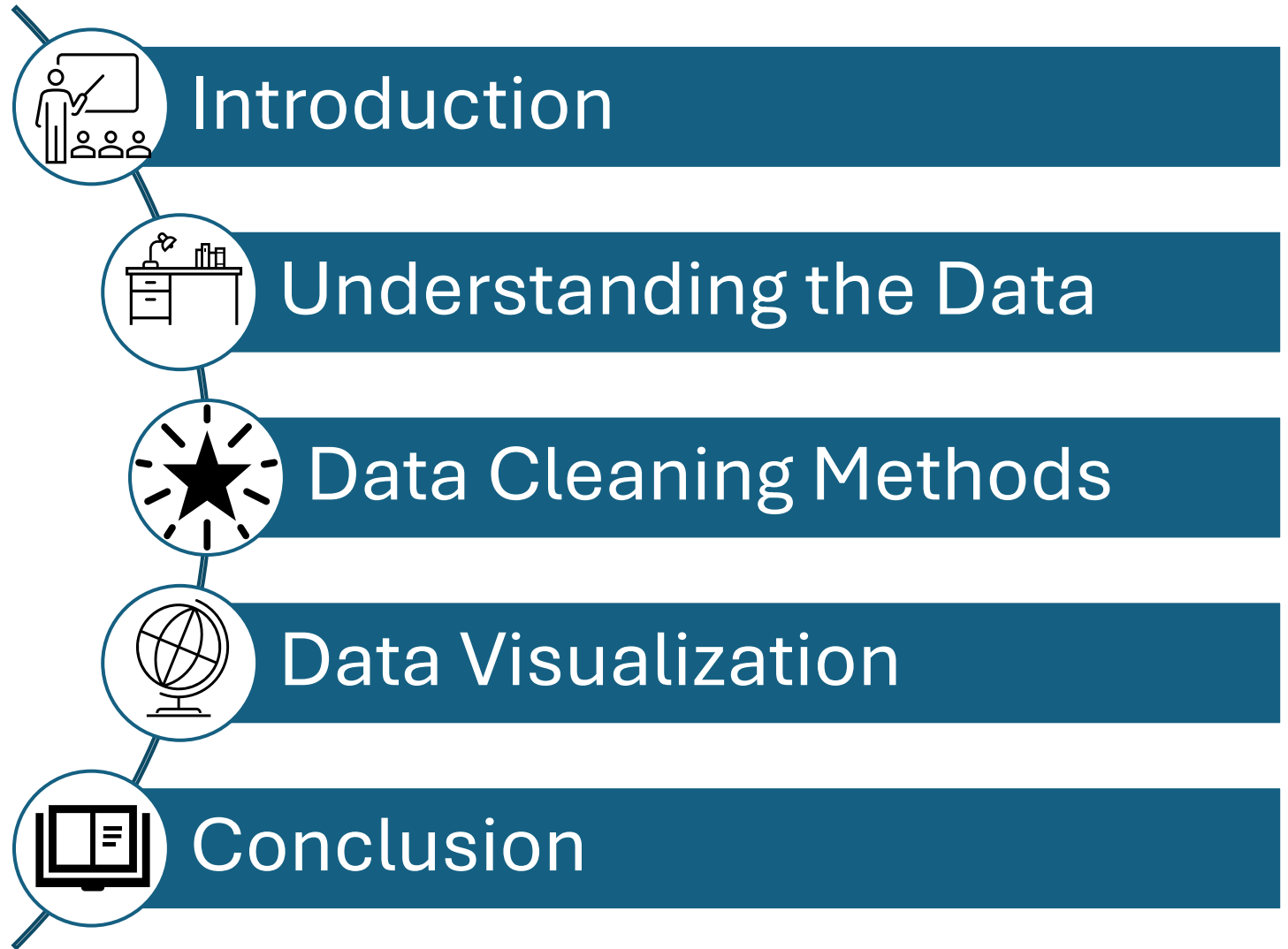


# **TRAFFIC AND DRUG-RELATED VIOLATIONS PRESENTATION**

By: Cristian Simms



# Agenda



# Introduction to Dataset

- This dataset contains around 65k+ traffic-related violation records
- Attributes studied:
  1. Most common violations(speeding, equipment, inspection, etc)
  2. Drug-Related traffic stops
  3. Time-of-Day Patterns
  4. Gender Trends
  5. Demographic Disparities
  6. Result of Police Searches

