Project Overview

We will analyze different metrics on users of Citibikes in New York City to assess the likelihood of success in Des Moines.

Purpose

After enjoying Citibikes in New York we have the idea of bringing the program to Des Moines, Iowa. However, Des Moines and New York are very different markets and success in New York does not necessarily mean the program will be successful in another city. We will perform an analysis on different metrics of the user base for the program in New York and use it to determine if it looks like Des Moines could be a successful location for another Citibikes program.

Results

The first result we see is that the vast majority of bike checkouts last between zero and about 20 minutes. Checkouts very rarely last longer than one hour.

Graphical user interface, chart

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We then look at the checkout times by gender. We can see that both males and females checkout bikes for about the same amount of time, but the userbase consists of many more males than females.

Chart, line chart

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Next, we looked at when bikes were checked out. We created a heatmap showing the amount of bike checkouts per hour per day of the week. It’s immediately noticeable that the most common use of the bikes is for work commutes. Bikes are used most frequently on weekdays between the hours of 6 am to 9 am and between 5 pm to 7 pm when most people are going to and from work. Bikes are also on weekends during early to late afternoon, suggesting there is also high demand for the bikes for leisure. This could be locals enjoying the weekend or tourists visiting for the weekend.

A picture containing graphical user interface

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When looking at when bikes are used by gender we see similar results as to when we looked at checkout times by gender. Both males and females follow similar patterns of usage, but there are far more males using the bikes.

Graphical user interface

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Next, we looked at similar data of when bikes are used but separated our visual by whether the user is a subscriber or one-time-customer. We can immediately see that the majority of bike checkouts were done by subscribers, and the most common bike users are male subscribers. This heatmap tells us that getting customers to subscribe to the service appears critical for the success of the program.

Table

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Finally, we looked at the locations of where bikes are being checked out at and where they are being returned. The map tells us that the bikes are used the most in downtown and midtown Manhattan. These are areas of high foot-traffic, high tourism, and congested streets. Outside of Manhattan the bikes are used much less.

Map

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Map

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Summary

There are three key take-aways from our analysis of Citibikes in New York. The first is that bikes get the most usage from commuters. The second is that most bike users are subscribers. And finally, that the bikes are used most frequently in downtown and midtown Manhattan.

For the bike service to be successful it is critical to get as many users as possible to subscriber to the service. We can see by the data from New York that if those subscribers are essentially what keeps the business going and without them it could fail.

Des Moines could have trouble starting a similar program to Citibikes. Des Moines does not have the foot traffic nor the tourism that Manhattan has. Des Moines is more of a drive commute city. The market for bike users was already in Manhattan with so many people walking and taking public transportation to work due to the congested traffic. Citibikes provided the service to meet the demand. For the program to work in Des Moines we would have to create the market for the bikes. That could come from tourism, but again Des Moines does not see tourism near as high as Manhattan. I think we have a closer picture to what we would see in Des Moines when we look at the other boroughs of New York.

However, we did see that bikes are used on weekend afternoons for leisure. This is the area I think Des Moines should focus on the most when it comes to a program like Citibikes. It would be smaller in scale, but there could be a market in Des Moines for people who want to rent bikes on their time off for leisure purposes.

Another visualization that we could create for the analysis would look at the number of subscribers by age group in New York, particularly subscribers who use bikes on weekends. This will inform us of who uses the bikes the most, particularly leisurely, and will tell us which groups to focus on when trying to get the program going in Des Moines.

We could also create a visualization that looks at how long bikes were checked out, but split it up by weekdays versus weekends. This will give us a clearer picture of bike usage on weekends where we want to focus for Des Moines.