# Crime Analysis - Washington, DC

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For: City of Washington, DC
By: JE Consulting

# The Objectives

Part One:

- Total Crime by Offense
- Crime by Hour, Weekday, Month
- Crime Rate by Ward
- Geographical Crime Distribution

Part Two:

- Successful Modeling with Current DC Police Department Data
    - Success = Model Accuracy > 95%

# The Data

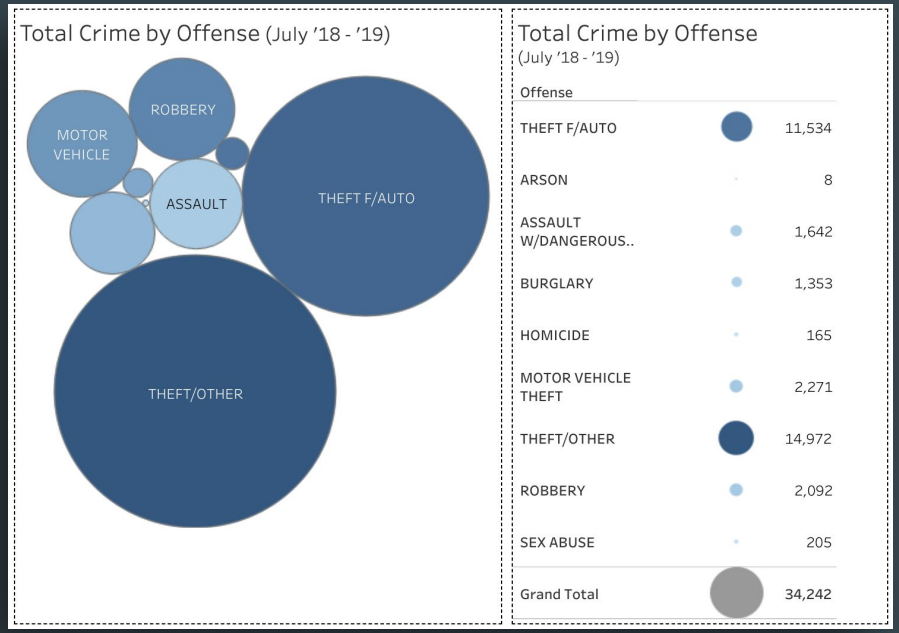
Crime Data - 2018, 2019 YTD

~ 54k Crime Instances

Key Features:

- Latitude, Longitude
- Crime Type
- Ward
- Incident Time
- Method

# Part One Highlights




## Total Crime: July '18 - '19

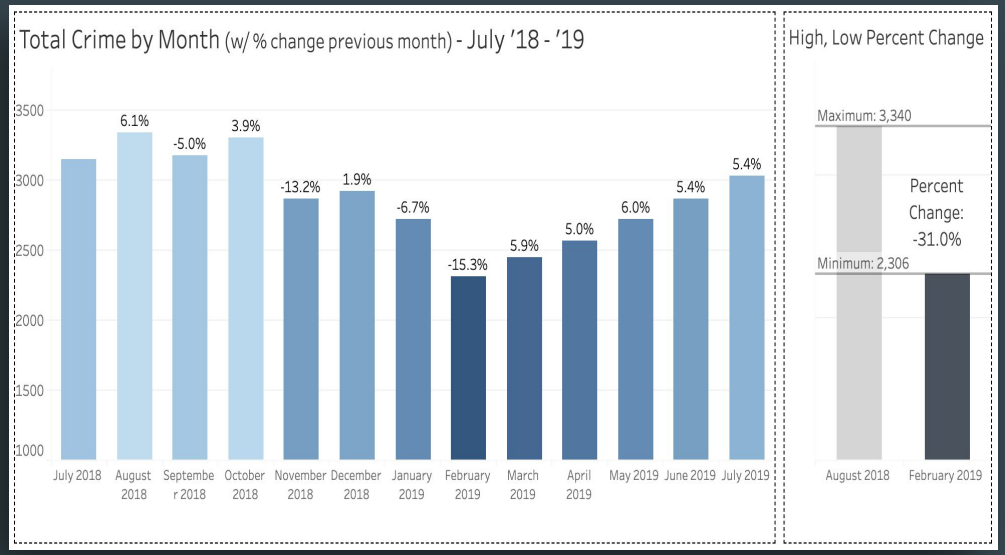
34,242 Total Crime Incidents

- Theft = ~77%
- Homicide = ~.5%
- Assault w/ Dangerous Weapon = ~5%
- Vehicle Theft = ~7 %

