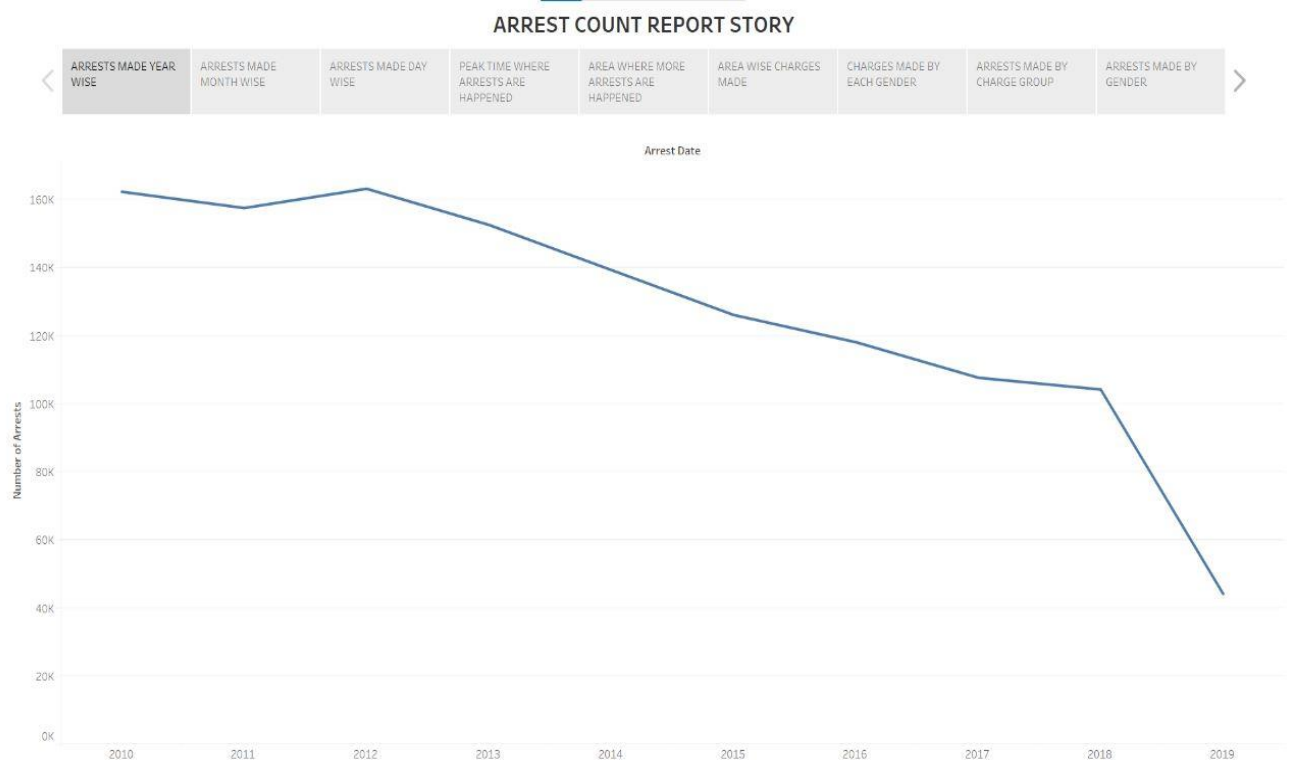
Explanation Video:
https://drive.google.com/file/d/1gMzJ9BVhJG77dLS