# WHAT IS THE OBJECTIVE OF THIS DATASET?



Understand Traffic Stop Patterns & Trends



Analyze any and all disparities that exist in law all tactics



Develop data-driven strategies to improve public safety



Analyze any negative temporal, gender, and race trends

# Understanding the Dataset

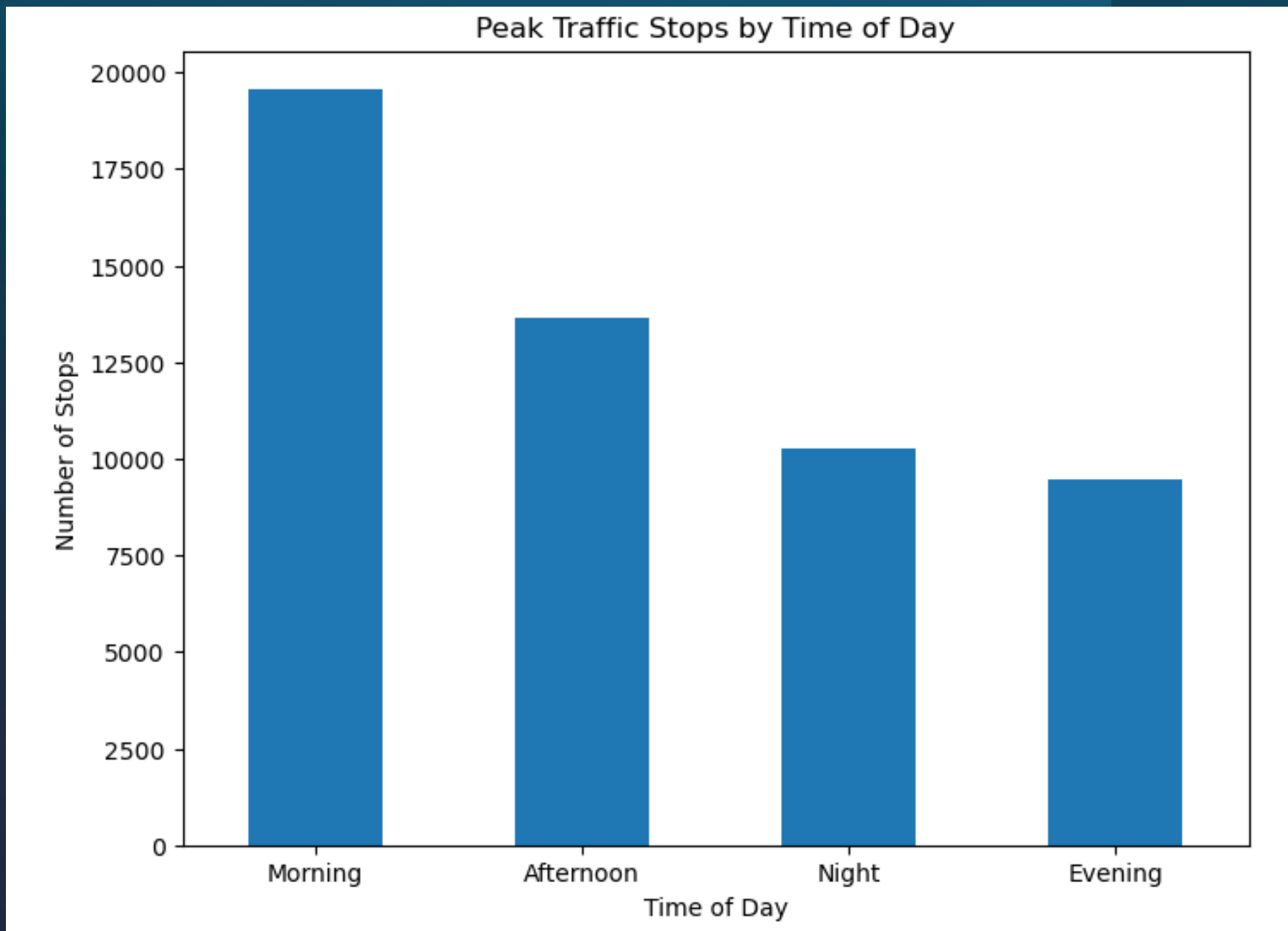
- Data Types:
  - Categorical Columns(search\_type): Object
  - Numerical Columns(stop\_time): Float64
  - Date Columns(stop\_date): Datetime64
- Data Wrangling:
  - 15 columns
  - 14 columns had at least 1 Null Value

