EDA Report

San Diego Police Stops + Social Vulnerability Index

Exploratory Data Analysis

Data: 383,027 stops (2014–2017)

1. Executive Summary

This report summarizes key findings from exploratory data analysis of San Diego police traffic and pedestrian stops merged with Census tract-level Social Vulnerability Index (SVI) data.

The dataset contains 383,027 stops from 2014–2017. Of these, 16,288 involved a search (overall search rate: 4.25%).

Key findings: (1) Search rates are ~2.3× higher in high-vulnerability areas (Q4) than low (Q1). (2) Black subjects have the highest search rate across all SVI quartiles. (3) Stop context—reason for stop and time of day—strongly affects search likelihood. (4) Neighborhood vulnerability is associated with search rates independent of demographics.

2. Target Variable Summary

Total stops: 383,027

Stops with search: 16,288

Overall search rate: 4.25%

By year: 2014 had the highest search rate (4.92%); 2015 and 2016 were lower (~3.8%); 2017

data covers only Jan–Mar with a rate of 4.38%.

3. Search Rate by Place (SVI Quartile)

The Social Vulnerability Index measures census-tract vulnerability. Q1 = lowest, Q4 = highest.

Search rate by SVI quartile: Q1 (low): 2.89%; Q2: 2.91%; Q3: 5.54%; Q4 (high): 6.5%

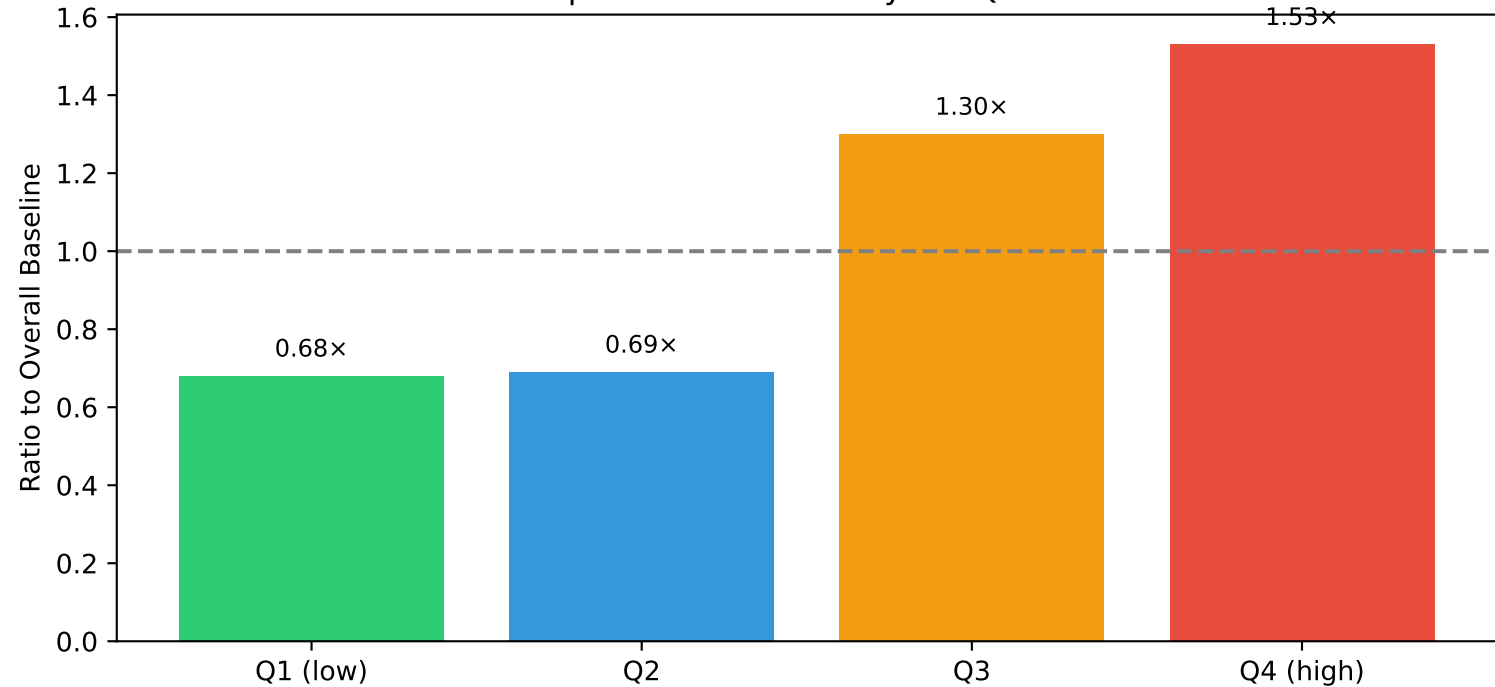Analysis: Search rates rise sharply with vulnerability. Q4 areas have ~2.3× the search rate of Q1.

