
Tableau Training

Course-End Project Problem Statement



Course-End Project: Crime Analysis

Problem Scenario: Crime analysis is important for law-and-order maintenance at any place. It helps the police department and law enforcement agencies to identify patterns of crime, which is crucial for the effective planning of a crime prevention program. The purpose of crime data analysis is to support the operations of the police department, like criminal investigation, apprehension, prosecution, and development of crime prevention and reduction strategies.

Problem objective: As a data scientist, you should prepare a dashboard to keep the police department and the city updated on the statistics of crime events. You are required to create a dashboard/story using Tableau for the communication website. Pay attention to data storytelling.

Note: Download ***Crime data*** from the course resource section in the LMS.

Variable Description:

ID	Indicates the unique identifier for the record
Case Number	Indicates the police department's case number, which is unique to the incident
Date	Indicates the date when the incident occurred. This is sometimes the best estimate
Block	Is the partially redacted address where the incident occurred, placed on the same block as the actual address
UCR	Is the Uniform Crime Reporting code, which directly linked to the Primary Type and Description
Primary Type	Is the primary description of the UCR code
Description	Indicates the secondary description of the UCR code, a subcategory of the primary description
Location Description	Is the description of the location where the incident occurred
Arrest	Indicates whether an arrest was made
Domestic	Indicates whether the incident was domestic
Beat	Indicates the beat where the incident occurred, and the beat is the smallest police geographic area

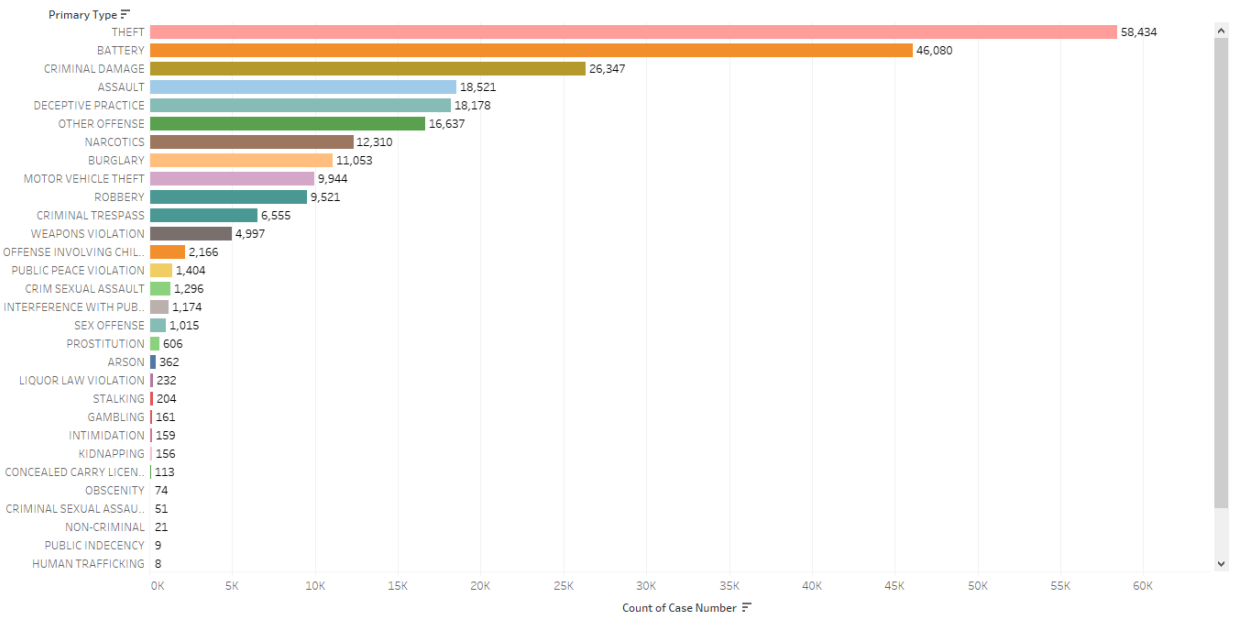
District	Indicates the police district where the incident occurred
Ward	Indicates the ward (city council district) where the incident occurred
Community Area	Indicates the community area where the incident occurred
NIC Code	Indicates the crime classification as National Incident Code
X Coordinate	Indicates the x coordinate of the location, where the incident occurred in the state plane
Y Coordinate	Indicates the y coordinate of the location, where the incident occurred in state plane
Year	Indicates the year the incident occurred
Updated On	Indicates the date and time the record was last updated
Latitude	Indicates the latitude of the location, where the incident occurred
Longitude	Indicates the longitude of the location, where the incident occurred
Location	Indicates the location, where the incident occurred in a format that allows for the creation of maps and other geographic operations on this data portal

