Los Angeles Arrest Data in 2010-2019 using SAC/SAP

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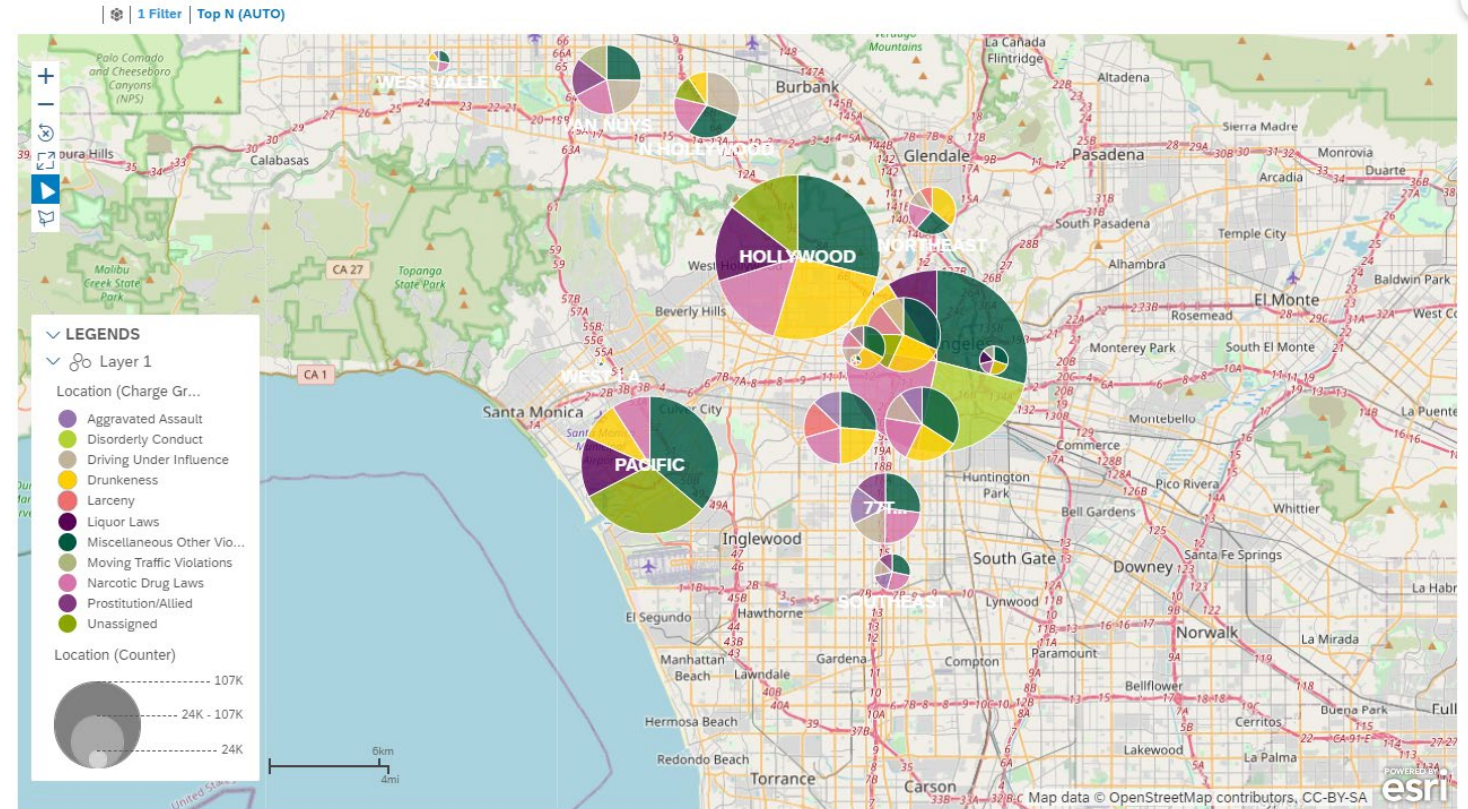
BUS 5100-93 Data Analytics

Introduction

- This project uses SAP and SAC to discover the correlation between police station location and arrest types. It also explores other factors such as age and gender.

