



Cycling into New Markets

Analysis by Jordan Scriven

Goal

Analyze Austin's weather and cycling patterns to evaluate Merrytown's potential as a cycling-friendly city





Data Understanding

- Bicycle
 - 650,000 bicycle rides collected by the city of Austin over 1,000+ different days
 - From December 2013 to May 2017
 - Stations, Duration, Start Time, User Type, etc
- Weather
 - collected by Austin KATT station
 - Temperature, Dew Point, Humidity, Visibility, Wind, etc.

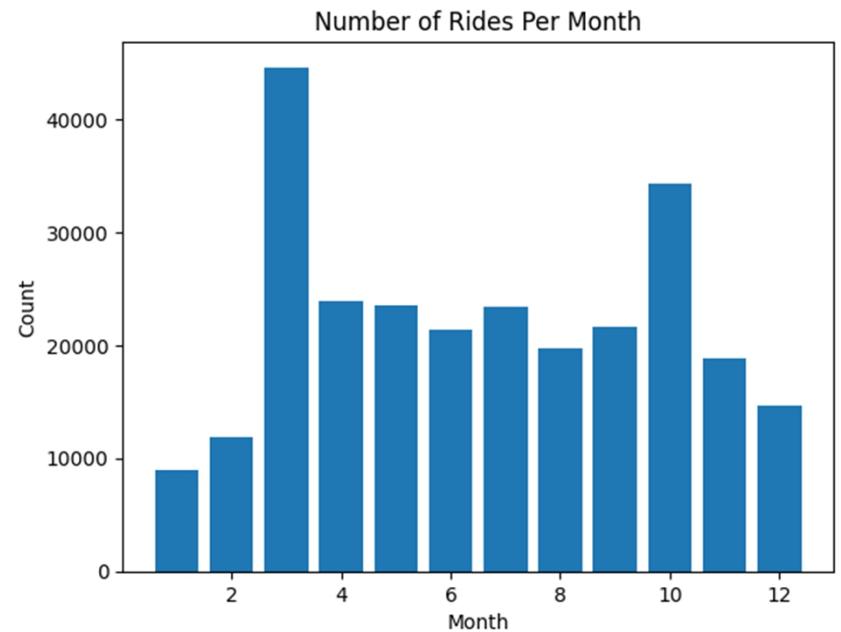
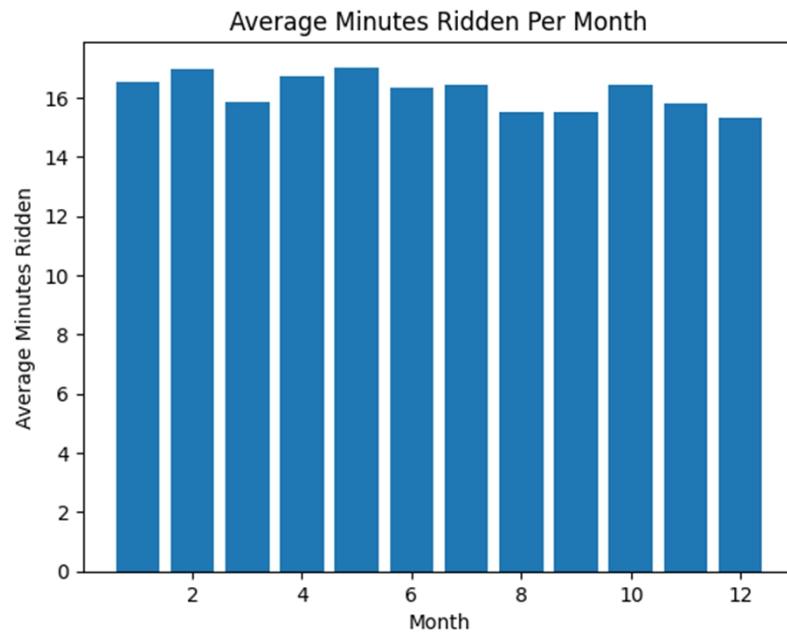
Data Preparation and Exploratory Data Analysis