Steps to perform:

1. Overall Crime Statistics Dashboard:

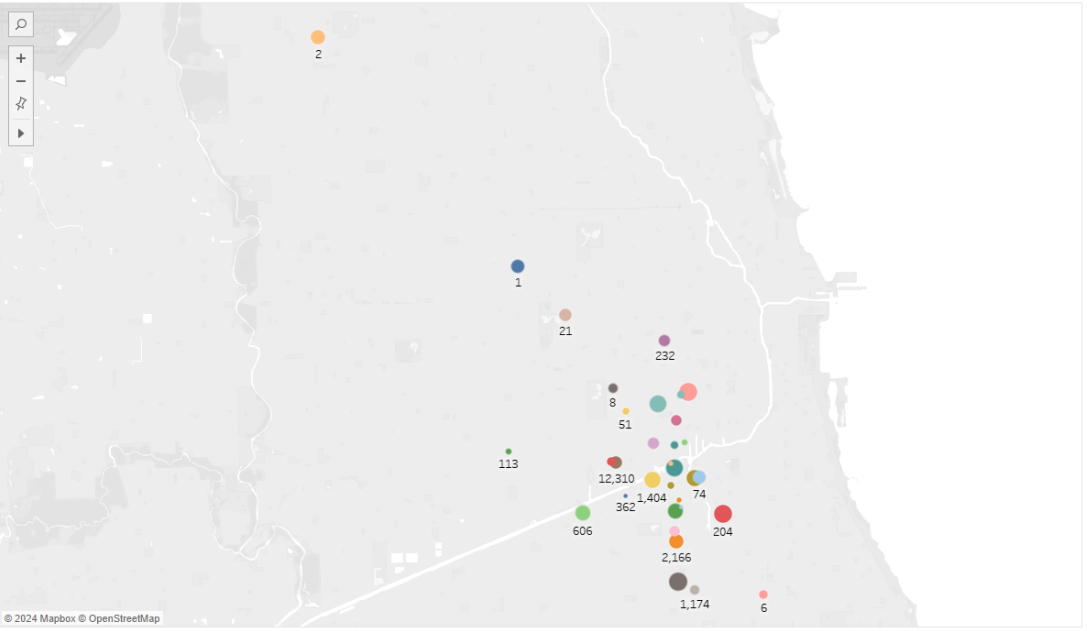
1. For personnel and resource management, the department needs to understand the count and types of crimes reported across the city. Mark the locations on a geo-map highlighting the locations with recent criminal history.
2. Identify the most common criminal incidents reported.
3. In this introductory dashboard, include a live crime feed to exhibit the total number of crimes reported to date for the current year and the most recently reported crime with their time and locations.