- This dataset reflects a major issue in Los Angeles County.[1] Because arrests and crime garner a lot of attention, this project looks for correlations between area and types of arrests to demonstrate what areas have certain types of arrests. The dataset was sourced from data.lacity.org and was 245MB. Recent news reports by the LA Times point to an overall decrease in arrests starting in 2013, with rates dropping by 25% from 2013 to 2015.[2]

Visualizations : Geo Map

Arrest Types per Location

- The Geo Map shows where arrests were made and types of arrests per area

- Hollywood and Central have larger numbers of arrests

- Types of arrests that are most frequent are miscellaneous charge, disorderly conduct, and narcotic drug laws
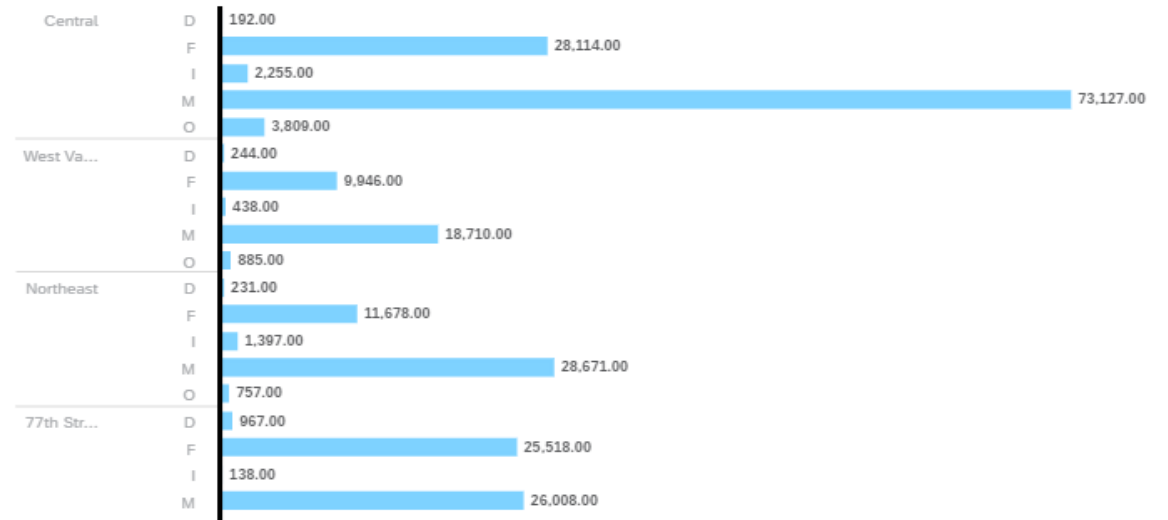
Visualizations : Bar Graph

Arrest Type by Location

- The bar graph shows a decade (2010-2019)

- It displays that most regions have Miscellaneous/ Other arrest codes as the most common Arrest Code*

*To learn more about arrest type codes visit our Github at https://github.com/BUS-5100-Group-2/LAArrestData

Crime Rate By Location & Types

Counter per Area ID, Arrest Type Code for Actual

Area	Code	Value
Central	D	192.00
	F	28,114.00
	I	2,255.00
	M	73,127.00
	O	3,809.00
West Va…	D	244.00
	F	9,946.00
	I	438.00
	M	18,710.00
	O	885.00
Northeast	D	231.00
	F	11,678.00
	I	1,397.00
	M	28,671.00
	O	757.00
77th Str…	D	967.00
	F	25,518.00
	I	138.00
	M	26,008.00

Arrest Date

☑ All

> ☑ 2010

> ☑ 2011

> ☑ 2012

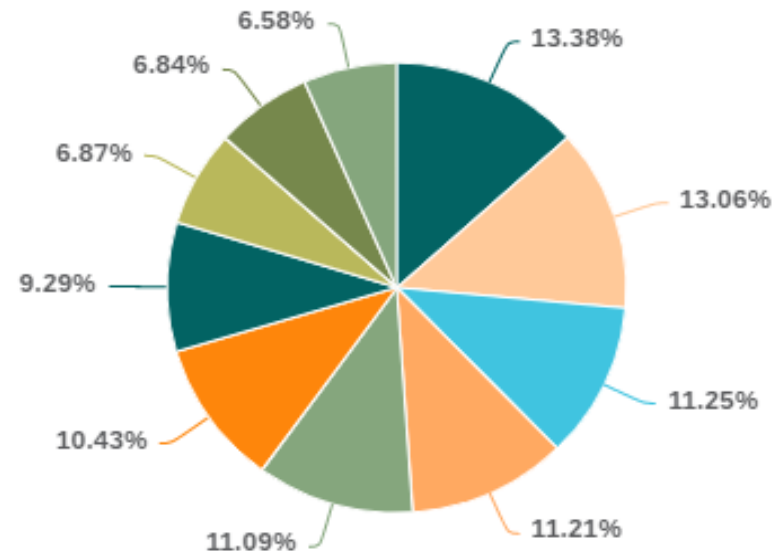> ☑ 2013

Visualizations : Pie Chart

Arrest Type by Location and Charge Group

- The pie chart displays the leading cause of arrest for each police district (Area ID)