Removed outliers

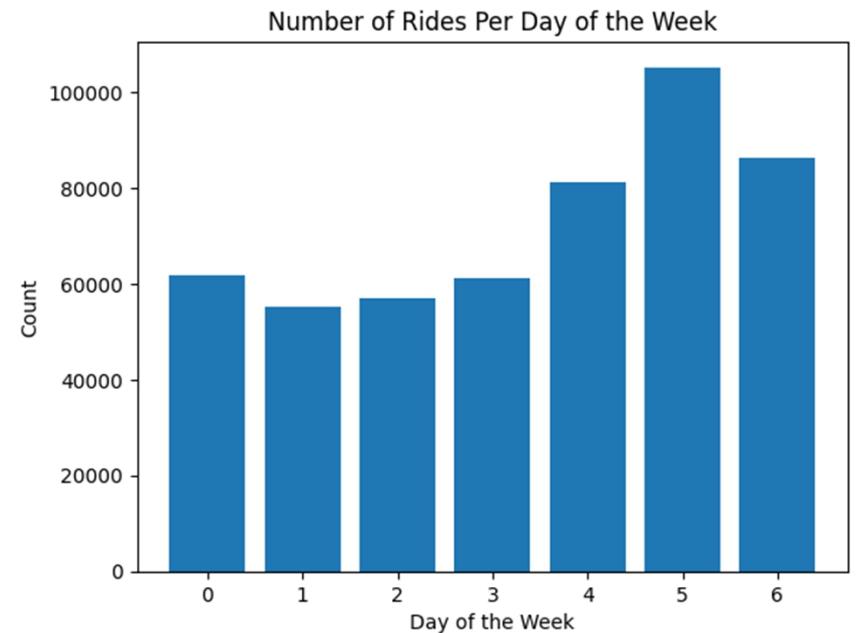
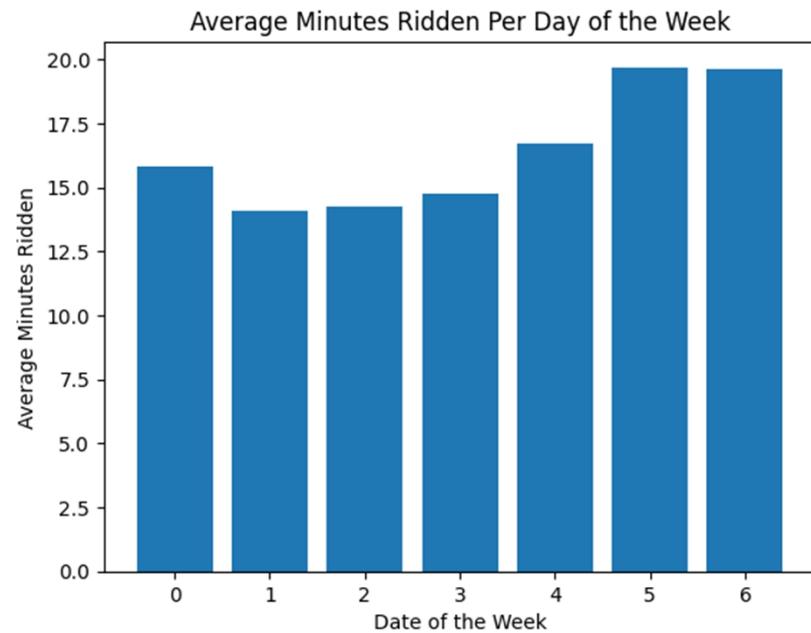
Removed short
(<2 minutes)
roundtrips

