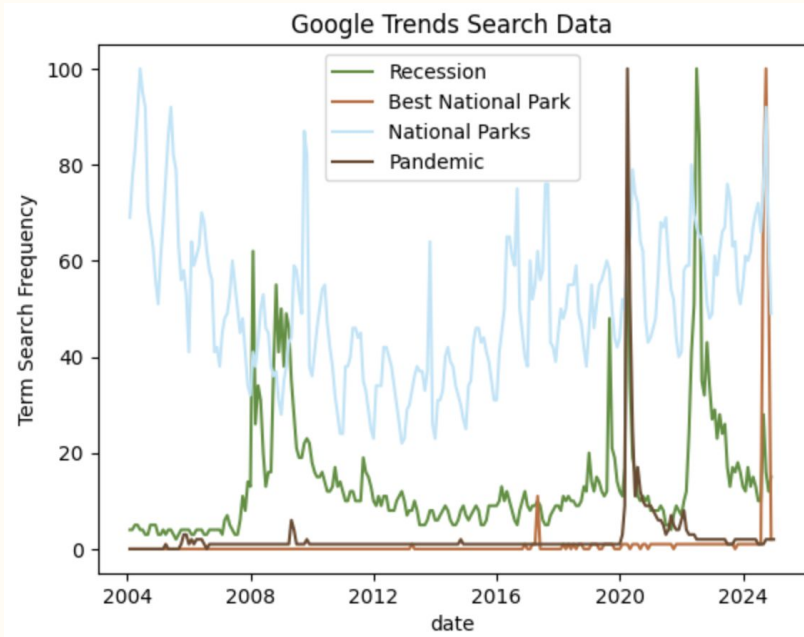# Mining the National Parks?

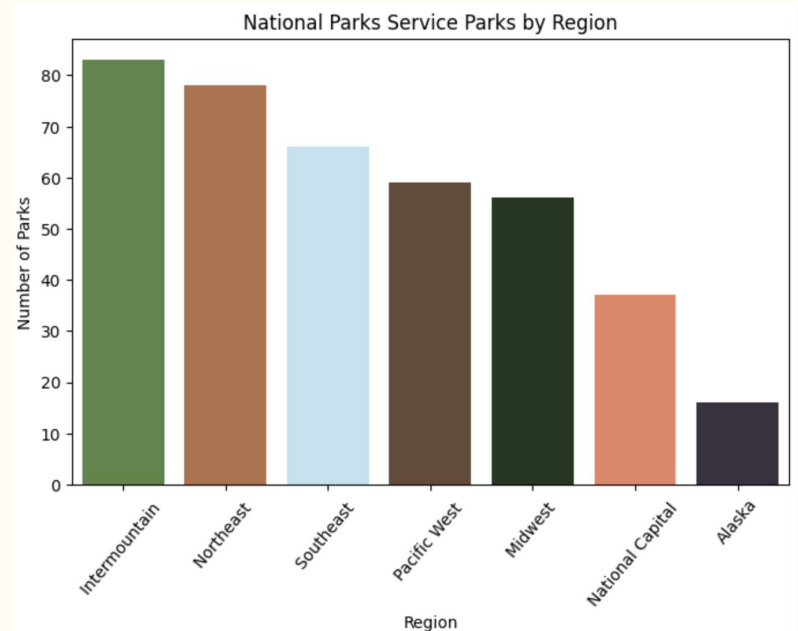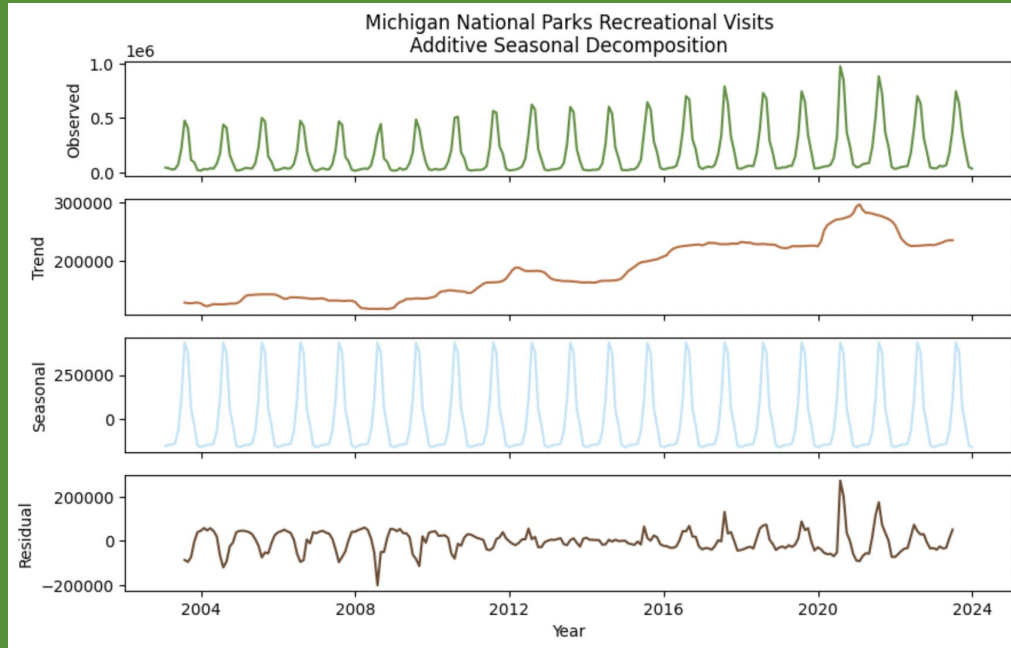Skyeler McQueen, skyelerm@umich.edu