# Data Cleaning

- Negative Rows
  - 0 rows
- Duplicate Rows
  - 286 rows
- New Data:
  - Created a new column titled, “time\_of\_day”
  - Extracted the hours from stop\_time using “.dt.hour”
- Missing Values:
  - Created a new dataframe for cleaning (df\_new)
  - Used the “.drop” function to drop columns
  - Forward Fill and Backward Fill using “.ffill”
  - Imputation Method (Mean/Mode)

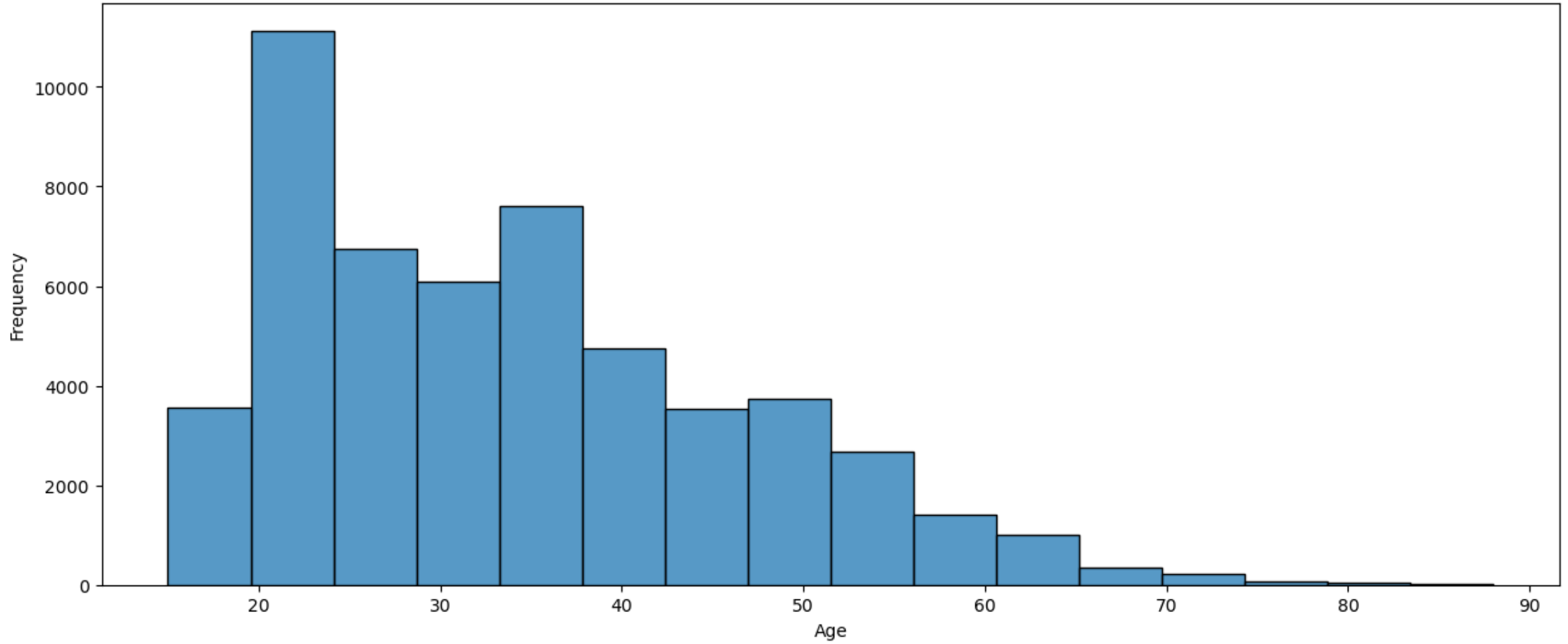
# Data Visualization



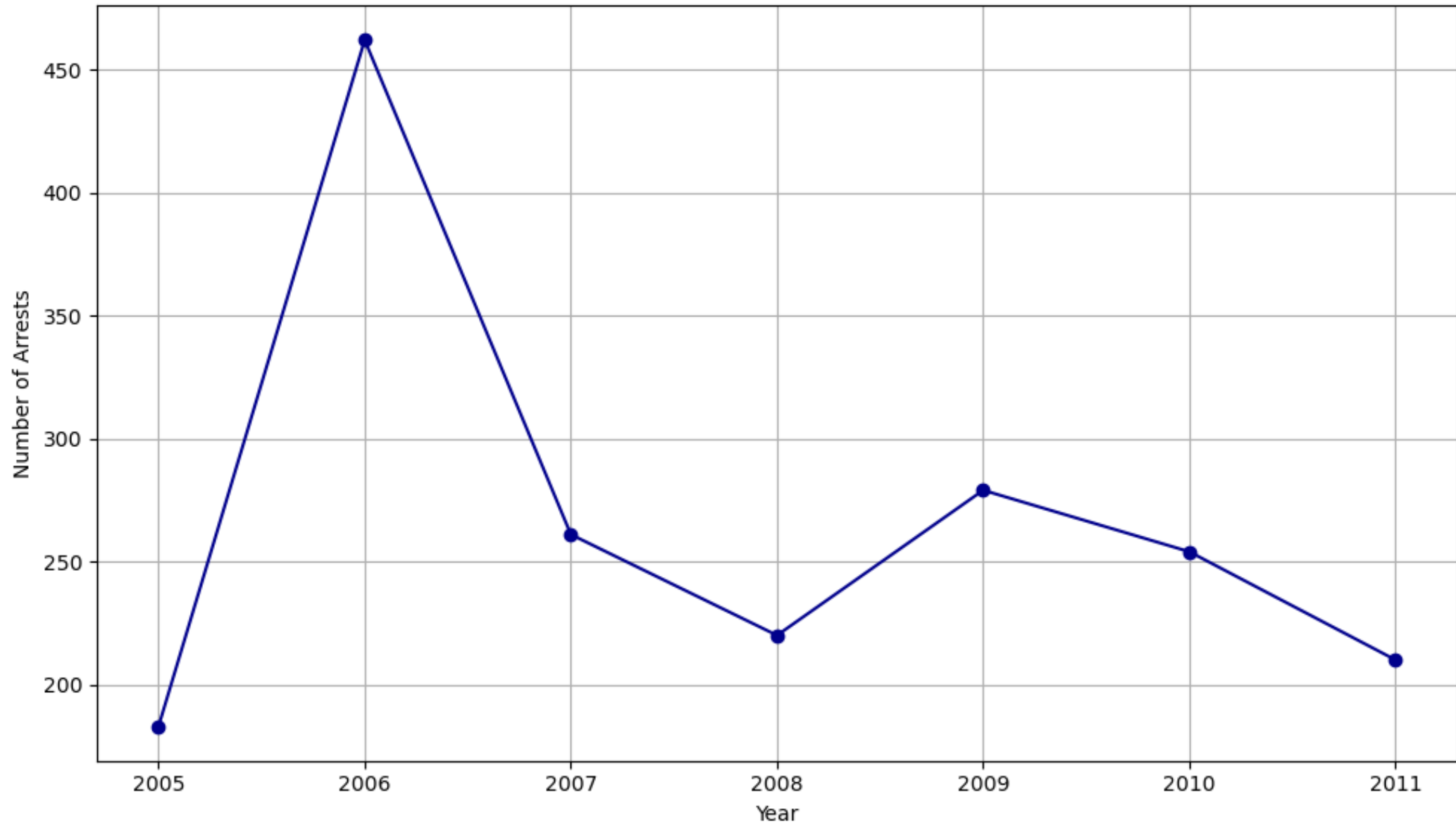




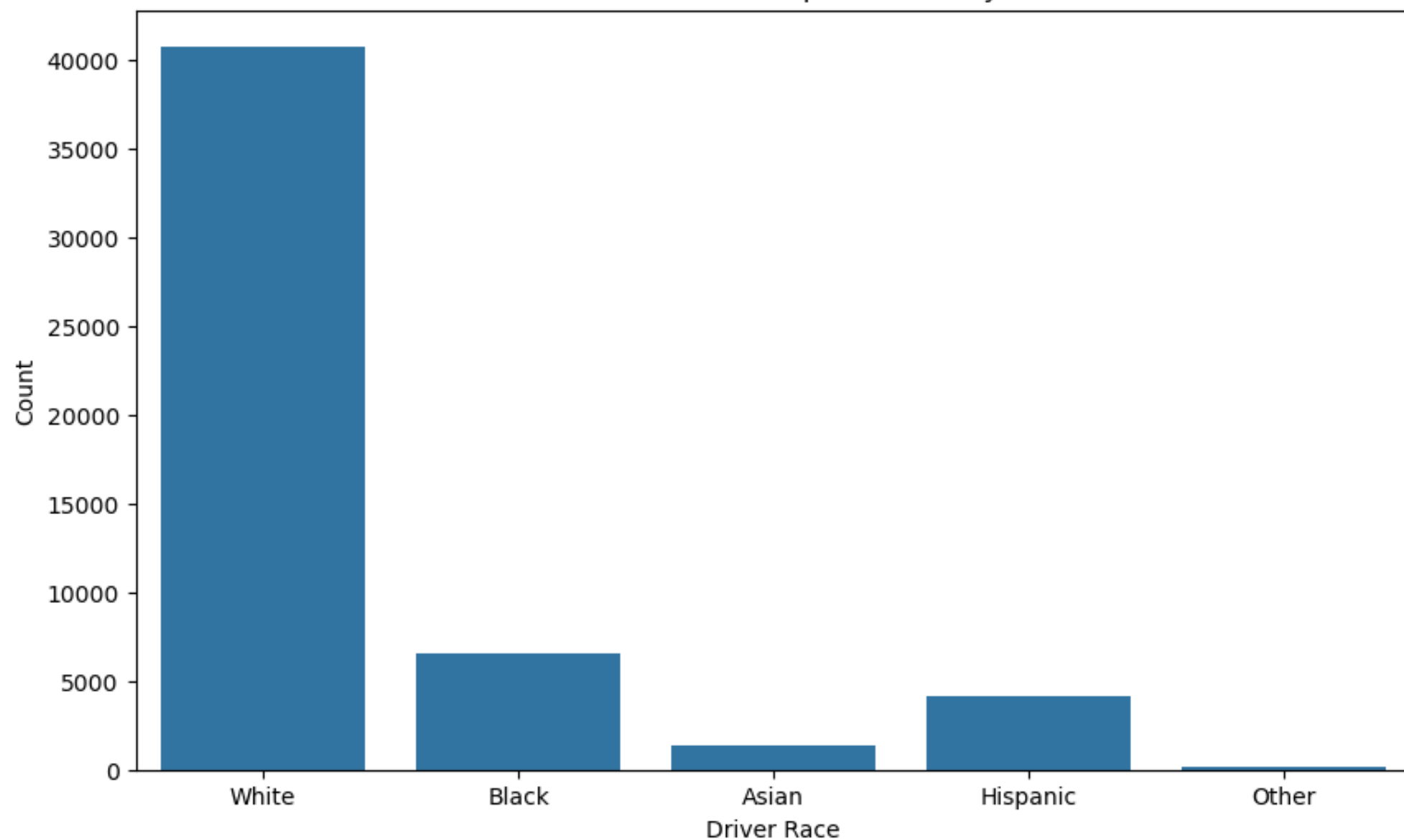
Distribution of Driver Ages for Traffic Stops