Created binary
weather events

Data Preparation and Exploratory Data Analysis



Data Preparation and Exploratory Data Analysis



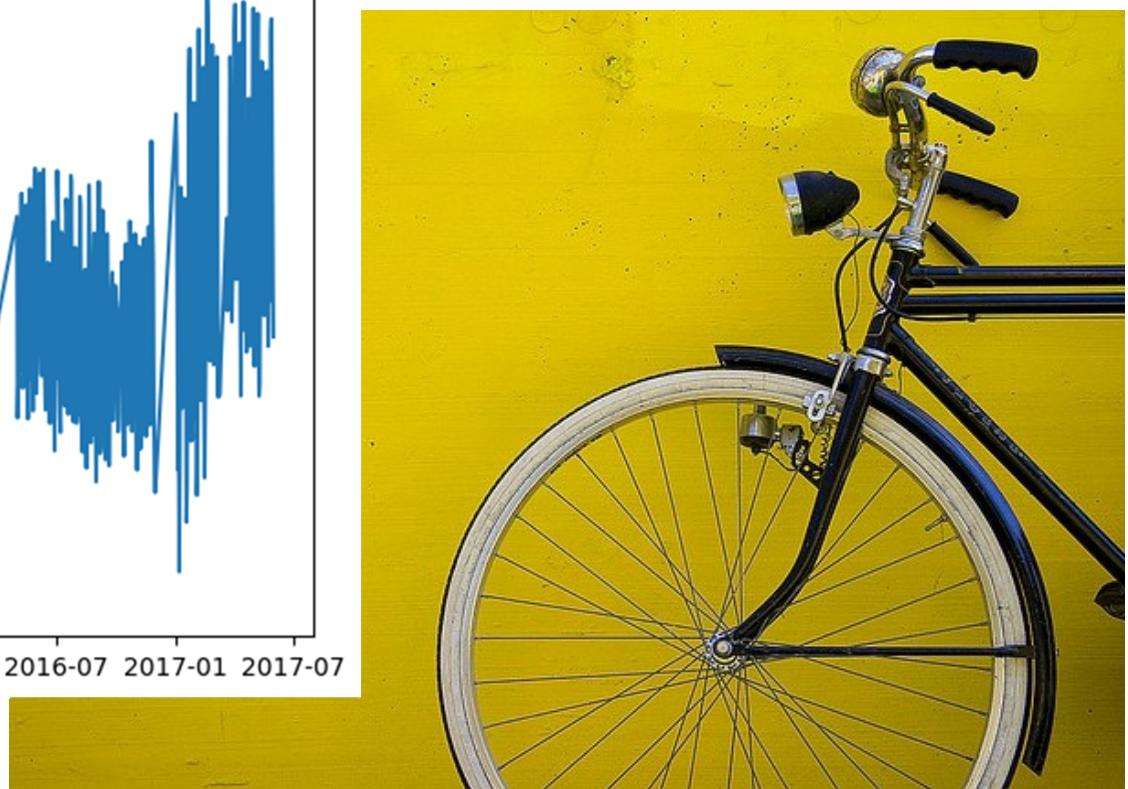
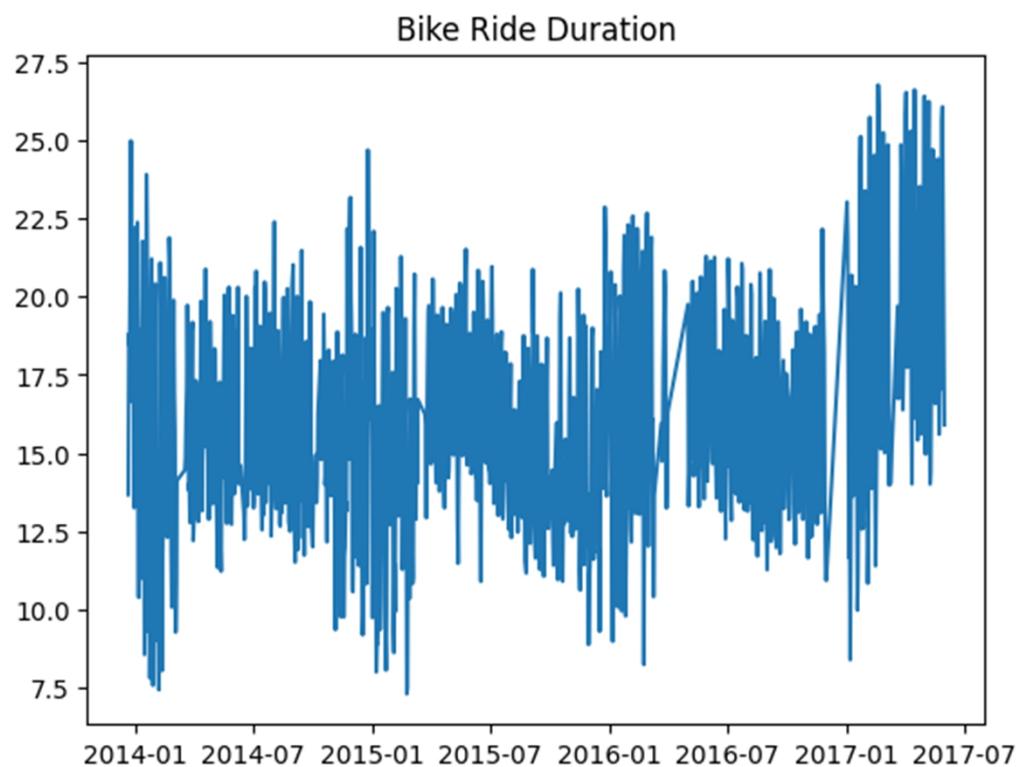
Data Modeling