9Hec1r-wjSoIlt-Ej/view?usp=sharing
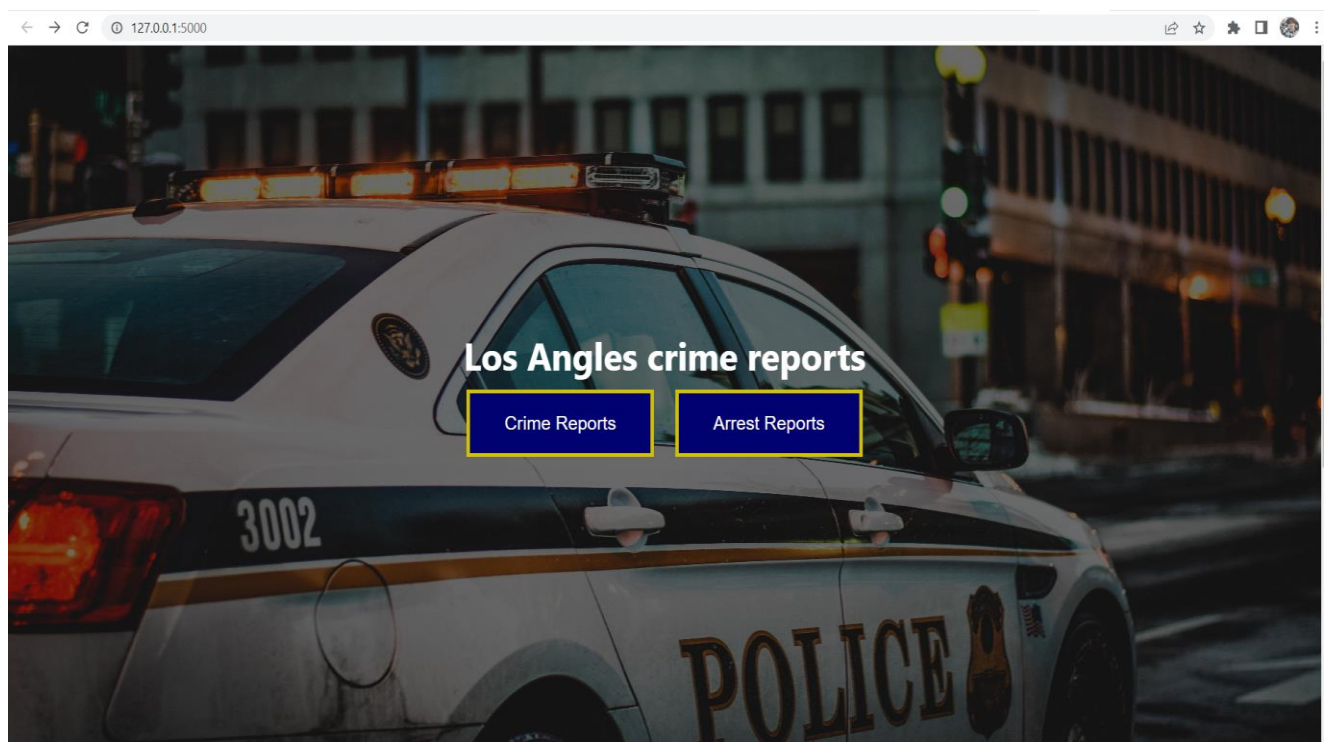
Los Angeles Arrest Report Story:
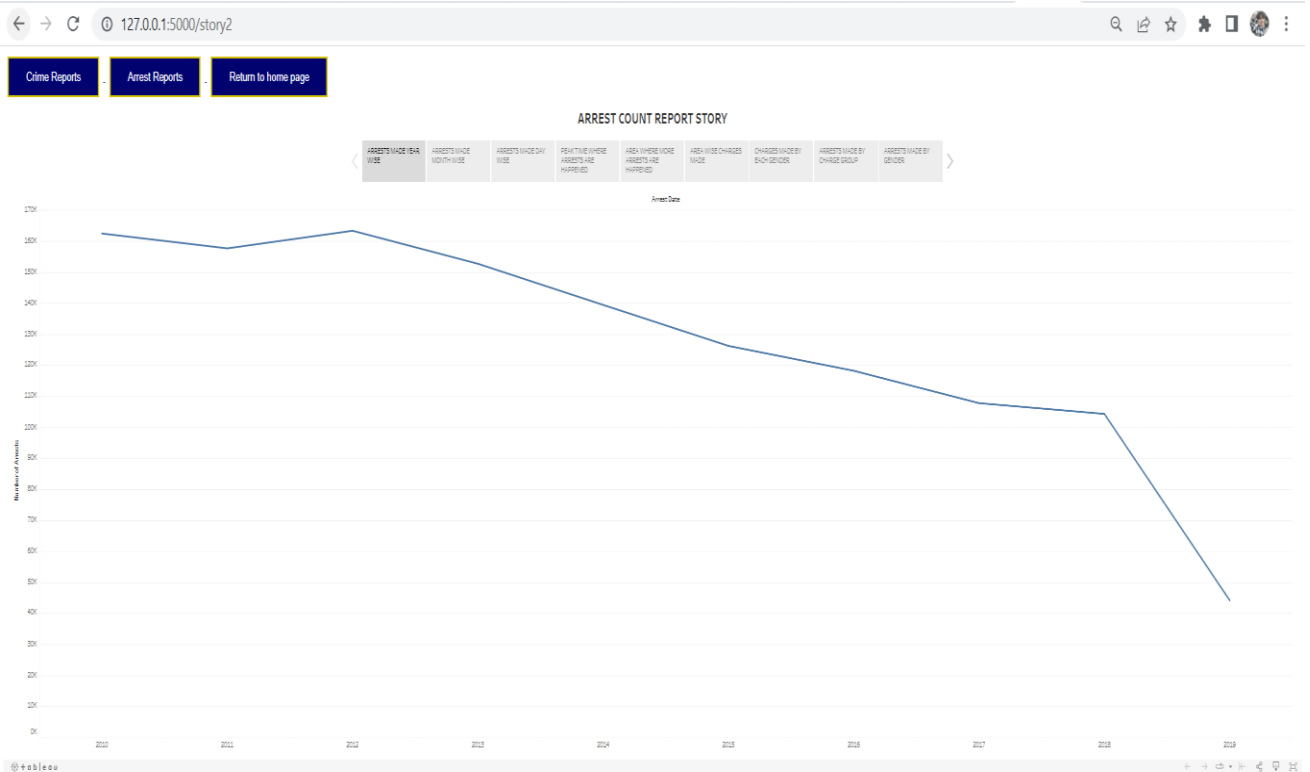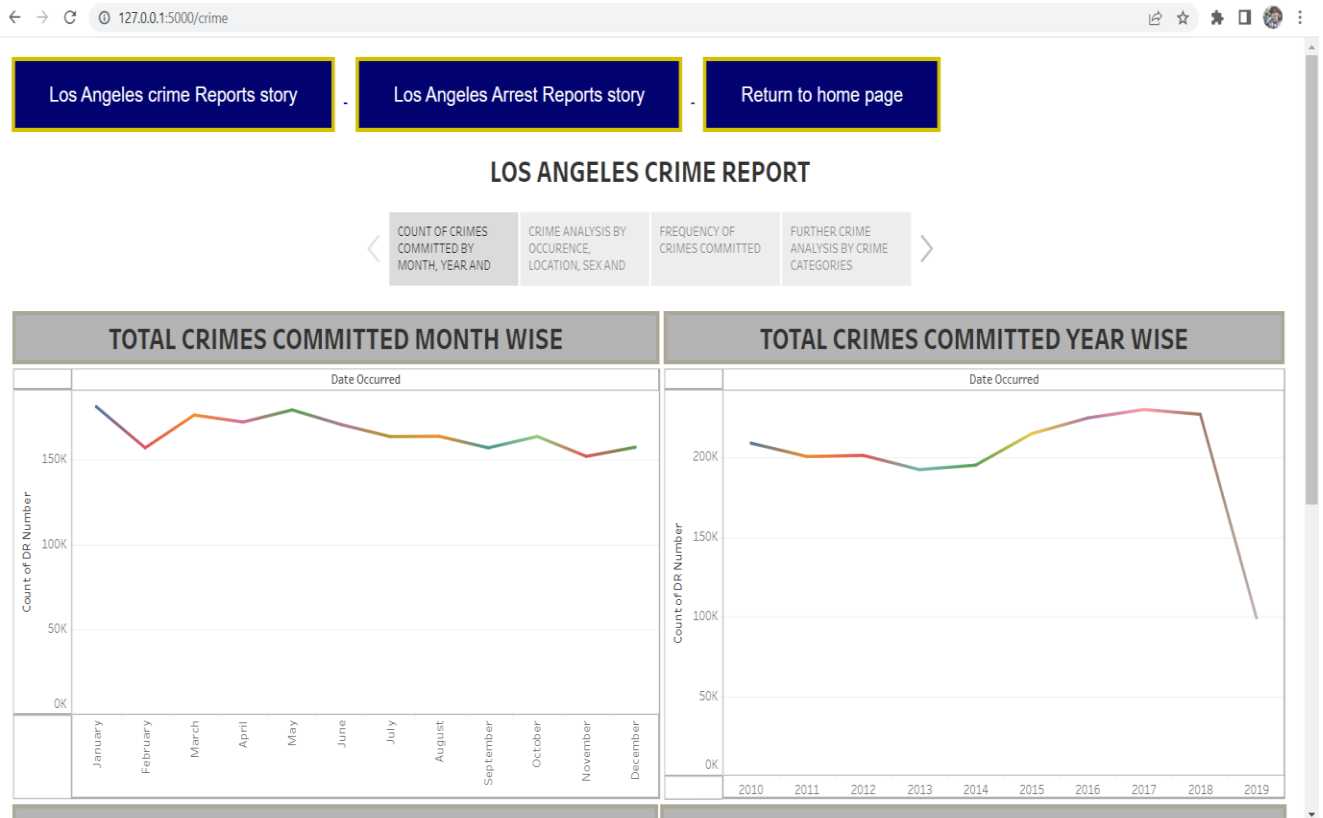
ARREST COUNT REPORT STORY