most common criminal incidents

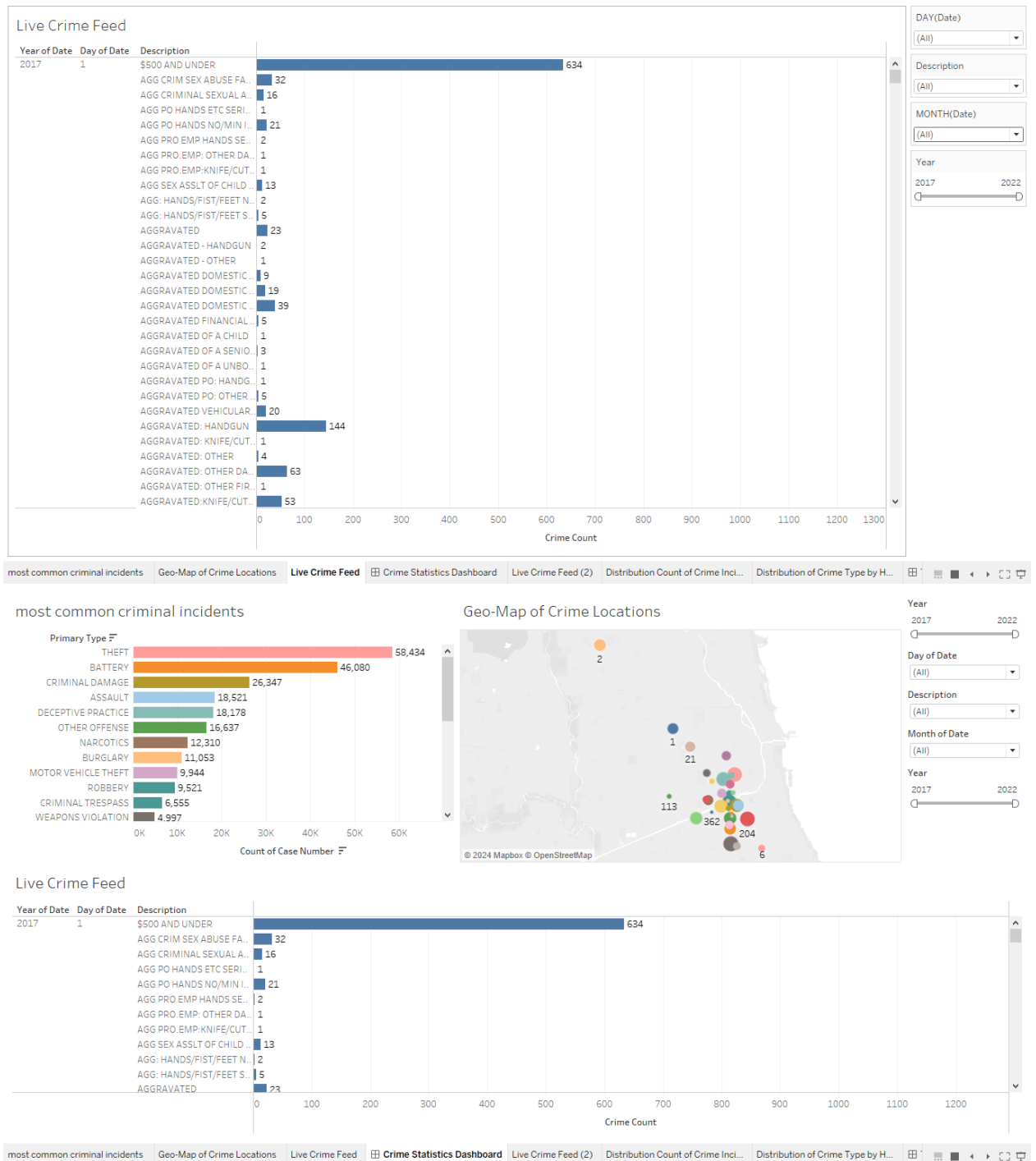


most common criminal incidents Geo-Map of Crime Locations Live Crime Feed Crime Statistics Dashboard Live Crime Feed (2) Distribution Count of Crime Inci... Distribution of Crime Type by H...

Geo-Map of Crime Locations



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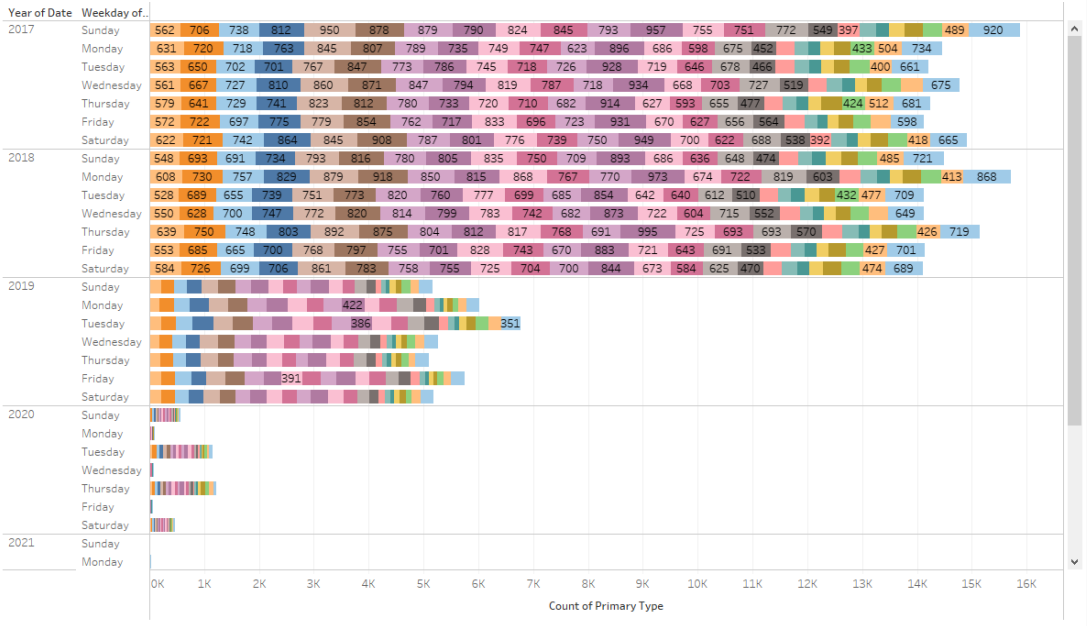


2. Time Period Analysis Dashboard:

Along with locations, the study of crime statistics across time statistics is also crucial for understanding the patterns and planning those preventive strategies.