Checked
stationarity

SARIMAX model

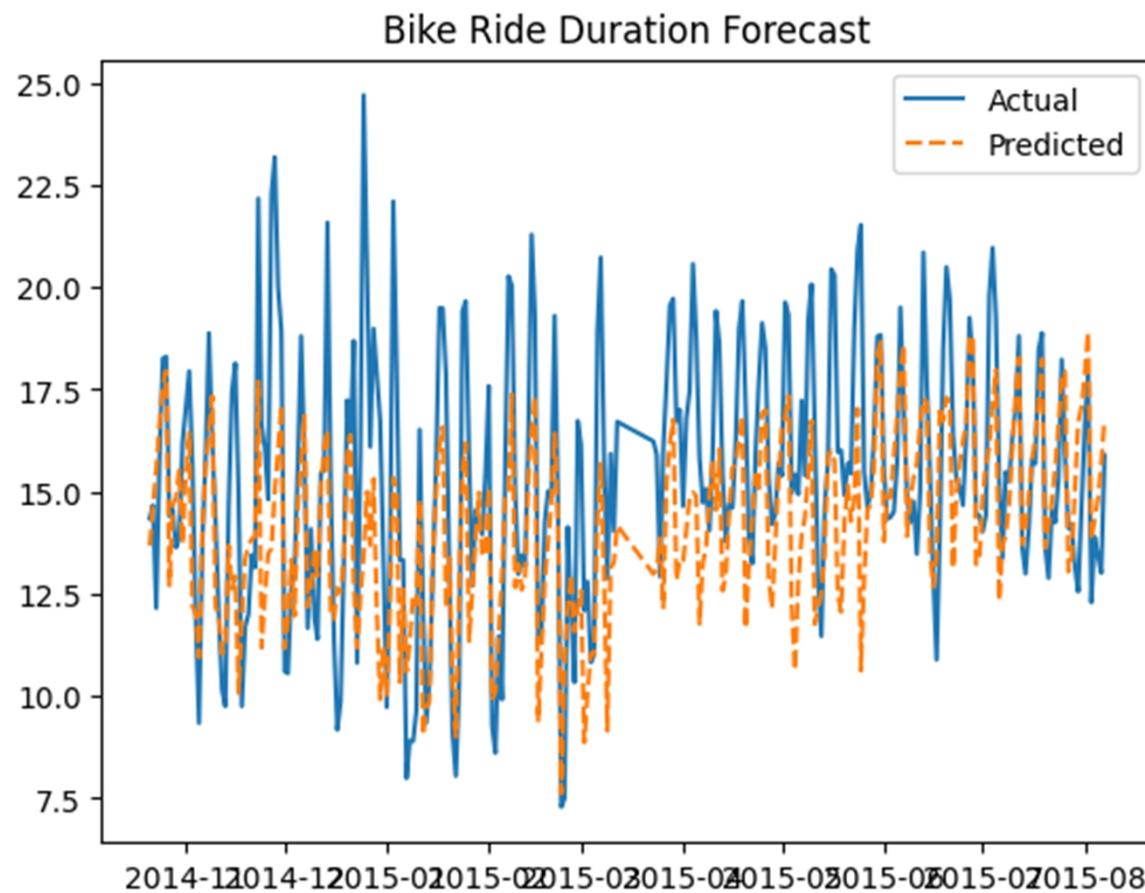
Used
TimeSeriesSplit
to create training
and testing data