Explanation Video:

https://drive.google.com/file/d/1Mfpie5Y7Jqa-fWKVS2ippaDfbIGzgLDL/view?usp=sharing

Web-Integration: -

Explanation Video:

https://drive.google.com/file/d/1otnjHzSeYCkuTy7IgTlWlK7EgoMWEqJA/view?usp=sharing

7. ADVANTAGES AND DISADVANTAGES

Advantages: -

- Usage of Tableau brings a lot of advantages along with it which includes
  - Has a user-friendly interface which makes it easy to work with.
  - Can connect to various data sources and can work with multiple platforms.
  - Has the features to make dashboards, stories, and reports
- Flask framework is easy to build web applications.

Disadvantages: -

- The dataset only contains the report till 2019. Therefore, we cannot predict the crime and arrest trends for 2023.
- Loading large datasets into Tableau takes time.

8. APPLICATIONS

With the help of our project, we can spread awareness about the various crimes being committed in different places for the betterment of society.

9. CONCLUSION

From our findings, it can be concluded that the crime rate and arrest rate in Los Angeles was Decreasing until 2019. 77th Street is the most dangerous place till 2019. Most targeted victims are Hispanic/Latin/Mexican ethnic groups and Males. Also, most of the crimes are committed without any weapon (i.e., using bodily force: – arms, legs, etc.). Central has the highest arrest made overall. Most arrest were made against male.

10.   FUTURE SCOPE

In the future, we can work with various data providers to collect real-time datasets to ensure that the data is accurate. We could conduct more research and apply statistical methods for analysis.

11.   BIBLIOGRAPHY

- https://www.tableau.com/
- https://www.kaggle.com/
- https://www.numbeo.com/crime/region_rankings.jsp?title=2023&region=019
- https://www.usatoday.com/story/news/2023/03/20/los-angeles-crime-rates-map-safest-neighborhoods/11032761002/

12.   APPENDIX

GitHub link: -
https://github.com/vign2020/Smart-internz-DA-project.git

GDrive link: -
https://drive.google.com/drive/folders/1lnmp_1bs2KI8TspUN-KZI6NWVU18wE3M?usp=sharing