SI 671: Data Mining

Data

Google Search Trends Data

National Parks Visitor Statistics

# RQ1: Do seasonal visitation patterns differ by state? Or region?

Michigan National Parks Recreational Visits
Additive Seasonal Decomposition

- Seasonal decomposition
- Dynamic Time Warping

same_region	False	True
euclidean	11.675012	10.164530
cosine	0.360878	0.289913
dtw	6.250646	5.882213
abs_cosine	0.360878	0.289913

RQ2: Which states are most similar in terms of their national park type distribution?

States with Similar National Park Distributions Colored by Region
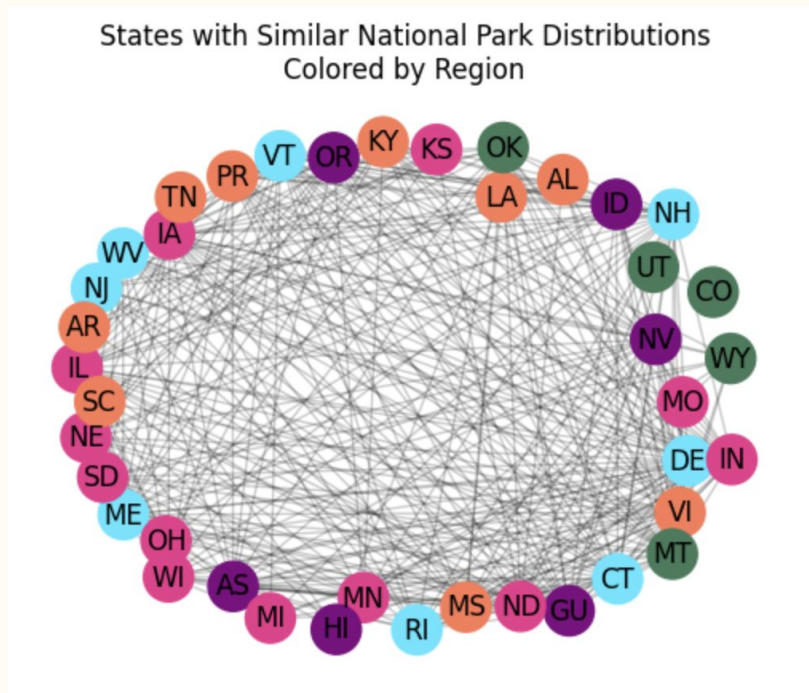
- Vectors of Park Type Distribution
- Network Analysis
- Alaska & National Capital Regions not included in graph
- Utah & Colorado are a connected component

RQ3: Did the 2008 recession & 2020 Covid-19 Pandemic have impacts on National Park visitation?

- ARIMA Model & T-Test
- 28 states significantly impacted after Covid-19
- 33 states significantly impacted after 2008

PA Recreational Visitors Post 2008 ARIMA predictions
Standardized error is 0.2473.