- Study distribution count of crime incidents across different time periods such as day of the week or hour.
- Further explore the percentage of incident reporting for several time blocks (afternoon, evening, early morning, etc.).

Distribution Count of Crime Incidents Across Different Time Periods



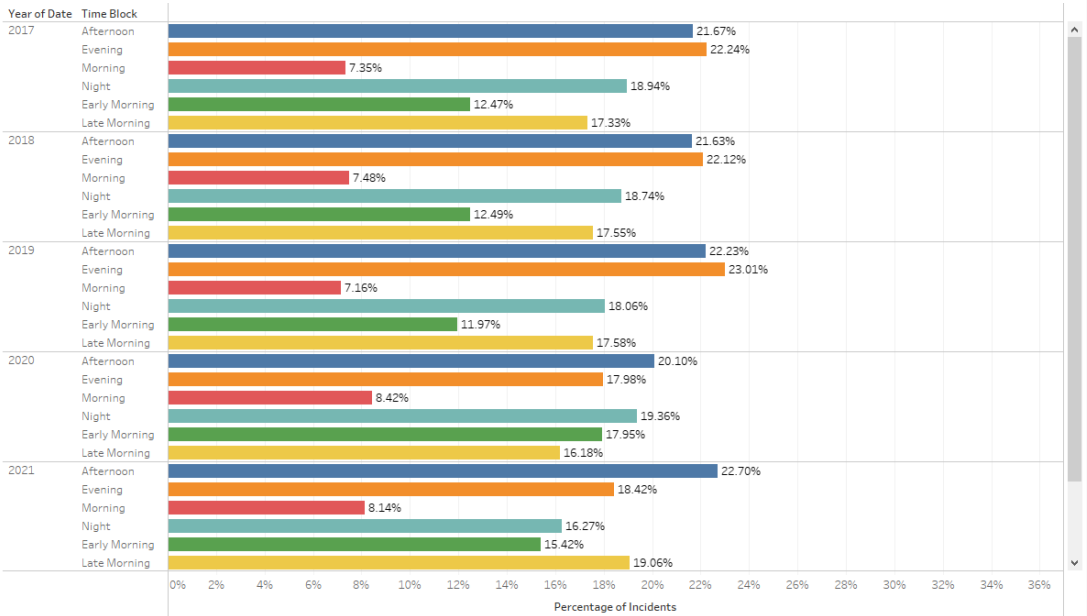
HOUR(Date)
(All)

WEEKDAY(Date)
(All)

YEAR(Date)
(All)

most common criminal incidents Geo-Map of Crime Locations Live Crime Feed Crime Statistics Dashboard Live Crime Feed (2) Distribution Count of Crime Inc... Distribution of Crime Type by H...

Distribution of Crime Type by Hour



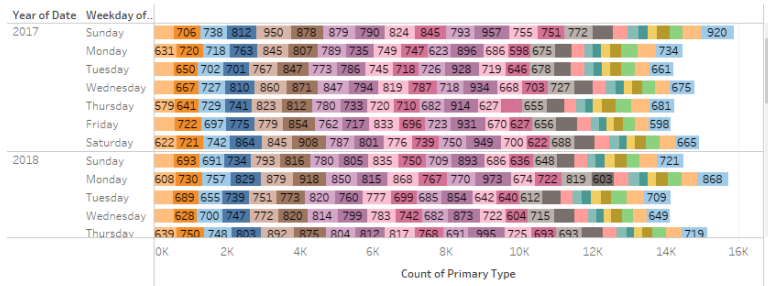
Time Block
(All)

YEAR(Date)
(All)