- Miscellaneous / Other Violations account for the vast majority of arrests

Crime Rate By Location & Charge Group

Counter per Area ID, Charge Group Description for Actual

Top N (AUTO)

Legend:
- Central/Miscellaneous Other Violations
- Pacific/Miscellaneous Other Violations
- Pacific/Unassigned
- Central/Disorderly Conduct
- Central/Narcotic Drug Laws
- Hollywood/Miscellaneous Other Violations
- Hollywood/Drunkeness
- Mission/Miscellaneous Other Violations
- Newton/Miscellaneous Other Violations
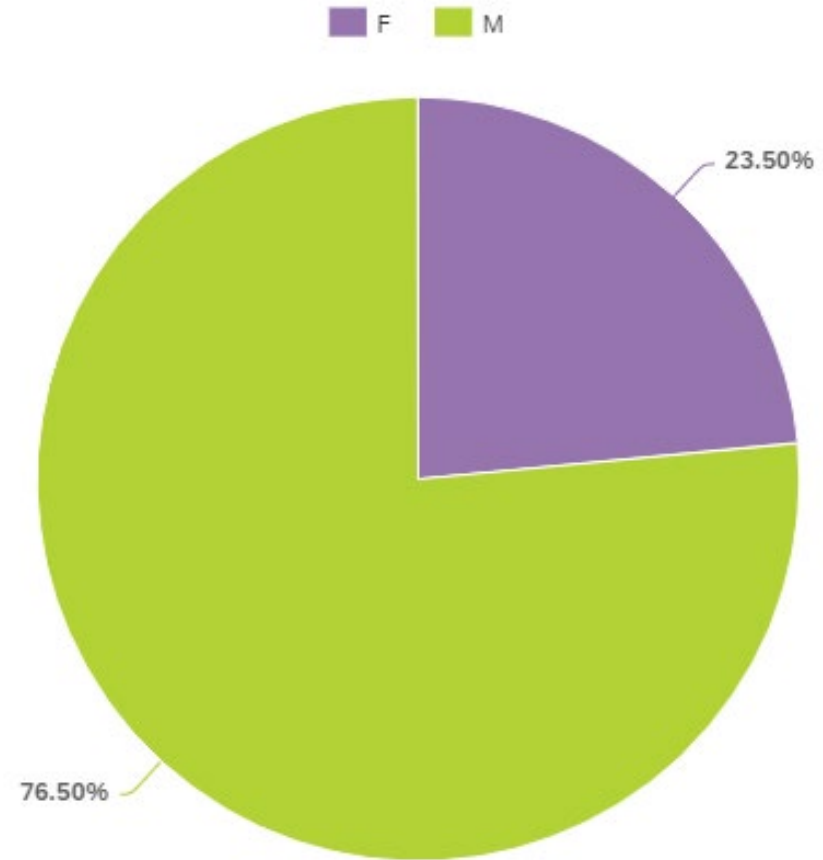- Rampart/Miscellaneous Other Violations