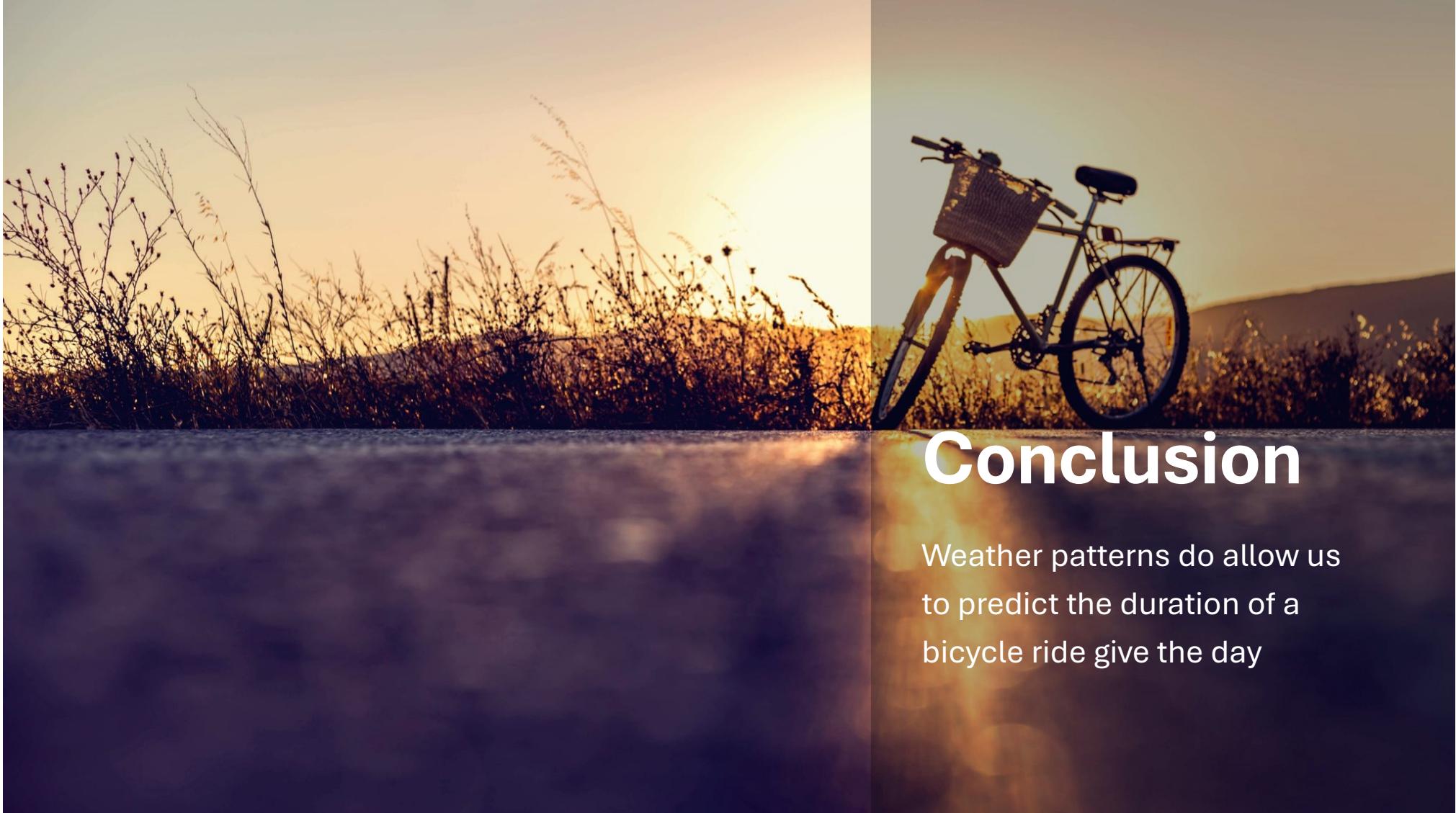
Data Modeling - Stationarity



Model Evaluation

Predictions within 2.43 minutes





Conclusion

Weather patterns do allow us to predict the duration of a bicycle ride give the day

Limitations and Next Steps

Demographics of the two cities are the same – need to check if populations differ in a manner that would affect our model

Find a good predictor of count of bike rides in a given day

Apply Merrytown data to models to find duration of rides and number of rides predicted



Thank you!

- Jordan Scriven
- Email: scrivenjordan@gmail.com
- Phone: (937)308-5337