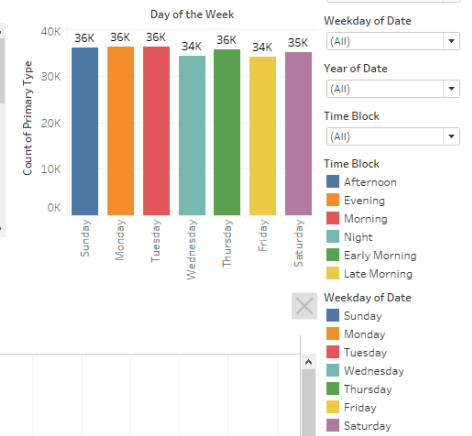
Time Block
Afternoon
Evening
Morning
Night
Early Morning
Late Morning

most common criminal incidents Geo-Map of Crime Locations Live Crime Feed Crime Statistics Dashboard Live Crime Feed (2) Distribution Count of Crime Inc... Distribution of Crime Type by ...

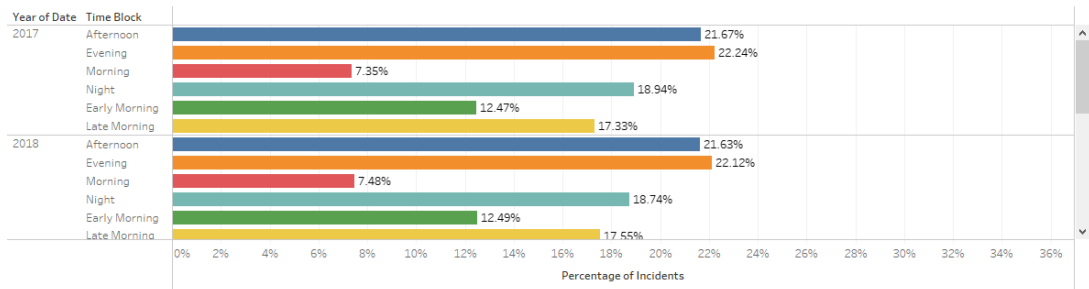
Distribution Count of Crime Incidents Across Different Time Periods



crime as day of the week

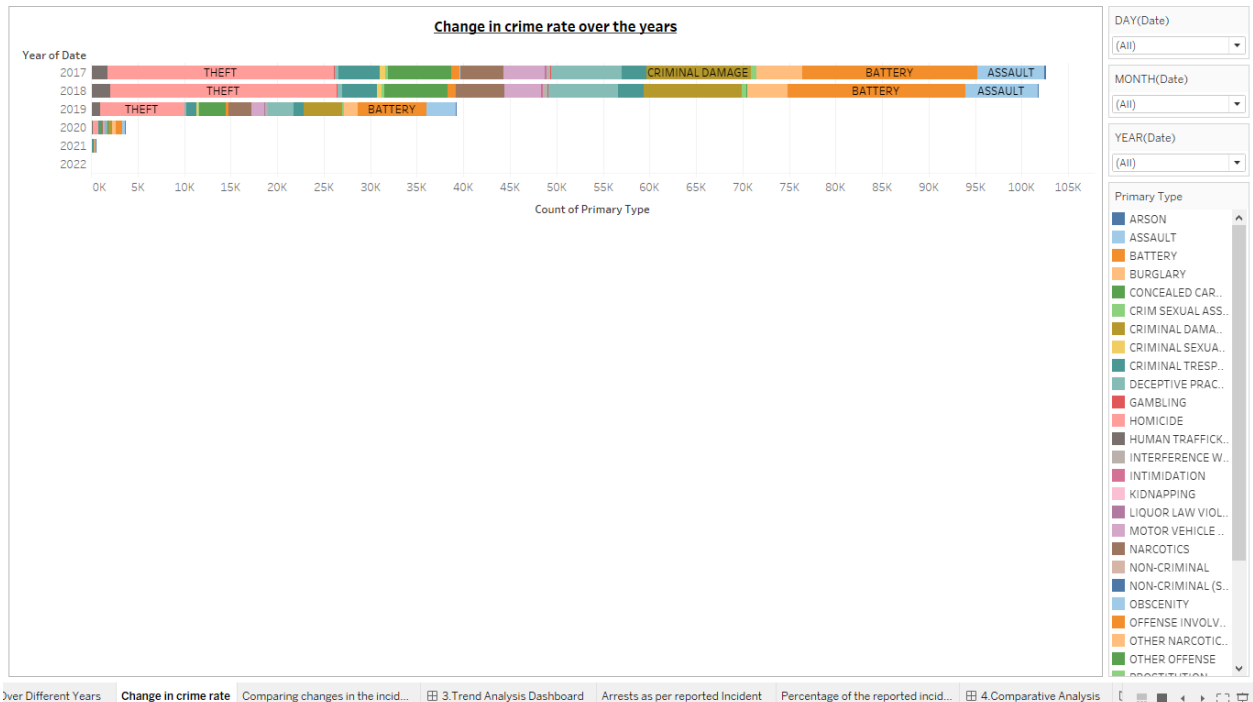


Distribution of Crime Type by Hour



3. Trend Analysis Dashboard:

1. Create a dashboard to study the change in crime rate over different years.
2. Compare the change in the incident reporting over the years for the same date and time.