4. Search Rate by Race

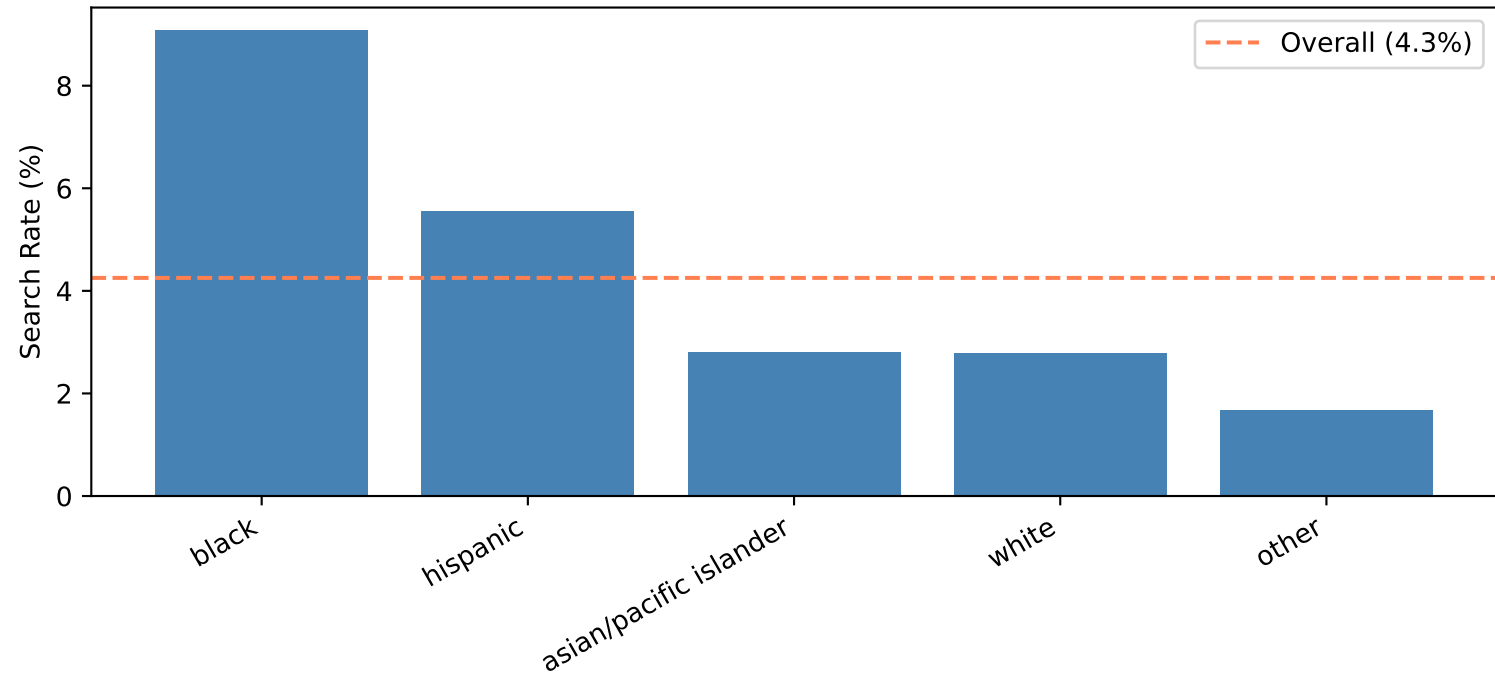Top groups: black: 9.07%; hispanic: 5.55%; asian/pacific islander: 2.8%; white: 2.78%;