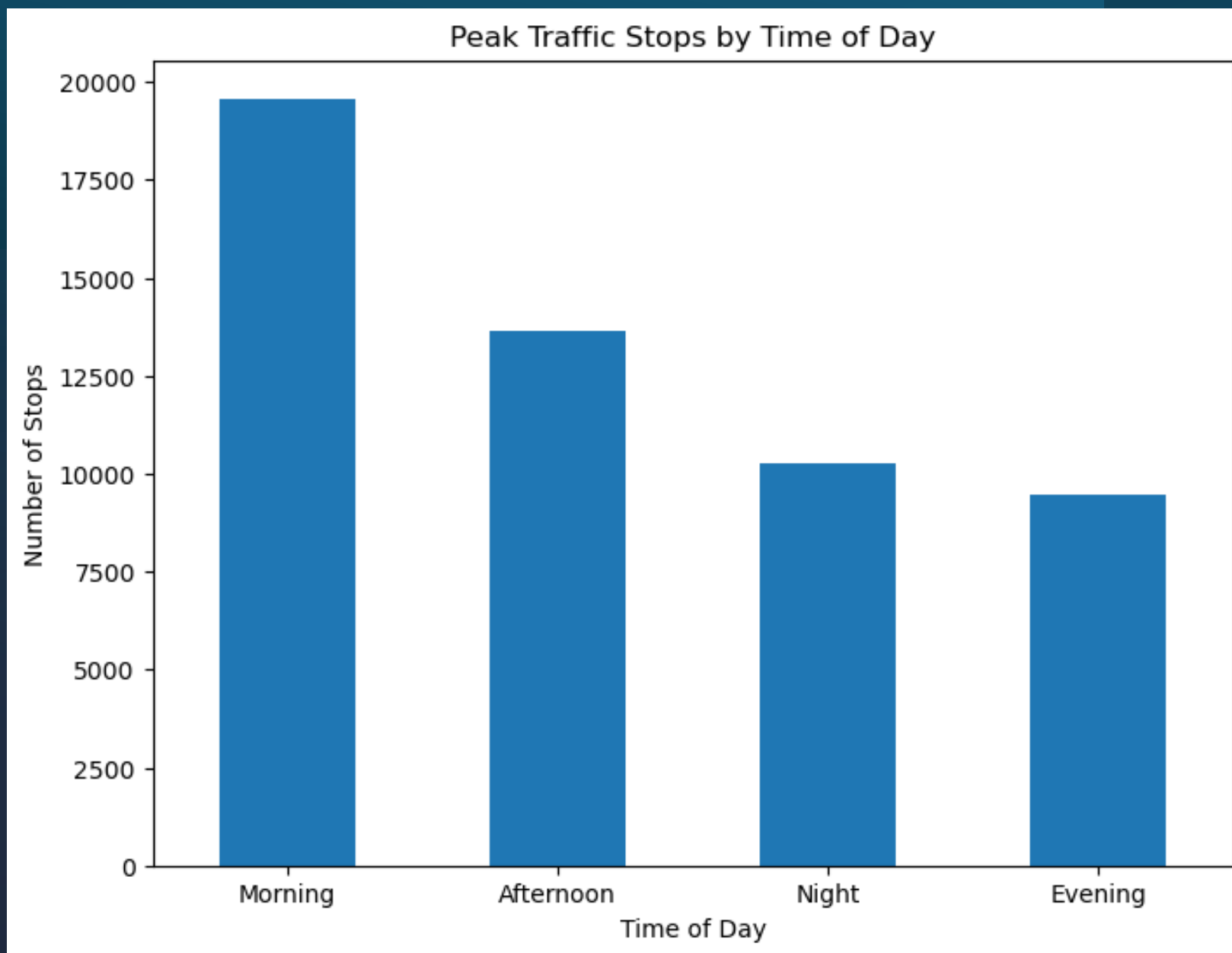


Yearly Trend of Arrests

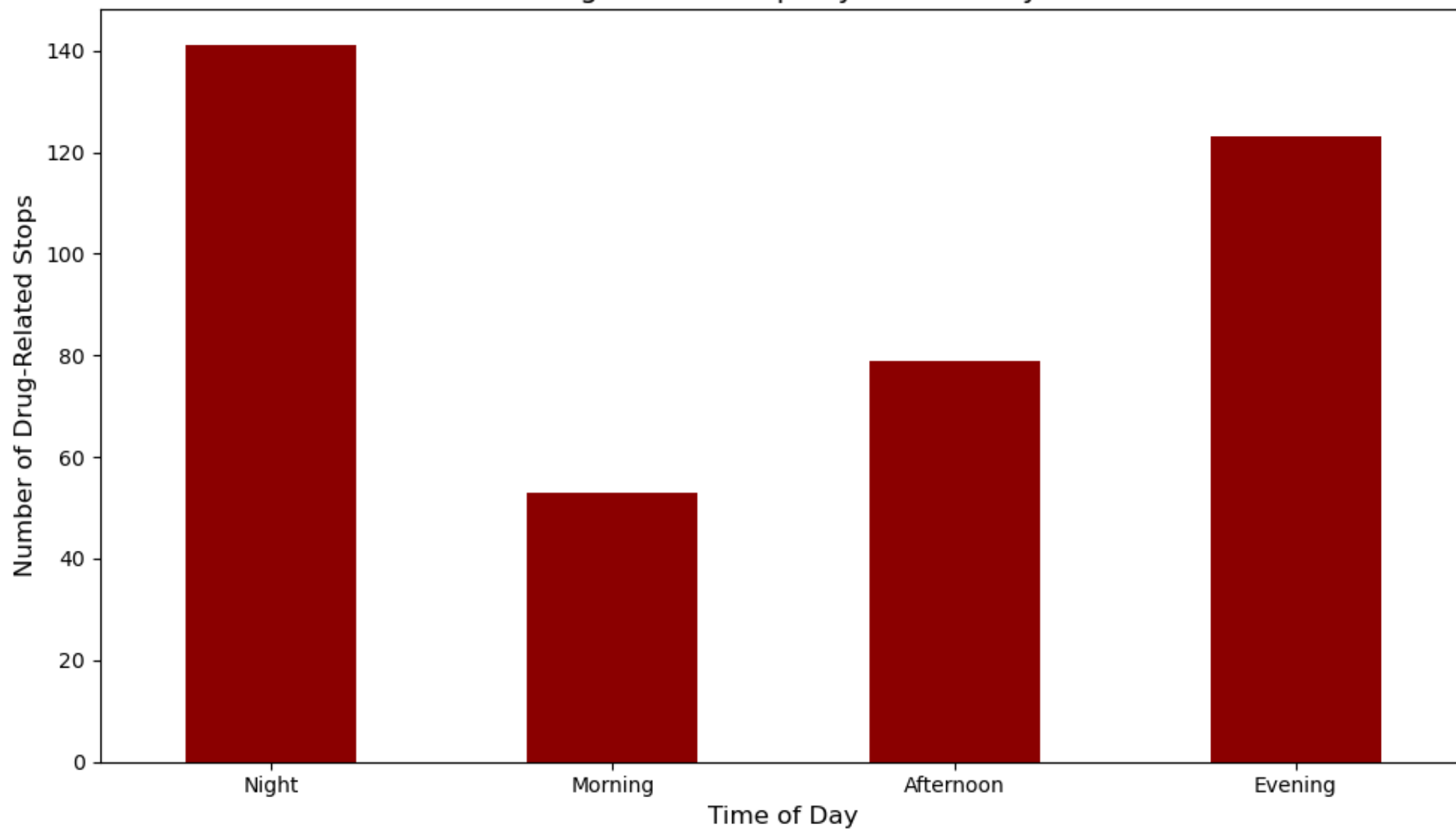


The Race of Drivers who are pulled over by the Police

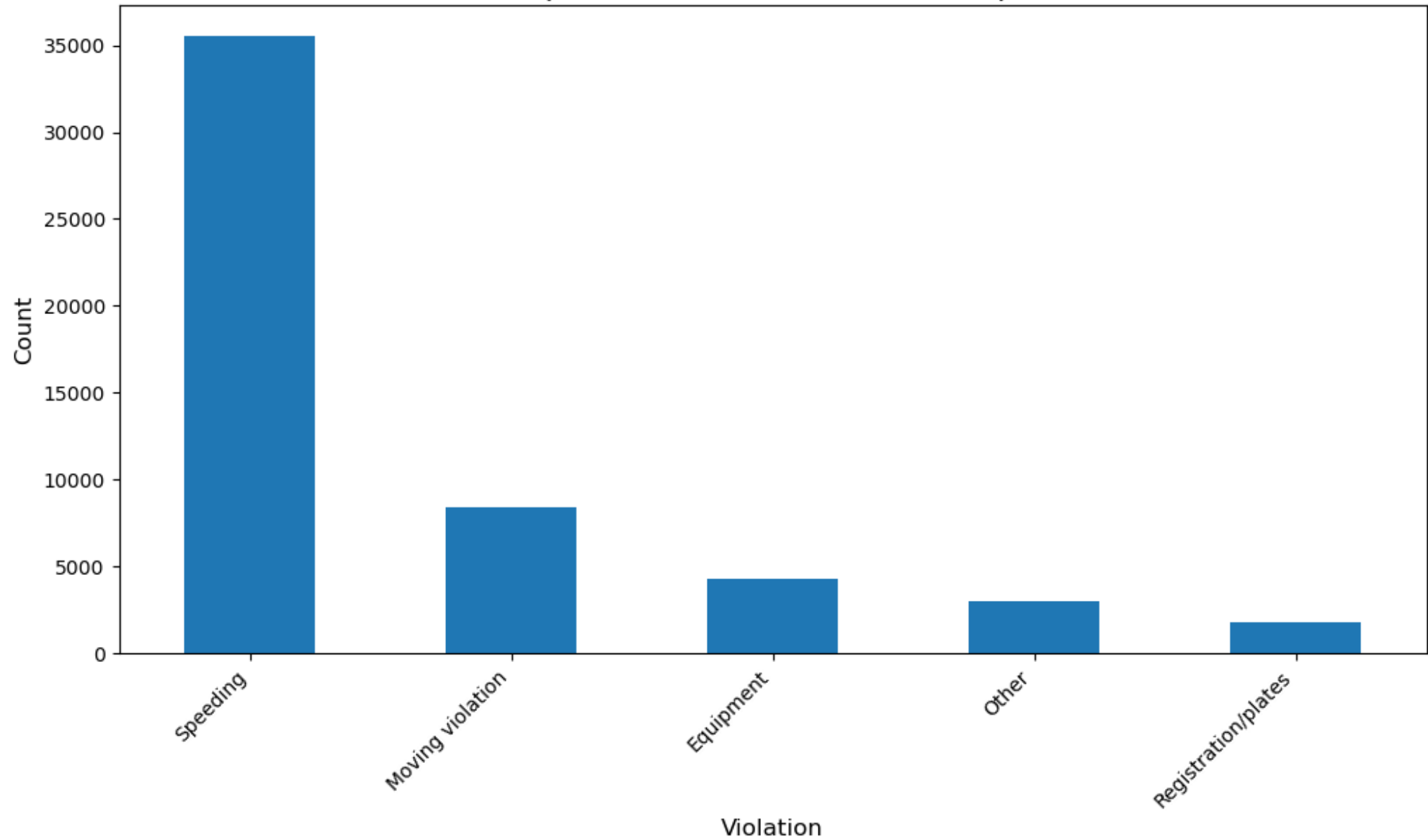




Drug-Related Stops by Time of Day



Top 10 Violations for Traffic Stops



# Conclusion

## Additional Information:

- Geographical Data & employee tracking data
  - Was this a predominantly white area?
  - Is there a trend of specific cops only stopping for drug suspicion and is there a race or gender they target?
- Real-world data of what caused surges in stops
  - What caused the increase in traffic stops in 2006?

## Outcome:

- Explored relationships between numerous patterns and trends present in law enforcement
- Provide data-driven analyses that can be used to improve future strategies in equitable traffic stop enforcement