4. Comparative Analysis:

1. Study the distribution of incidents reported where an arrest was made vs. not.
2. Identify what percentage of the reported incidents under each incident category are domestic.

Arrests as per reported Incident

Primary Type	Arrest	
	False	True F
NARCOTICS	8	12,302
BATTERY	36,333	9,747
THEFT	52,625	5,809
CRIMINAL TRESPASS	2,802	3,753
WEAPONS VIOLATION	1,389	3,658
OTHER OFFENSE	13,009	3,628
ASSAULT	15,334	3,187
CRIMINAL DAMAGE	24,781	1,566
INTERFERENCE WITH PUB.	57	1,117
PUBLIC PEACE VIOLATION	448	956
DECEPTIVE PRACTICE	17,367	811
ROBBERY	8,780	741
MOTOR VEHICLE THEFT	9,290	654
PROSTITUTION		606
BURGLARY	10,554	499
OFFENSE INVOLVING CH.	1,881	285
LIQUOR LAW VIOLATION		232
SEX OFFENSE	833	182
GAMBLING		161
CONCEALED CARRY LICEN.	5	108
CRIM SEXUAL ASSAULT	1,212	84
OBSCENITY	10	64
ARSON	321	41
STALKING	181	23
KIDNAPPING	146	10
INTIMIDATION	149	10
PUBLIC INDECENCY		9
HOMICIDE		6
CRIMINAL SEXUAL ASSAU.	49	2
OTHER NARCOTIC VIOLAT.	1	1
HUMAN TRAFFICKING	7	1
NON-CRIMING (SUBJECT ...	1	

AGG(Arrest not made)

0	52,625
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AGG(Arrest Made)

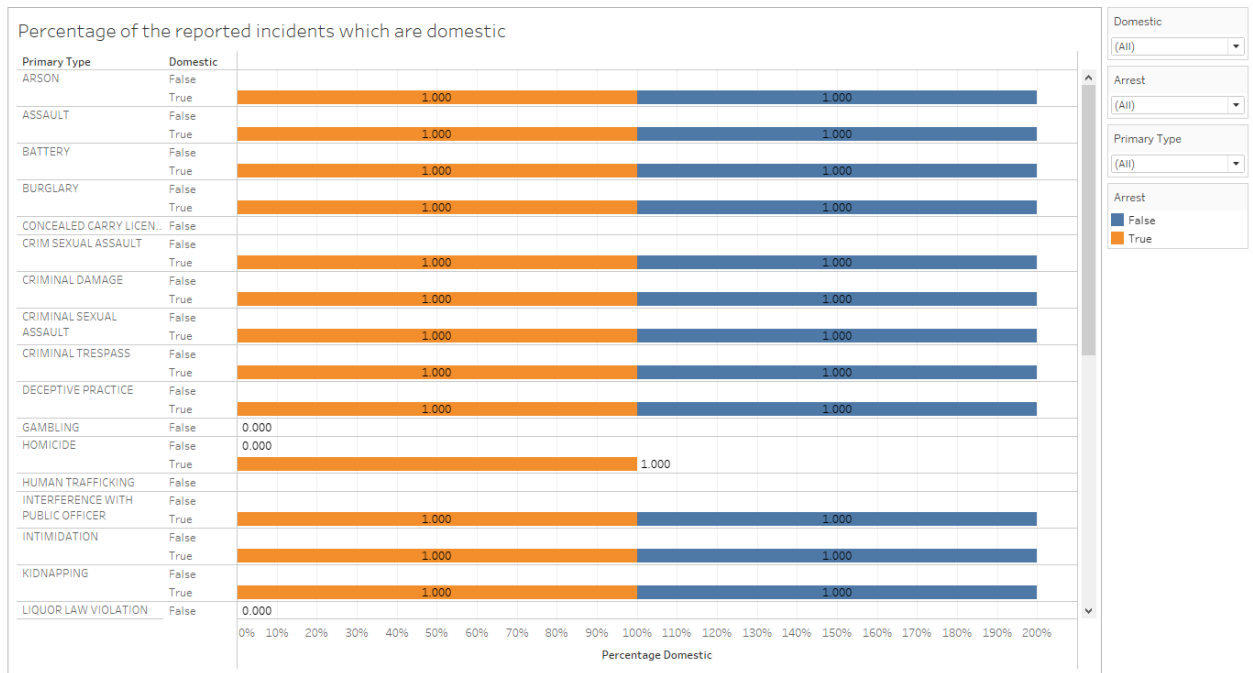
0	12,302
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Arrest