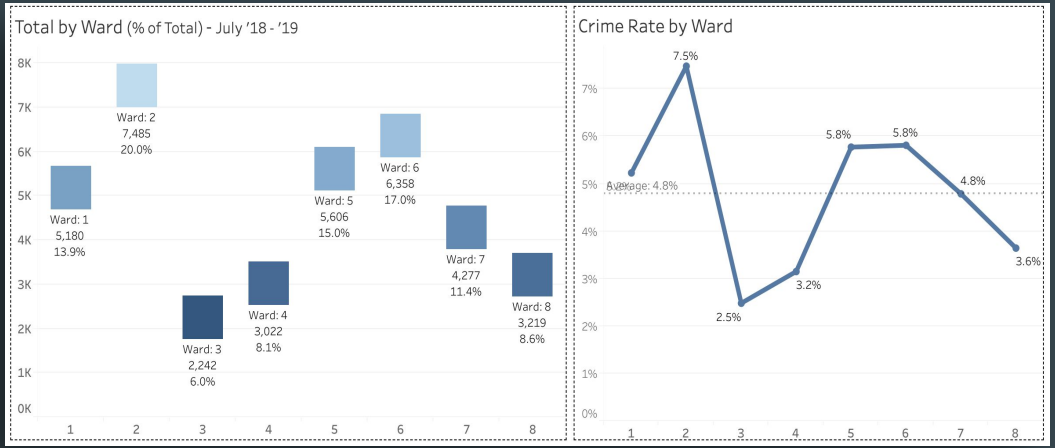
# The Highlights - Part One

## Time/Day, Month Analysis

- Seasonality exists:
  - February = bottom
  - August = peak
- Daily cycles exist:
  - Peaks early afternoon/late evening
    - 9 pm = (2,375 incidents)
  - Bottoms early morning
    - 6 am = bottom (532 incidents)
- No meaningful weekday variation



# The Highlights - Part One



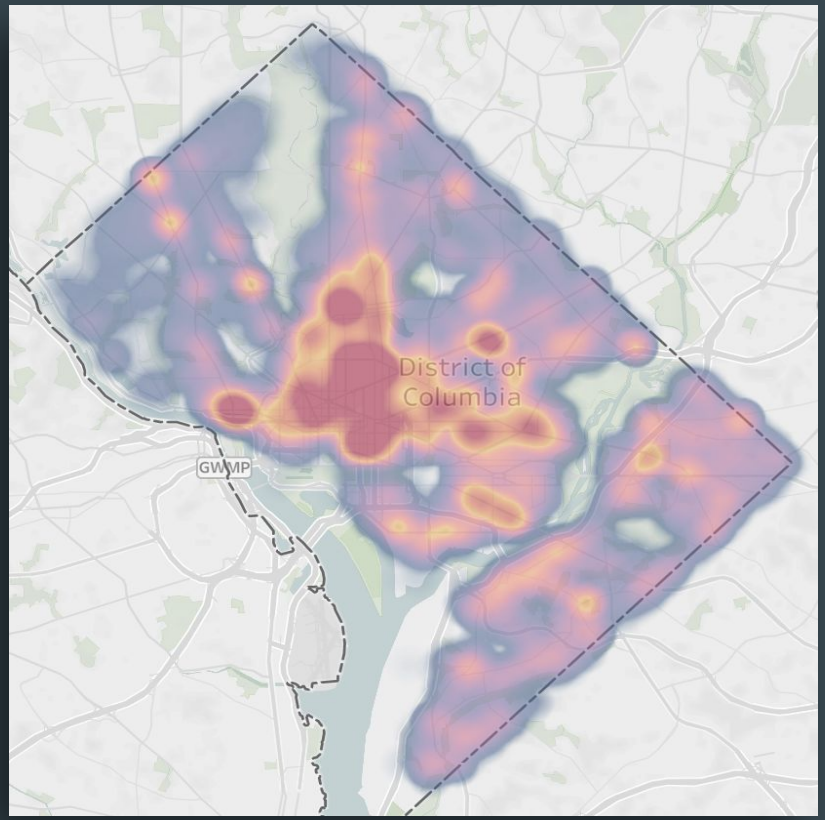

## Crime Rates by Ward

- Ward two = Highest Rate (20% of total crime)
- Ward three = Lowest Rate (6% of total crime)
- Average rate = 4.8%

