



Traffic Flow as an Economic Indicator: A Comparative Analysis of Road Volume, Economic Activities between two cities in US

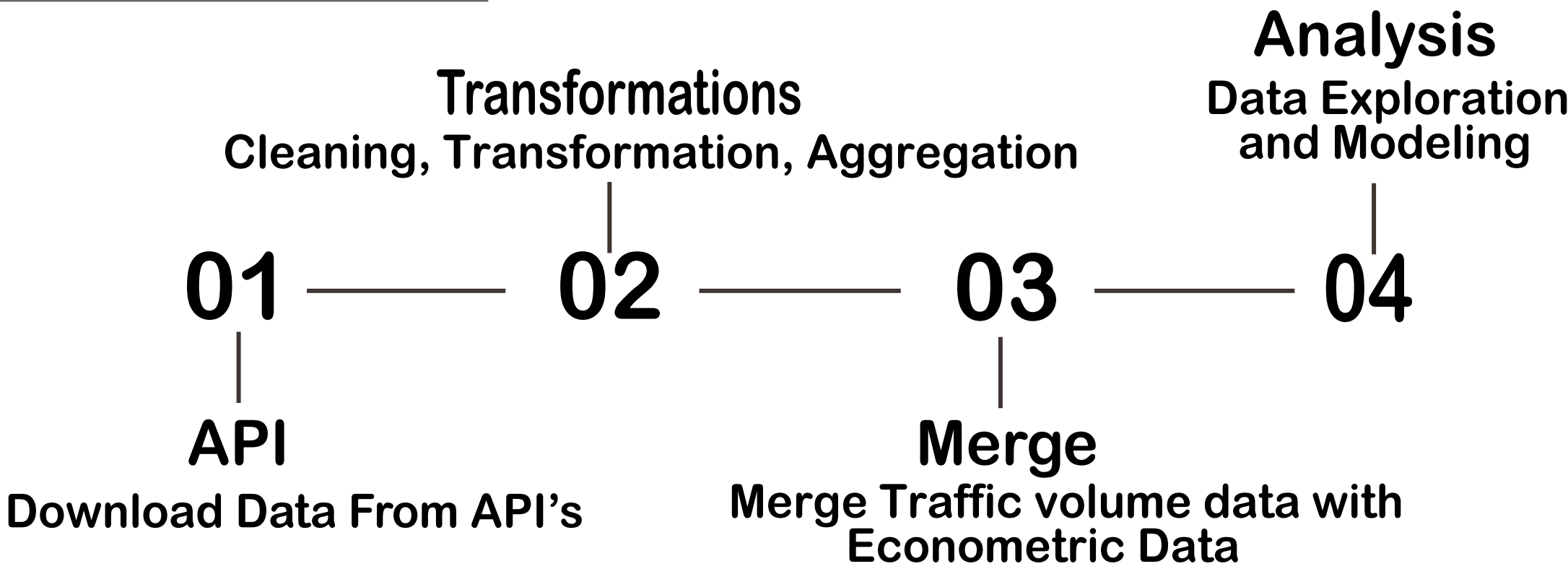
Course : IST 652 | Group Members: Prabin Shrestha , HeeYoon Shin, Arunava Das