☒ (All)

☒ False

☒ True

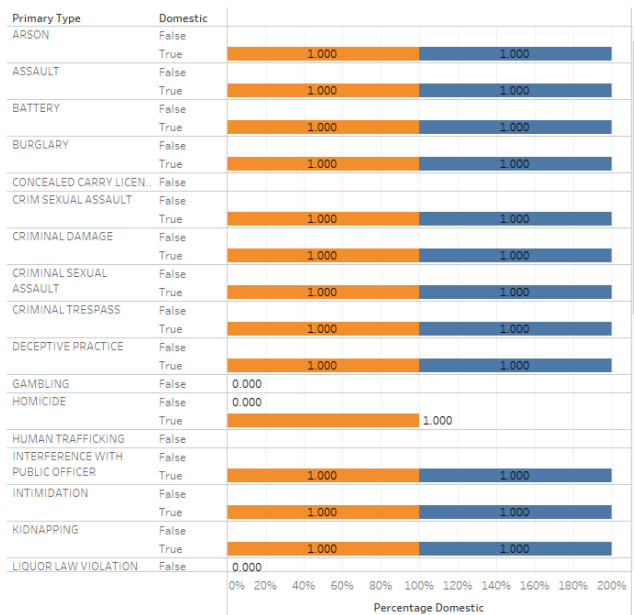


Over Different Years Change in crime rate Comparing changes in the incid... 3.Trend Analysis Dashboard Arrests as per reported Incident Percentage of the reported inc... 4.Comparative Analysis

Arrests as per reported Incident

Primary Type	False	True
CRIMINAL TRESPASS	2,802	3,753
WEAPONS VIOLATION	1,339	3,658
OTHER OFFENSE	13,009	3,628
ASSAULT	15,334	3,187
CRIMINAL DAMAGE	24,781	1,566
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OTHER NARCOTIC VIOLAT..	1	1
HUMAN TRAFFICKING	7	1
NON-CRIMINAL (SUBJECT ..		1
NON-CRIMINAL	21	

Percentage of the reported incidents which are domestic



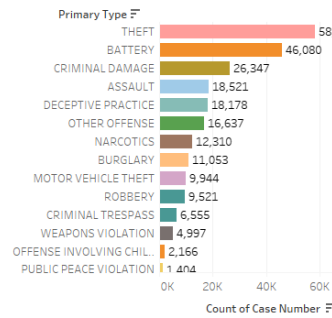
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- To make the dashboard interactive, provide filters for incident type and location in these dashboards for a granular study.

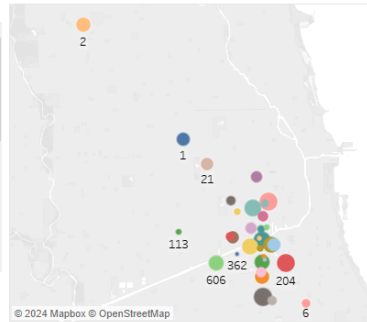
Crime Analysis Story

< In this introductory dashboard, includes Most common crimes. Time Period Analysis Trend and comparison of the trend through various years. Arrest made and details of domestic report. >

most common criminal incidents



Geo-Map of Crime Locations



Year
2017 2022
Day of Date
(All)
Description
(All)
Month of Date
(All)
Year
2017 2022

