



Chicago Lyft/Divvy Bicycle Ride Analysis

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Note: For academic purposes only

About me: Sean Harris



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Agenda

01

Business Situation

02

Data Overview

03

Data Analysis

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Recommendations and Next Steps

Bottom Line



Downtown Chicago is facing above normal traffic congestion due a 3 year construction project on the I-90/Kennedy Expressway and alternative transportation methods are needed to ease congestion.

Business Overview



3 year long construction project on the I-90/Kennedy Expressway in Chicago is has begun.



Traffic along the I-90 is being diverted to surface streets leading to gridlock.



Chicago DOT has been investing in creating safer cycling environments since 2017.



Increased commuting via bicycles will decrease congestion while maximizing CDOT's investments.

A person is riding a bicycle on a city street at night. The scene is dimly lit, with streetlights and building lights visible in the background. A large, semi-transparent blue circle is overlaid on the image, centered on the text 'Data Overview'. The circle contains a blurred image of a person's face. The text 'Data Overview' is written in a bold, black, sans-serif font. The background image shows a person's legs and feet on a bicycle, with a city street and buildings in the background. There are several colorful circles (blue, orange, yellow, green) scattered around the main blue circle, adding a decorative element to the design.

Data Overview

Data Overview



Analyzed over 2.8M Divvy Bicycle trips



Data limited to 2019



Imbalanced data set



Metrics: Recall

Why is this important?



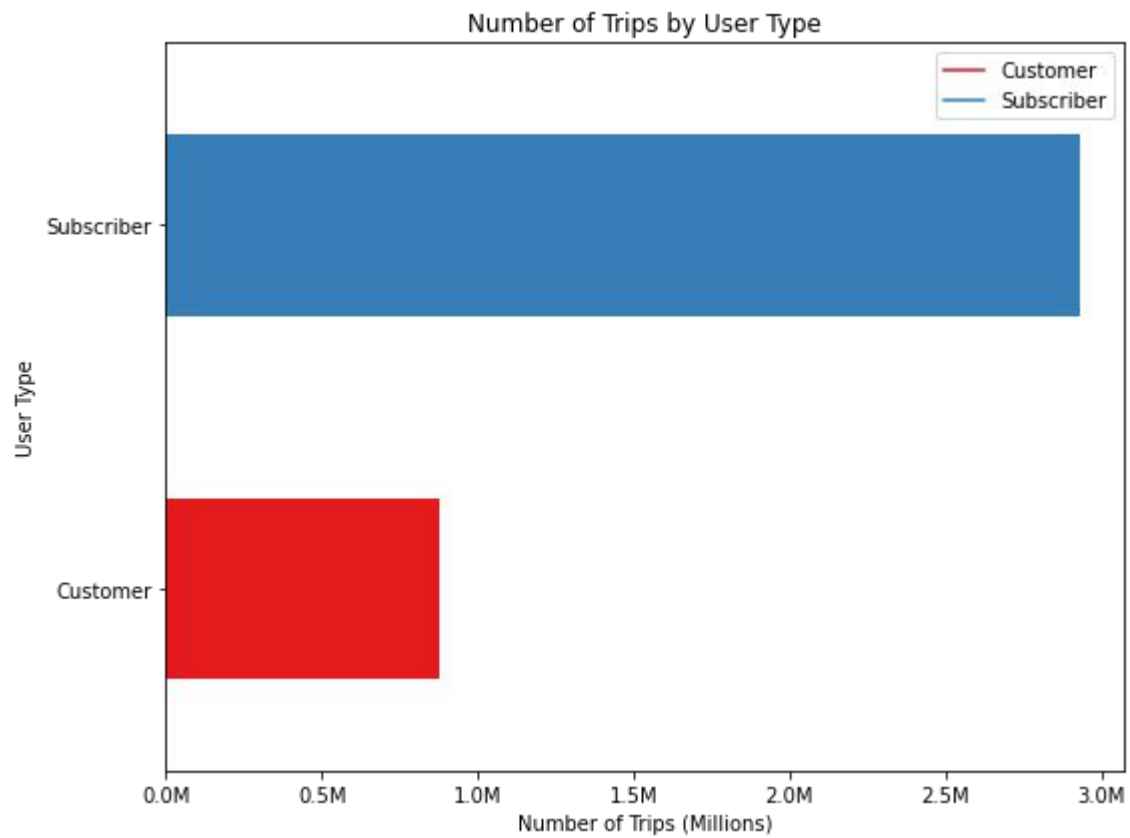
“The average urban commuter spends about 54 hours each year sitting in traffic. It also costs the U.S. economy a grand total of \$179 billion each year.”