Visualizations : Pie Chart

Arrest by Gender

- This pie chart shows that more men are arrested than women

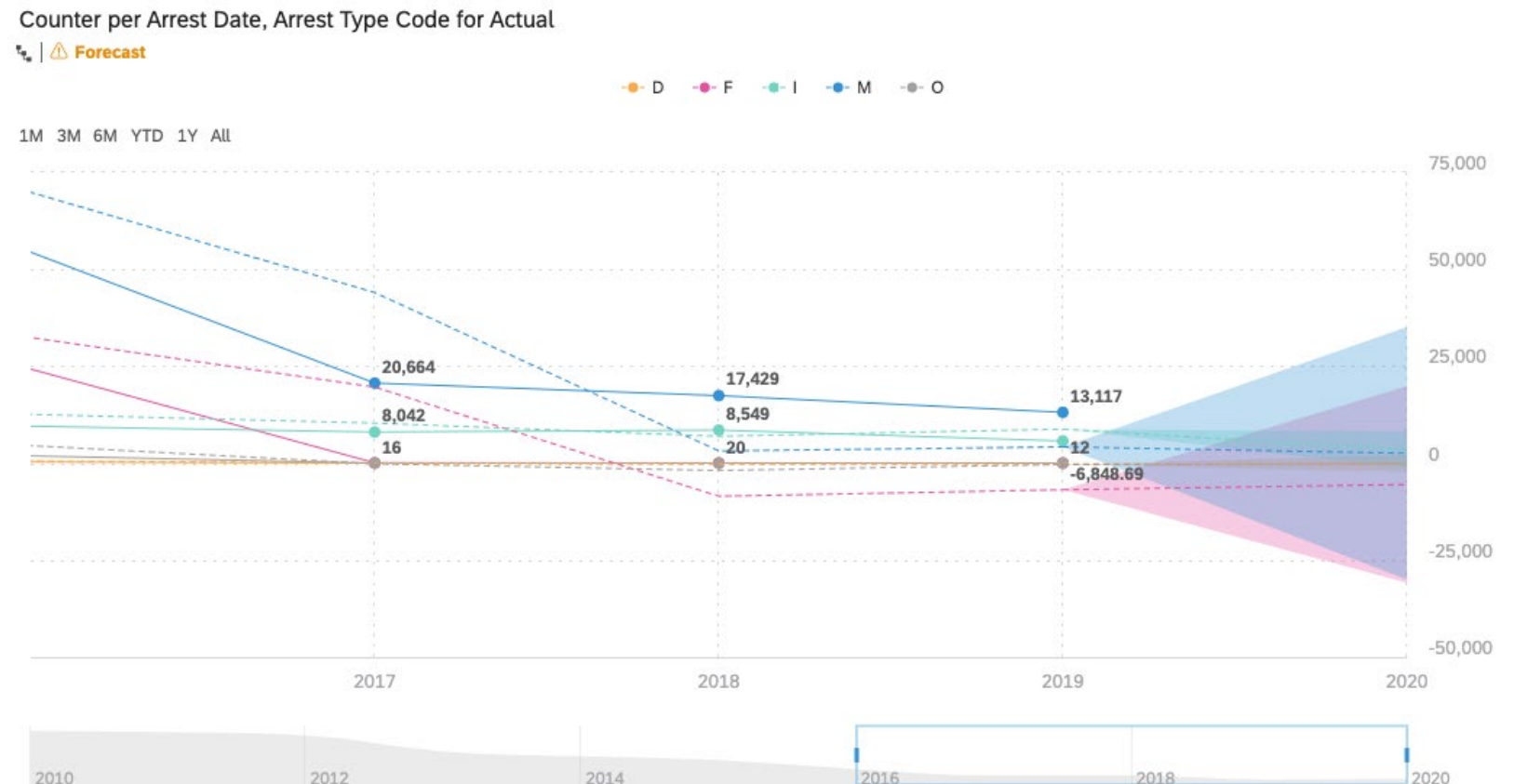- Only 23.5% of arrests were women

Counter per Sex Code for Actual

1 Filter

F M

23.50%

76.50%

Visualizations : Time Series

Arrest by Year and Date

- Forecasting for Arrest Type Code was strongest (4/5) in infractions, which are common traffic violations

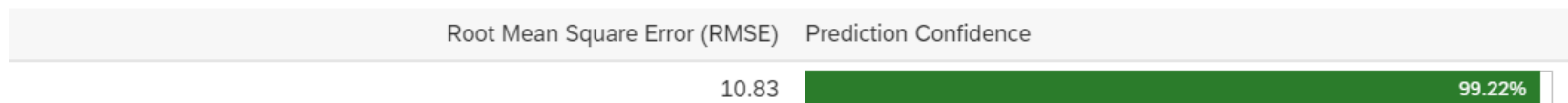- The forecast projects arrests continuing to drop