Live Crime Feed

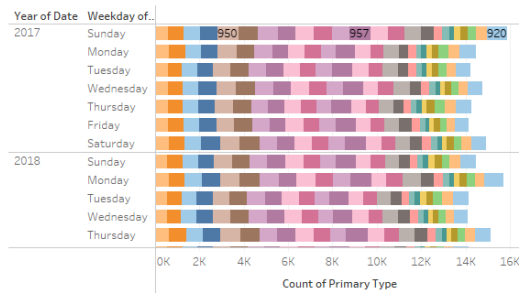
Year of Date	Day of Date	Description	
2017	1	\$500 AND UNDER	634
		AGG CRIM SEX ABUSE FA..	32
		AGG CRIMINAL SEXUAL A..	16
		AGG PO HANDS ETC SERI..	1
		AGG PO HANDS NO/MIN I..	21
		AGG PRO EMP HANDS SE..	2

change in crime rate Comparing changes in the incid... 3.Trend Analysis Dashboard Arrests as per reported Incident Percentage of the reported incid... 4.Comparative Analysis Crime Analysis Story

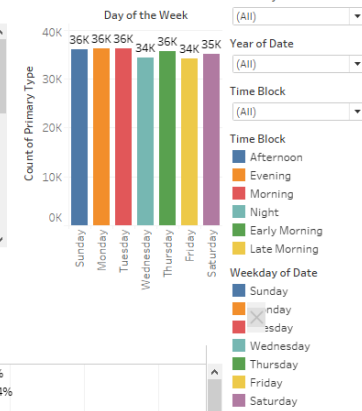
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Distribution Count of Crime Incidents Across Different Time Periods

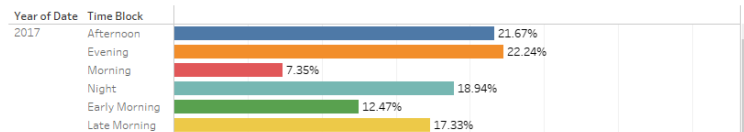


crime as day of the week



Hour of Date
(All)
Weekday of Date
(All)
Year of Date
(All)
Time Block
(All)
Time Block
Afternoon
Evening
Morning
Night
Early Morning
Late Morning
Weekday of Date
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday

Distribution of Crime Type by Hour

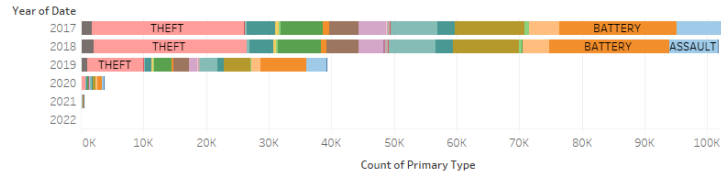


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Change in crime rate over the years



Day of Date
(All)

Month of Date
(All)

Year of Date
(All)

Year of Same Date
2018

Month of Same Date
January

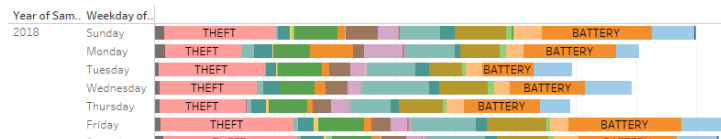
Day of Date
(Multiple values)

Same Date
(All)

Primary Type

- ARSON
- ASSAULT
- BATTERY
- BURGLARY
- CONCEALED CAR.
- CRIM SEXUAL ASS.
- CRIMINAL DAMA.
- CRIMINAL SEXUA.
- CRIMINAL TRESP.
- DECEPTIVE PRAC.

Comparing changes in the incident reporting over the years for the same date and time.



change in crime rate Comparing changes in the incid... 3.Trend Analysis Dashboard Arrests as per reported Incident Percentage of the reported incid... 4.Comparative Analysis Crime Analysis Story

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Percentage of the reported incidents which are domestic

Primary Type	Domestic	
	False	True
ARSON	False	True
ASSAULT	False	True
BATTERY	False	True
BURGLARY	False	True
CONCEALED CARRY LICEN..	False	True
CRIM SEXUAL ASSAULT	False	True
CRIMINAL DAMAGE	False	True
CRIMINAL SEXUAL ASSAULT	False	True
CRIMINAL TRESPASS	False	True
DECEPTIVE PRACTICE	False	True
GAMBLING	False	True
HOMICIDE	False	True
HUMAN TRAFFICKING	False	True
INTERFERENCE WITH PUBLIC OFFICER	False	True

Arrest not made
0 52,625

Arrest Made
0 12,302

Arrest
☒ (All)
☒ False
☒ True

Domestic
(All)

Arrest
(All)

Primary Type
(All)

Arrest
False
True

change in crime rate Comparing changes in the incid... 3.Trend Analysis Dashboard Arrests as per reported Incident Percentage of the reported incid... 4.Comparative Analysis Crime Analysis Story