- Texas A&M Transportation Institute

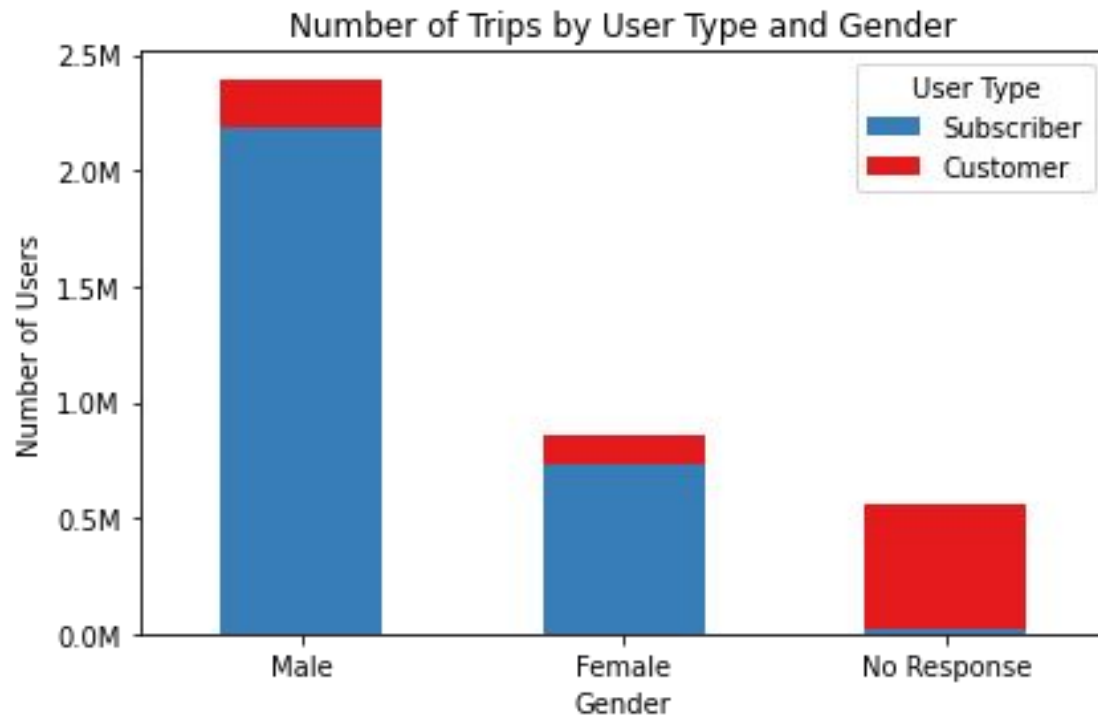
A person is riding a bicycle on a city street at night. The scene is dimly lit, with streetlights and building lights visible in the background. A large, semi-transparent blue circle is overlaid on the upper part of the image, containing the text 'Data Analysis'. The circle has a blurred, bokeh-like effect. Several smaller, solid-colored circles in blue, orange, yellow, and green are scattered around the main circle and the background. The person riding the bicycle is wearing a light-colored top, dark shorts, and white sneakers with blue socks. The bicycle has a black frame and thin tires.