Counter per Arrest Date, Arrest Type Code for Actual
⚠ Forecast

Visualizations : Regression
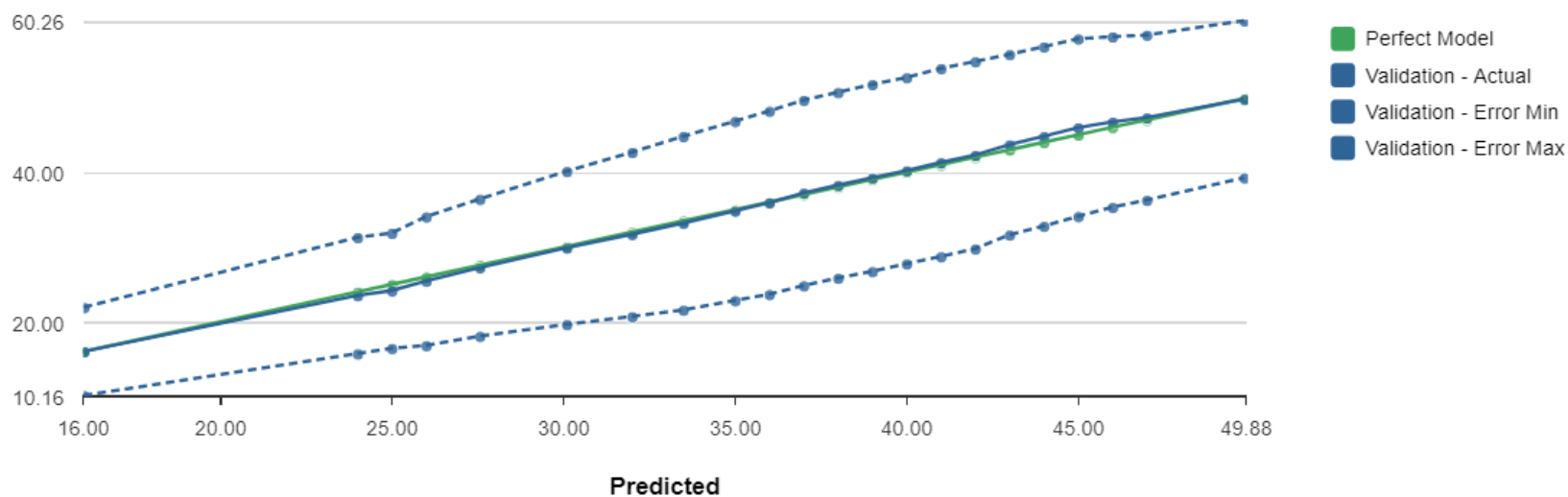
Arrest by Age

- Regression to predict age

- Confidence (99.22%)

- RMSE (10.83)

- Influencers
  - Decent (17.4%)
  - Disposition (16.78%)
  - Charge (11.75%)
  - Charge Group (11.13%
  - Time (9.06%)

Global Performance Indicators

	Root Mean Square Error (RMSE)	Prediction Confidence
	10.83	99.22%

Target Statistics

Data Partition	Minimum	Maximum	Mean	Standard Deviation
Training	0	96	34.34	13.87
Validation	0	97	34.32	13.85

Predicted vs. Actual

Legend:
- Perfect Model
- Validation - Actual
- Validation - Error Min
- Validation - Error Max

Predicted

Conclusion

Based on our analysis, we have concluded:

- Misdemeanor/ miscellaneous arrest charges were most common

- Men get arrested more than women

- Arrests in Los Angeles have been declining and are projected to continue to do so

References

Github Link: https://github.com/BUS-5100-Group-2

Story Location: https://higher-education.us10.sapanalytics.cloud/

Cal State LA folder > Rtsang > Final Project Group 2

[1] LA Arrest Dataset 2010-2019.
https://csula.sharepoint.com/:x:/s/Analytics5021Group2/ETHydcaI1VpOkMad1SxYv8gBkRhYmEOQpRdk4cAlSDGYqQ?email=jwoo5%40exchange.calstatela.edu&e=VMaw5Z

[2]Queally, J., Mather, K., & Chang, C. (2017, April 1). Police arrests are plummeting across California, fueling alarm and questions. Retrieved March 21, 2021, from https://www.latimes.com/local/lanow/la-ln-police-

   slowdown-20170401-story.html

[3] O'Toole and Neusteter, R. (2019) Arrest Trends. Retrieved From
https://www.vera.org/downloads/publications/Arrest-Trends-Data-and-Methodology.pdf

[4] Cung, B. (2013). Crime and Demographics: An Analysis of LAPD Crime Data. UCLA.
ProQuest ID: Cung_ucla_0031N_11420. Merritt ID: ark:/13030/m52b99n3. Retrieved from
https://escholarship.org/uc/item/2v76v571