other: 1.66%

Analysis: Black subjects have the highest search rate (9.07%), over 3× the rate for white

and Asian/Pacific Islander subjects. Disparities persist within each SVI quartile.
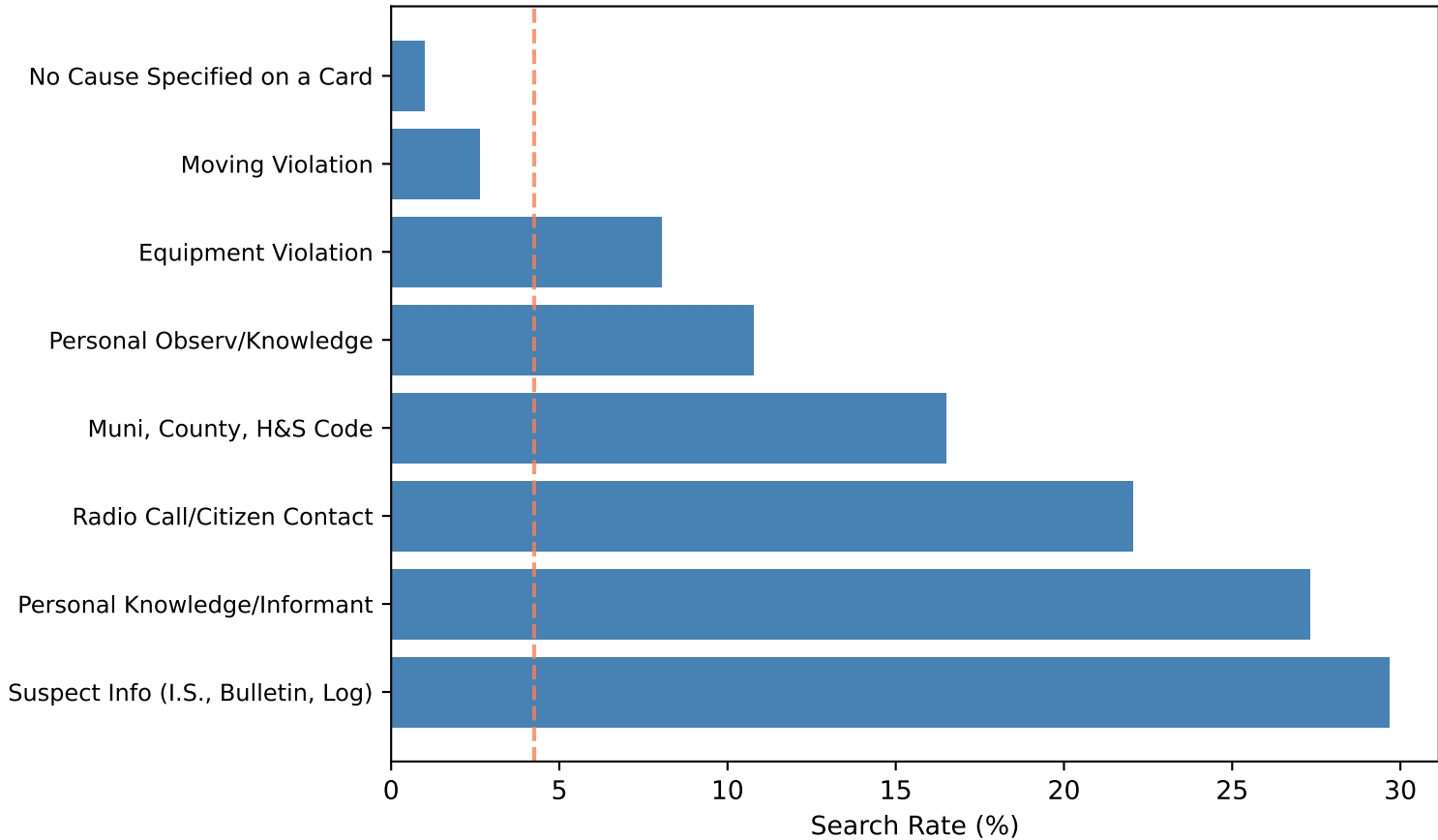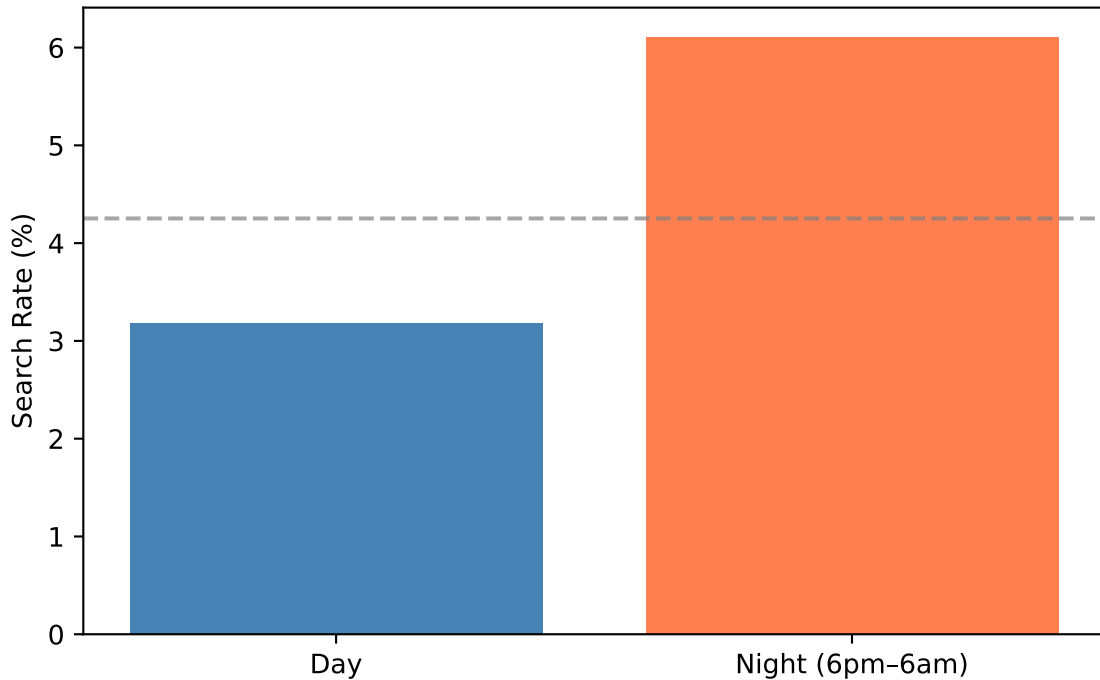
Graph 1: Search Rate by SVI Quartile
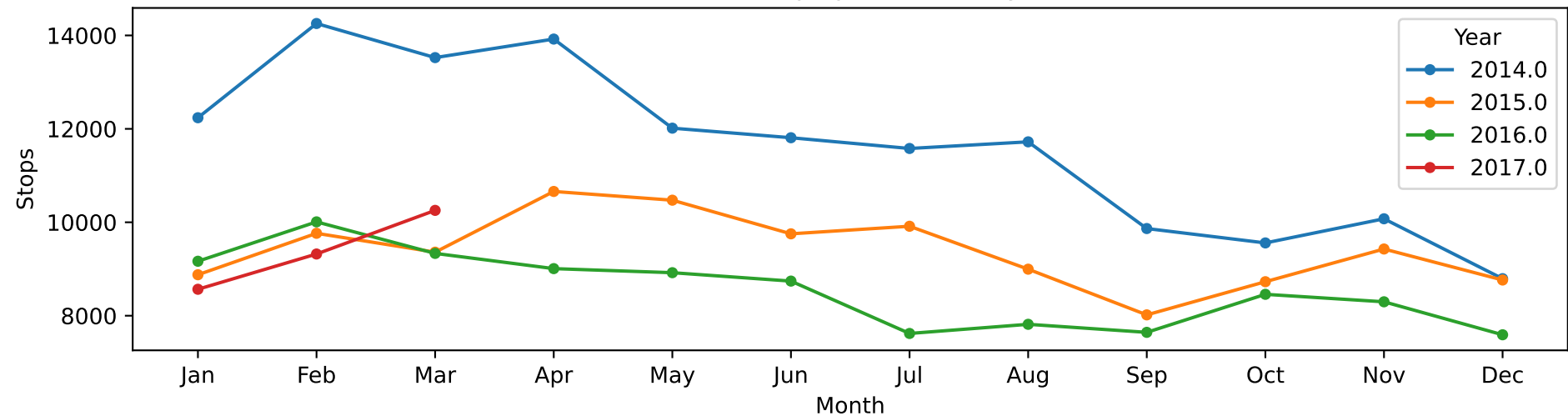