LA Recreational Visitors Post Pandemic ARIMA predictions
Standardized error is 2.9224.
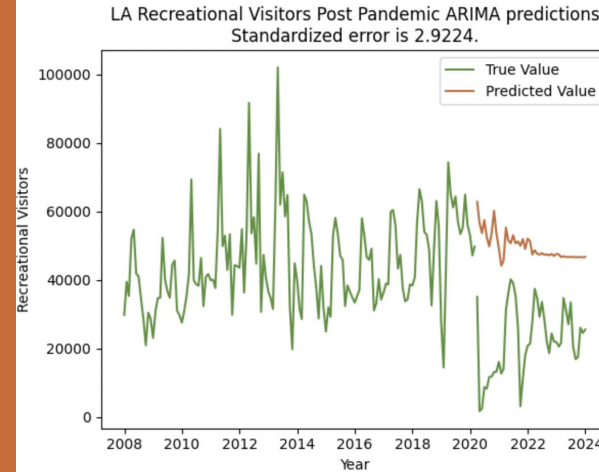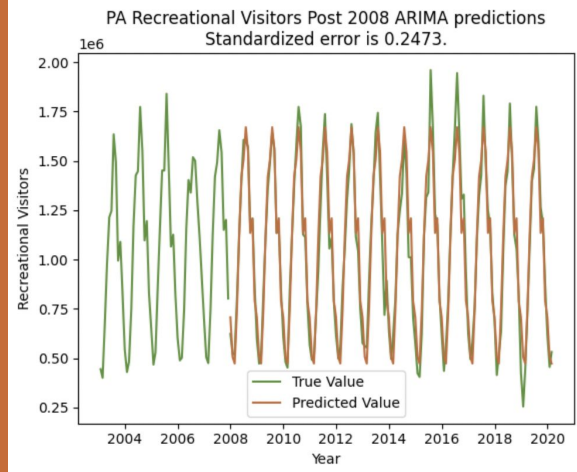
RQ4: Does Google Search Data improve our prediction abilities for national park recreational visitors?

- Granger Causality Testing per each state
- Recreational Visits
- A = .05

Number of states that had statistically significant Granger Causality test scores for National Park recreation visits
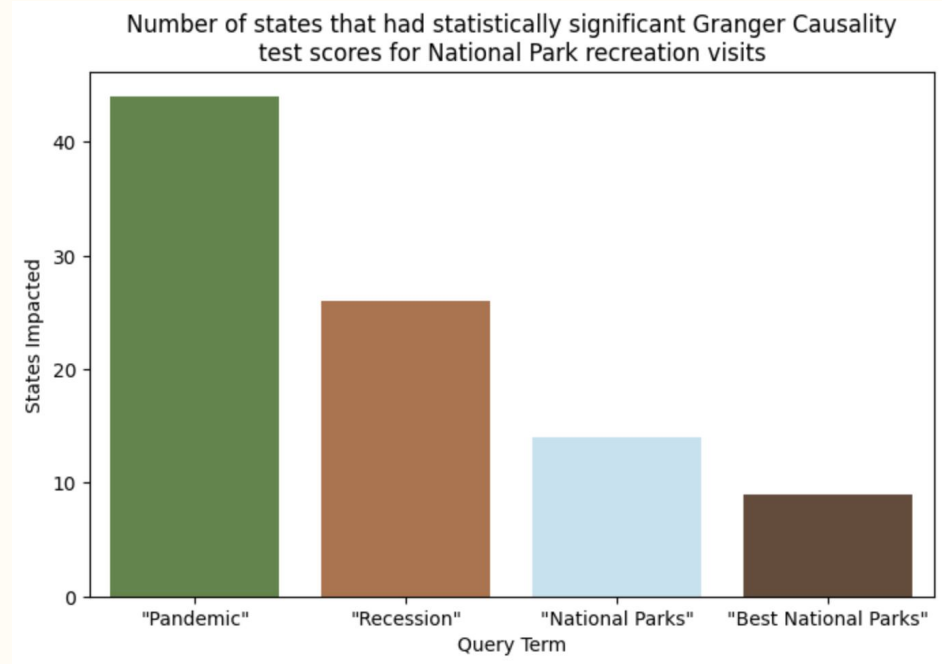
Impact & Implications

- Planning for seasonal staffing & permits
- Broader groupings than region may be helpful for understanding similarity between states

Thank you!