Data Analysis

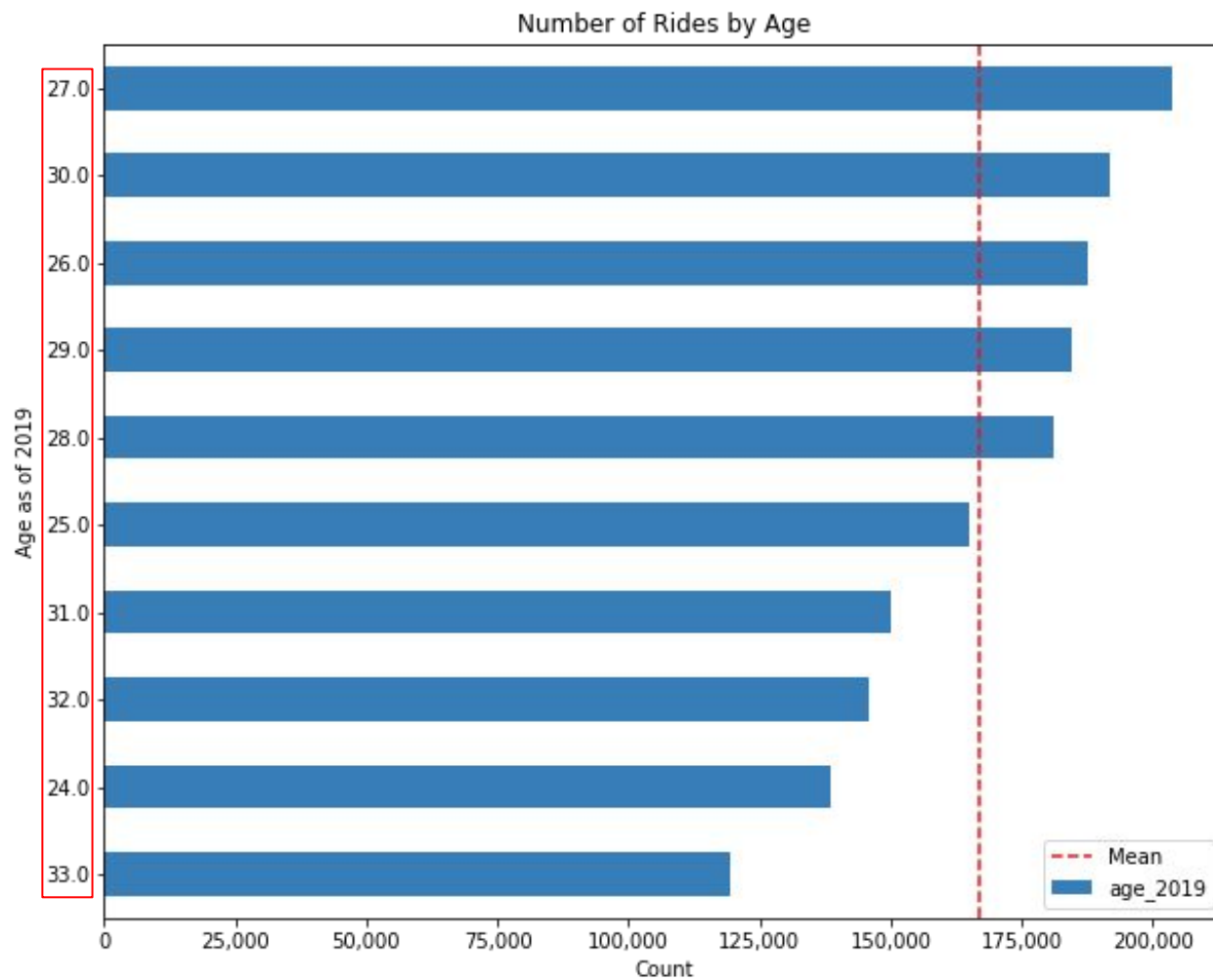
Target for Analysis



Men Comprise the Majority of Rides



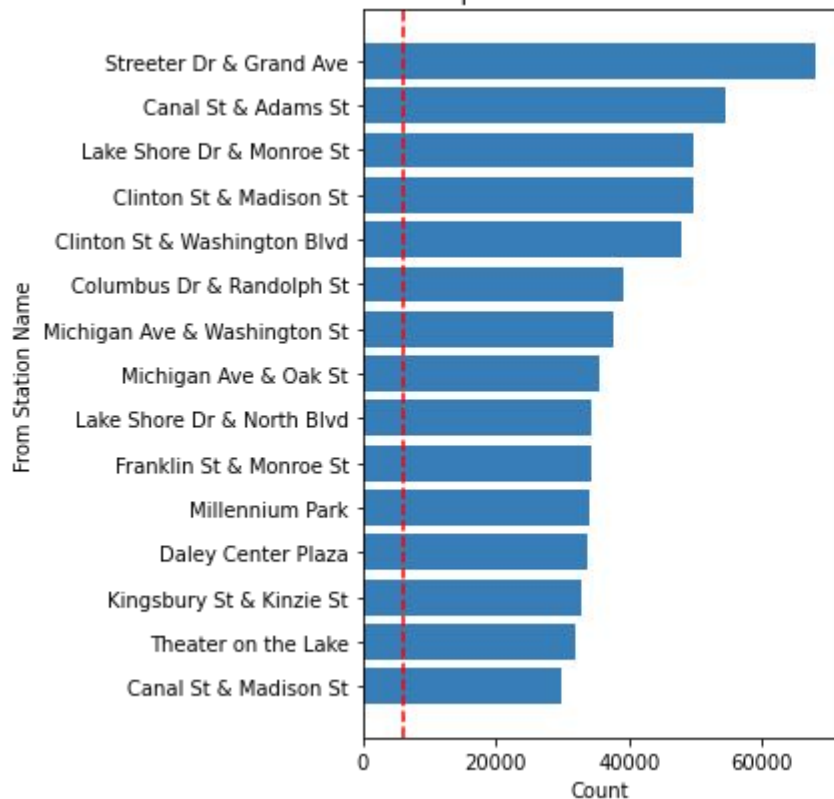
Millenials are the Most Frequent Users



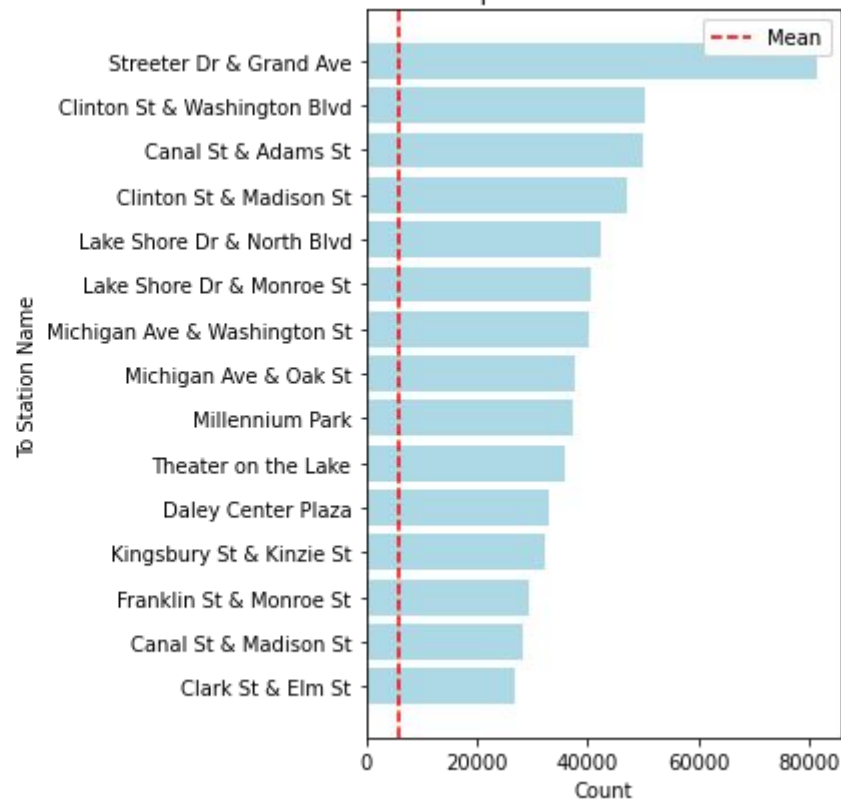
Highest Volume of Trips Occur in the Loop



Top 10 From Station Names



Top 10 To Station Names



A person is riding a bicycle on a city street at night. The scene is dimly lit, with streetlights and building lights visible in the background. A large, semi-transparent blue circle is overlaid on the upper part of the image, containing the word "Modeling" in white text. Several smaller, semi-transparent circles in blue, orange, and yellow are scattered around the main circle and the background. The person riding the bicycle is wearing a light-colored shirt, dark shorts, and white socks with blue stripes. The bicycle has a black frame and wheels.

Modeling

Model



- Best: Decision Tree
- Final Recall score: 87.1%
 - 4.2% increase from the train data performance
- Age of rider accounts for 78.2% of the feature importances

A person is standing next to a bicycle on a city street at night. The person is wearing a light-colored top, denim shorts, and white sneakers with blue socks. The bicycle is a dark-colored road bike with thin tires. The background is a blurred city street with lights and buildings. A large blue circle is overlaid on the image, containing the text "Recommendations & Next Steps". There are also several smaller circles in blue, orange, and yellow scattered around the main circle.

Recommendations & Next Steps

Recommendations



- Implement marketing plan to highlight Divvy in the downtown area
- Offer discount rates to downtown offices
- Highlight safe bike paths

Next Steps



Expand the data set to include recent data



Analyze app reviews for consumer sentiment



Perform straw poll regarding Divvy safety sentiment



Evaluate station and bicycle conditions

Questions?



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THANK YOU