Professor Name: Angela Ramnarine Rieks

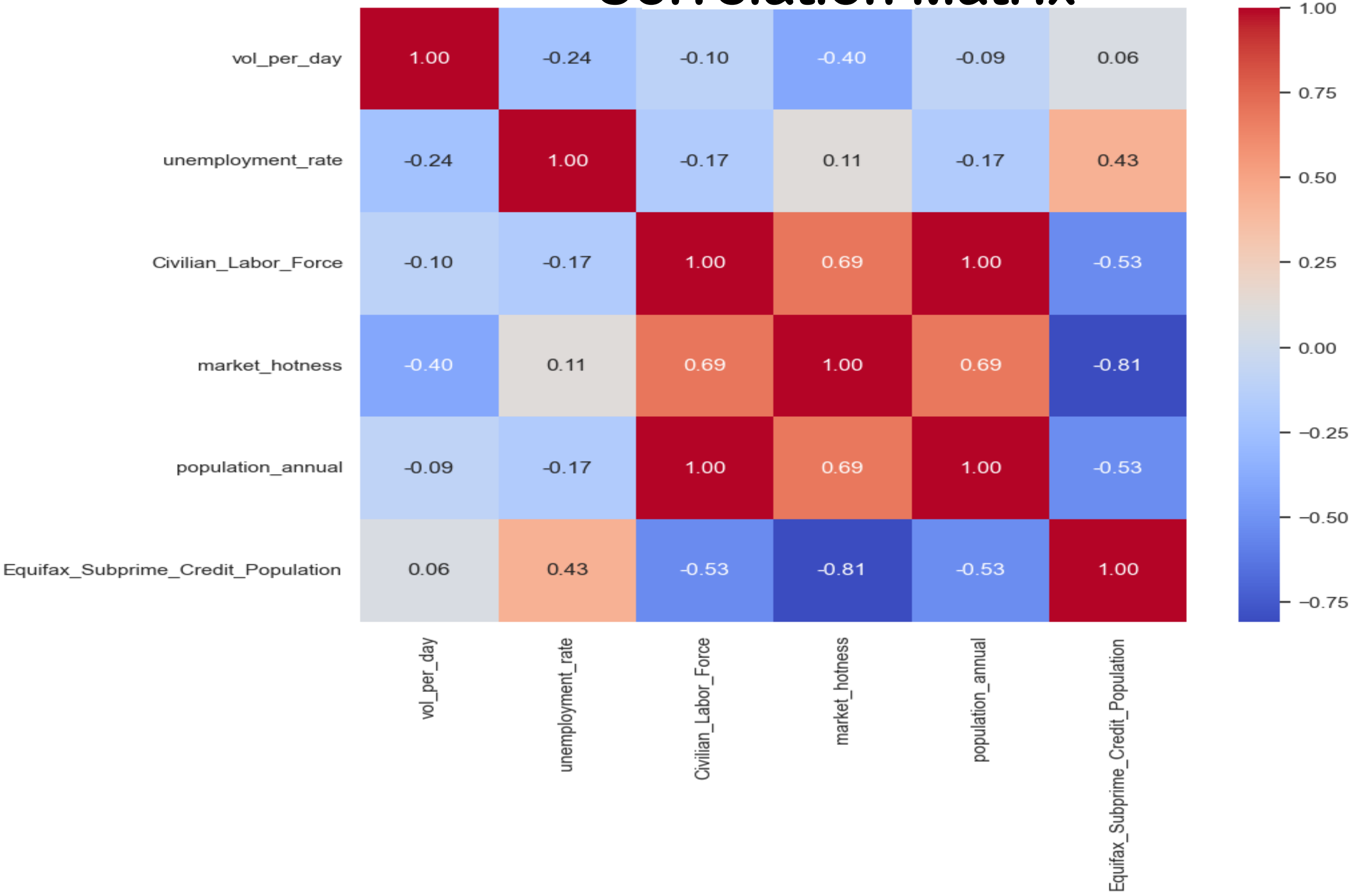
Objective

The project aims to explore the connection between traffic volume and economic activity, leveraging traffic data for forecasting economic trends. It will analyze correlations with employment rates, market hotness, and other relevant econometrics.