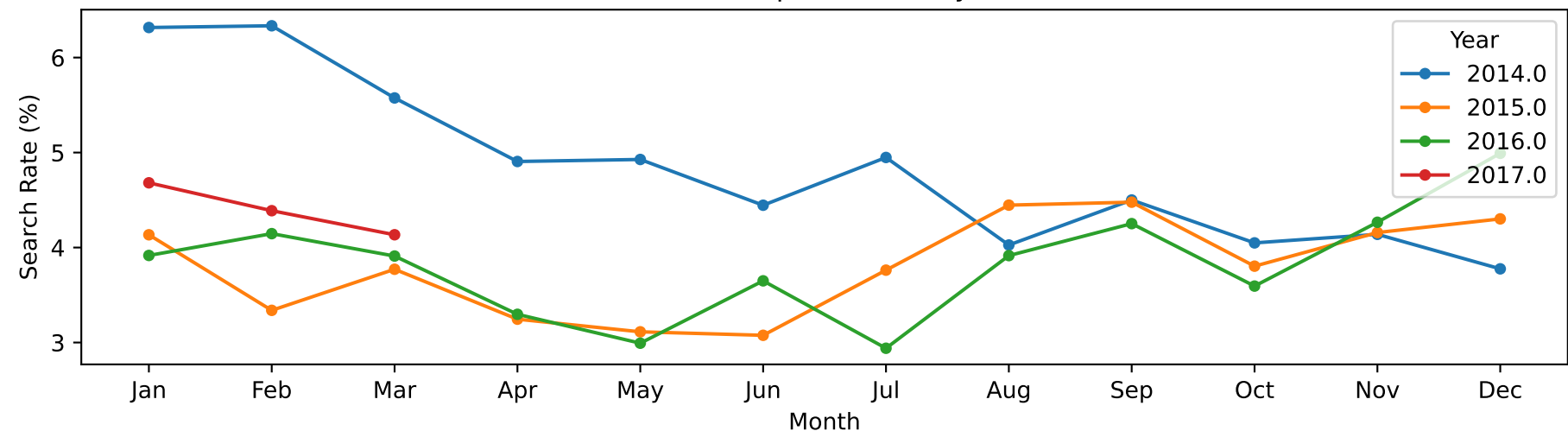Graph 2: Search Rate by Race

Graph 3: Search Rate by Reason for Stop

Graph 4: Search Rate by Day vs Night

Number of Stops per Month (by Year)

Search Rate per Month (by Year)

5. Summary & Conclusions

1. SVI: Search rates are ~2.3× higher in high-vulnerability areas (Q4) than low (Q1).

2. Race: Black subjects have the highest search rate; disparities persist across SVI quartiles.

3. Context: Search rates rise for non-traffic stops vs routine traffic; night stops have higher search rates.

4. Volume: Monthly stop counts show seasonal variation; 2017 data is partial (Jan–Mar only).

These patterns suggest both place and demographics are associated with search likelihood.