Crime Intelligence:
Understanding and Predicting Factors Driving the Incidence of Crime in Chicago

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Methods

Examine crime data in Chicago (BigQuery Public Dataset):

- What crimes occur
- Where crime occurs
- When crime occurs

Investigate factors that may influence crime:

- Graduation rate (Chicago Public Schools - Excel file)
- Unemployment rate (Bureau of Labor Statistics - API)
- Weather (NOAA - API)

ETL Pipeline: 100% Python!

Goals

1. **Reduce Crime**
   - Deter potential offenders from engaging in criminal behavior through an increase in the number of officers deployed to a predicted “high-need” location before a crime surge occurs.

2. **Decrease the Cost of Policing**
   - Decrease department costs by optimizing shift scheduling: the right amount of officers at the right times in the right places, resulting in lower overtime costs.
     - 2020 CPD overtime costs: $367 million (20% of allocated CPD budget)

Tableau Dashboard

KPIs:

- Percentage of crimes resulting in arrest by location over a time period
- Total crimes compared to daily temperature over time period
- Number of crimes by location over a time period
- Total crimes compared to graduation rate over a time period
- Total crimes compared to unemployment rate over a time period

Dashboard link: https://tabsoft.co/3xQjZ9s

Conclusion

- Analysis of crime data is fraught with ethical issues
- Assumptions about the data influence conclusions

1. Are the crimes in the dataset just a reflection of where police are already patrolling the most?
2. Do areas that are heavily policed actually have more crime than other areas, or are crimes in those neighborhoods just recorded at a higher rate?
3. Will deploying more police resources to an area cause the crime rate to increase because there will be more officers around to observe and record crimes?