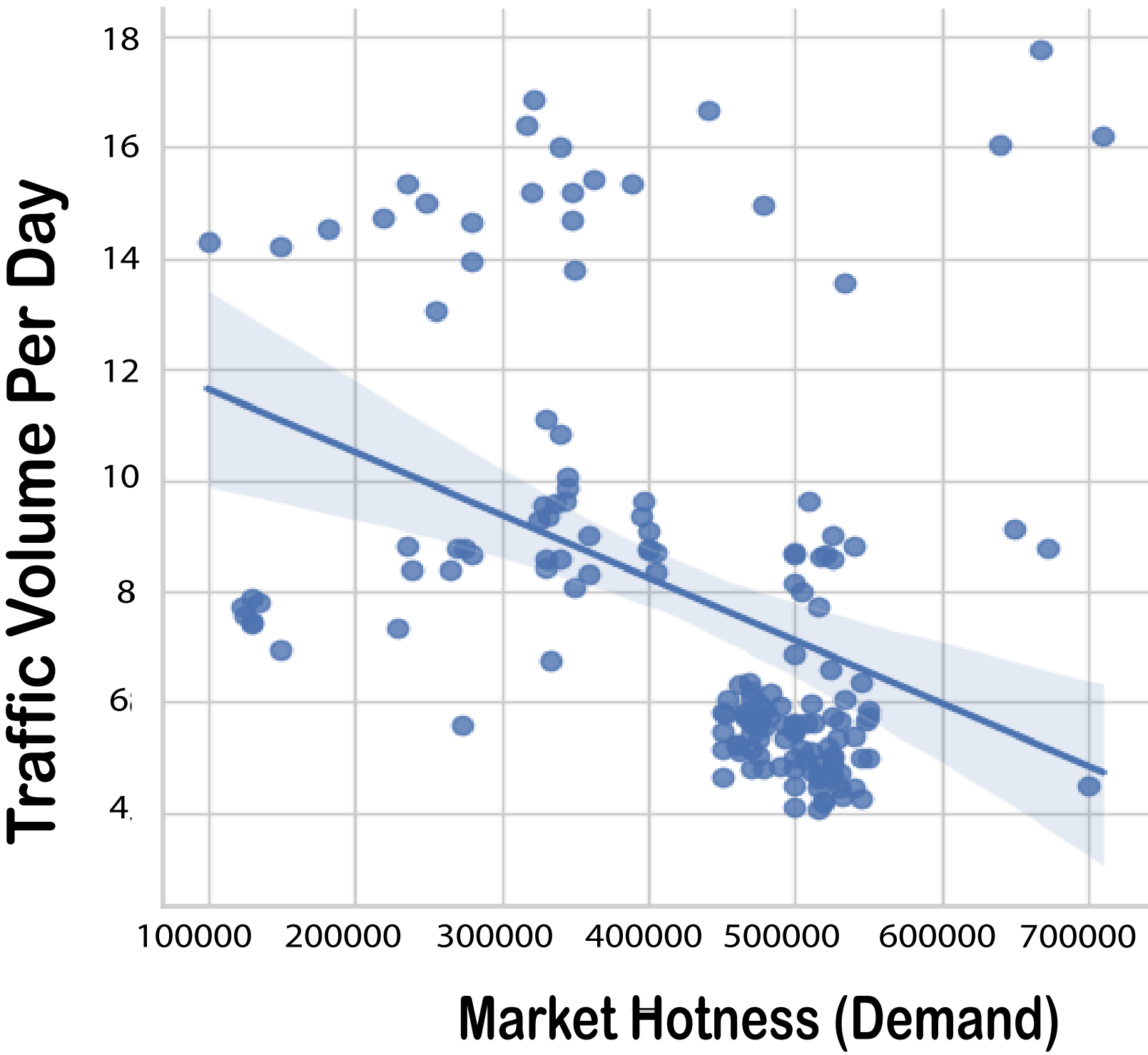
Processing Steps



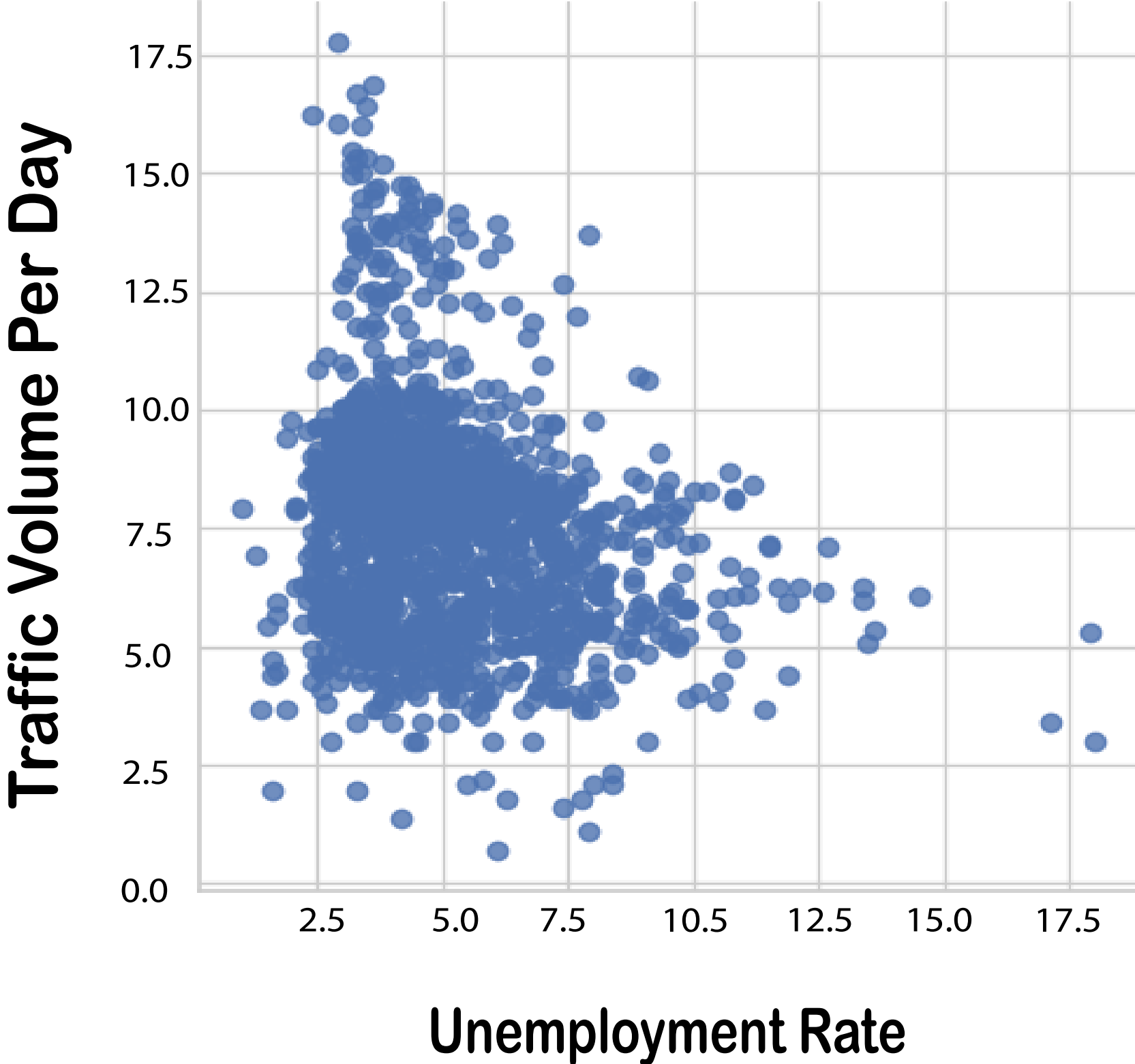
Correlation Matrix



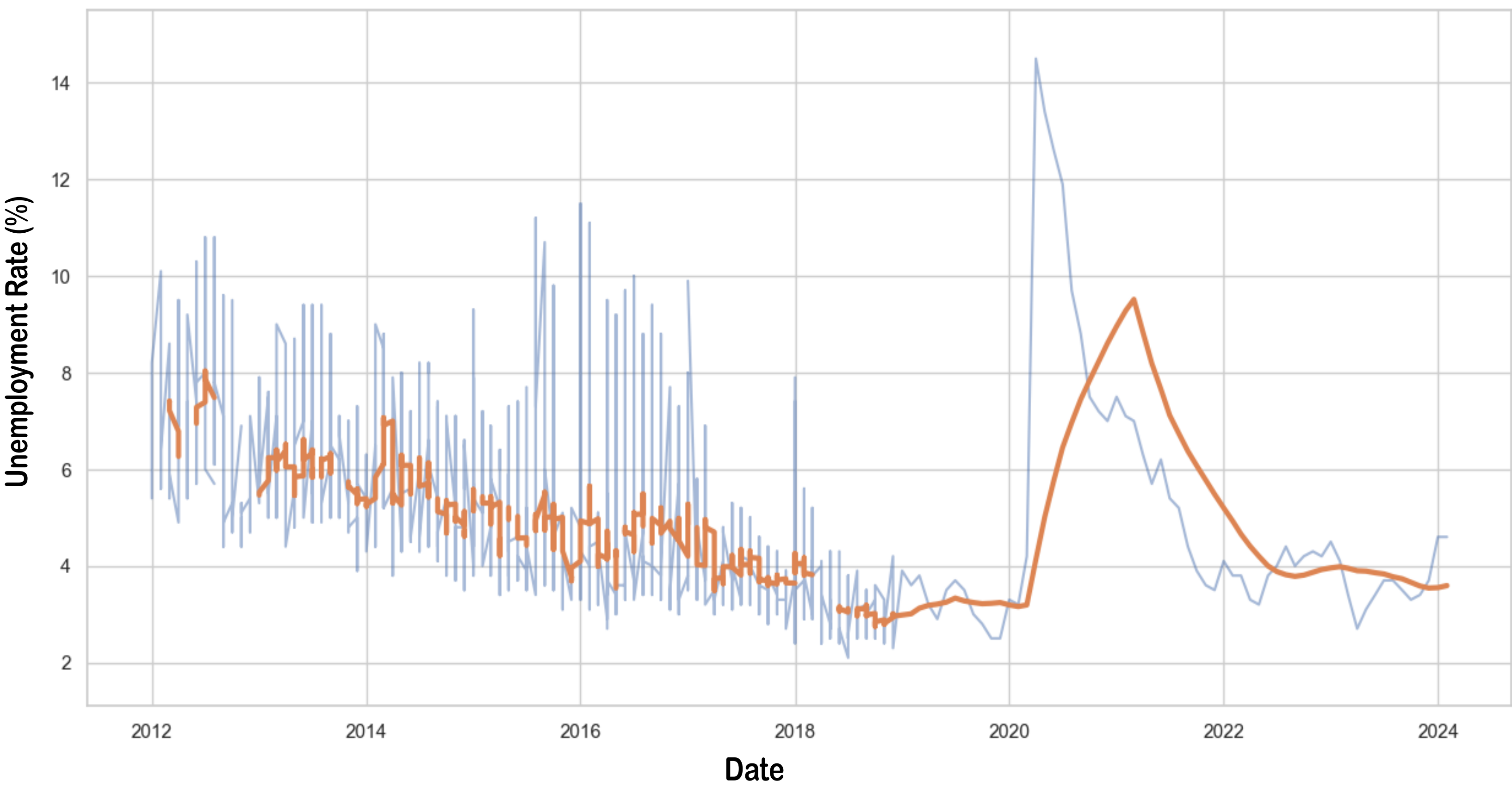
Linear Regression



Linear Regression

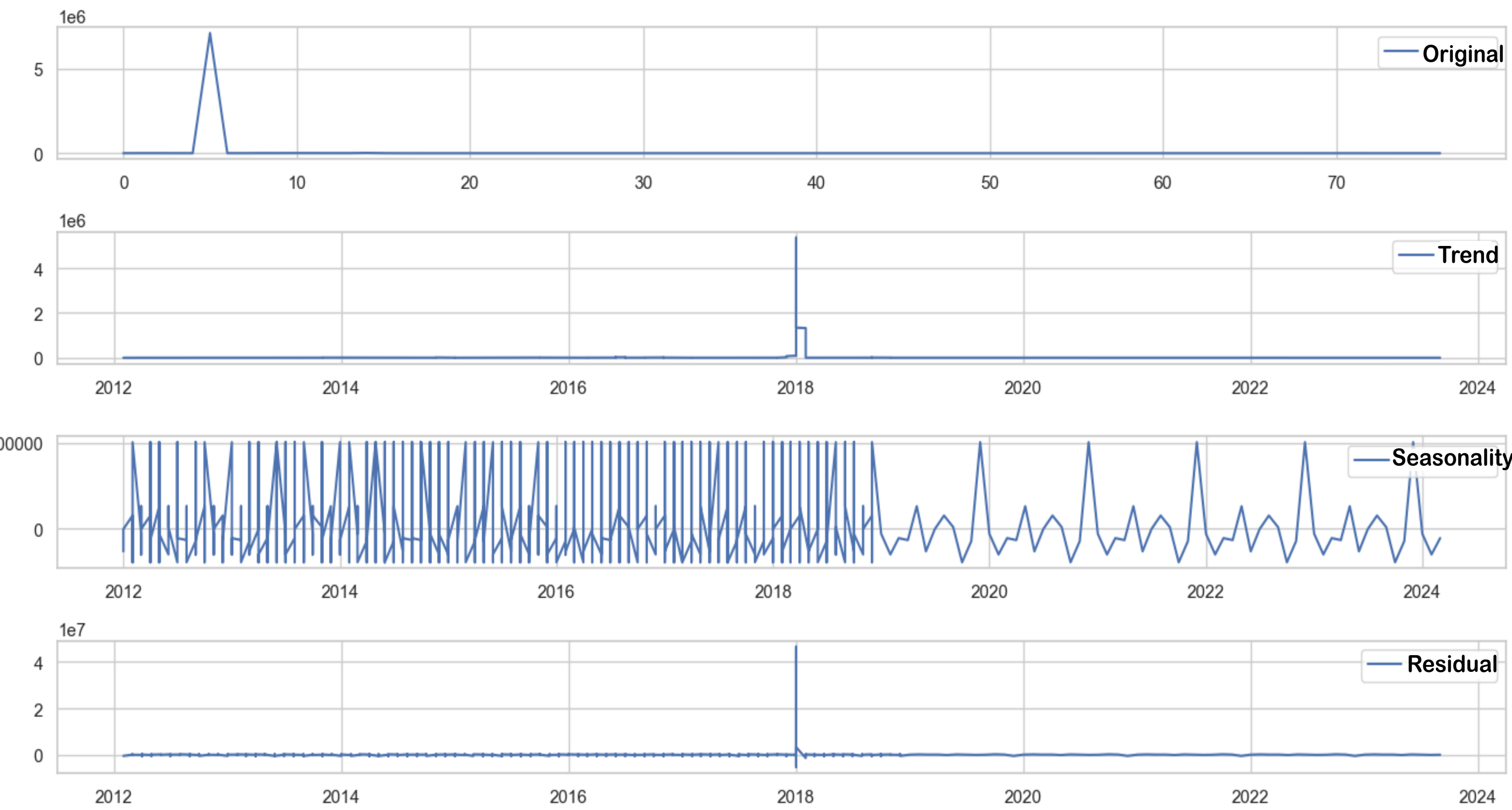


Unemployment Rate Over Time with Rolling Mean



- The graph displays the unemployment rate percentage from 2012 to 2024, with the actual rates shown by the blue line and the rolling mean depicted by the orange line to smooth short-term fluctuations and show longer-term trends.
- Notable is the substantial spike in unemployment around 2020, followed by a rapid decrease and subsequent stabilization, as indicated by the trend line in orange.

Change Point Analysis for Traffic Volume Per Day



- The plot is a time series decomposition from 2012 to 2024, displaying original data with significant event-related spikes, a trend component showing stability with exceptions around 2016 and 2018, a seasonal component reflecting regular fluctuations over time, and a residual component illustrating random variations after the trend and seasonal effects are removed.
- Noteworthy observations include event-driven spikes in the original data, specific years where the trend significantly deviates from its usual pattern, clear cyclical patterns indicating seasonality, and the randomness captured in the residuals.