# The Highlights - Part One

Geographic Distribution

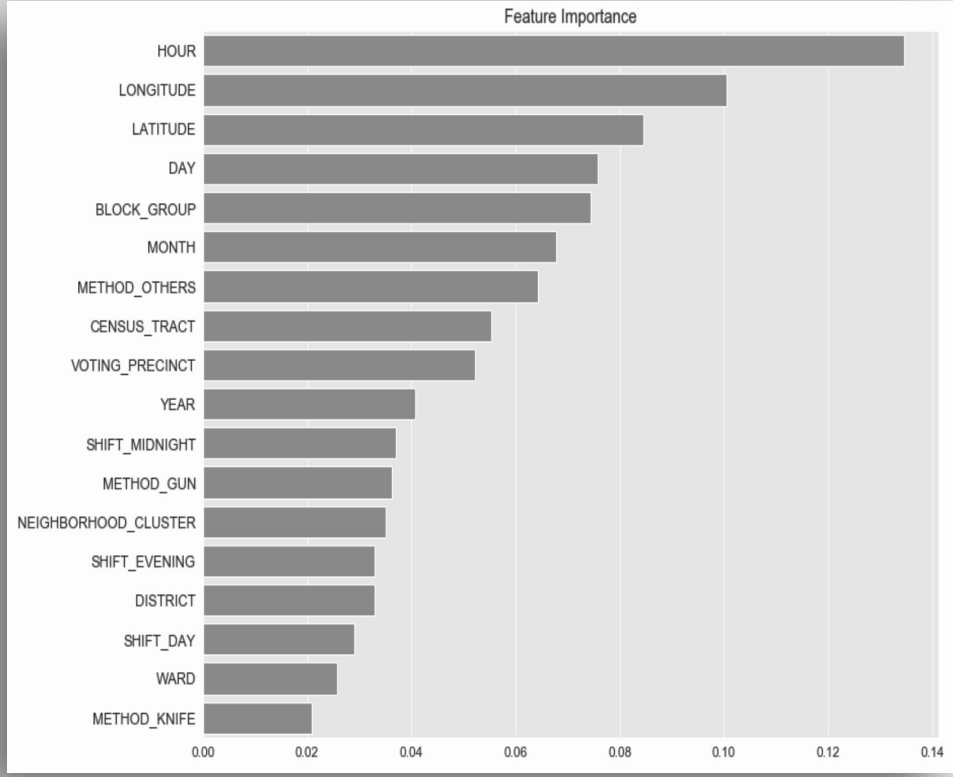
- CBD concentrations
- Violent crimes East & Southeast of 16th St. corridor
- Transit station correlations



# The Conclusion - Part Two

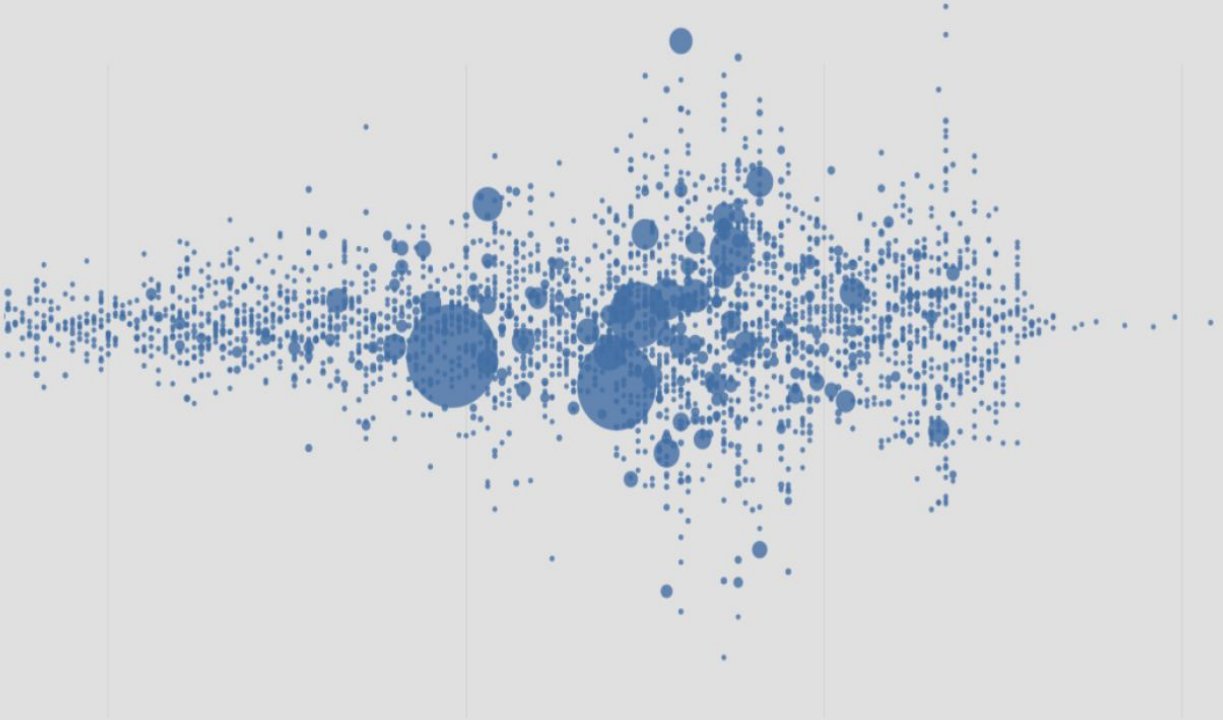
Final Model:

- Random Forest
- 19 Features
- Most Predictive Features:
  - Day of Month
  - Geographic Location
  - Hour
- ~85% Accuracy



# The Recommendations

- ➔ More Features
- ➔ More Training Data
- ➔ More Classifiers
- ➔ More Tuning



# The End

Questions?