Seoul Bike Sharing Rentals Analysis Project

Project Proposal

Executive Summary:

Cities around the world are moving to more environmentally friendly ways of traversing their streets. This includes the encouragement of using bikes to get around. One city that has been investing in this move is Seoul and it wants to ensure a stable supply of bikes for locals and tourists, alleviating wait times. Thus it is imperative to find trends within bike rental data to see where volumes are at their highest and what causes rentals to fluctuate.

The idea that there are ways to improve the usability and access of a city in greener, more sustainable ways, through the use of data is very intriguing. If we are able to gain useful insights through time, date, and atmospheric conditions, we can ensure that anyone who wants to rent a bike will be able to, leading to less traffic, lower emissions, and an increase in physical activity.

Why:

We need to see what impacts bike rentals within Seoul. More specifically, what times (season, month, hour, etc.) or atmospheric conditions affect bike rentals? When are they at their highest? We want to ensure a stable supply of bikes given these conditions.

Who:

Personas on The Next Two Pages
Mayor, City Council Members

What:

The dataset that will be used to address the above business question comes from Sunchon National University. It covers a wide range of atmospheric conditions alongside ride volumes and time/date recorded. With it, we should be able to derive the conditions and times that affect rental bike volumes in Seoul.

It can be found on UC Irvine Machine Learning Repository:
Seoul Bike Sharing Demand - UCI Machine Learning Repository

How:

With the given material and dataset, it will be presented in the form of a multi-frame Story in Tableau. Each story will be refined at the surface level but have considerable interactivity if they want to dive deeper. It will be presented at a city council meeting.

Challenges:

While the data itself is complete, with no missing values, it will be necessary to create some calculated fields. As it stands, each entry is one hour of each day (represented by a

number 0-23), creating 8,760 rows in the table. Creating a value total for each day will be necessary. Alongside that, looking at different levels of each atmospheric condition may lead to some key insights. This will be done with IF THEN ELSE END statements.

Personas

Persona 1: Oh Se-hoon
Gender: male
Age: 62

"We want to make Seoul one of the most bike and pedestrian friendly cities in the world. This means ensuring the proper rental bike supply."

Goals:

- To use bike rental data to influence future city development in order to achieve and create a more liveable city.
- Stay up to date with the development of Ddareungi. The bike sharing system he wanted to bring to Seoul in 2009.
- Be able to convey development, usage, and figures of Ddareungi in a political manner.
- Requires quick clear updates.

Challenges:

- Extremely busy, diverted attention, limited time
- Really good with policy and law, but doesn't have a deep understanding of statistics data
- Passionate about the bike rental usage, but must keep it in a political frame for future elections/policy

Relevant Notes: Current mayor of Seoul and the originator of Ddareungi (Seoul Bike); Seoul's bike sharing system. He is invested in this project and feels the need to stay up to date.

Persona 2: Lee Sae-nal
Gender: Female
Age: 43

"We must be prepared for the future of this city and that means facing issues before they arise."

Goals:

- She wants to use bike data to lessen wait times and improve access at any given moment, while not oversuppling.
- Deeply wants to support city wide initiatives through the use of data to better Seoul's transportation, leading to less traffic, happier citizens, and a cleaner atmosphere.
- Lee wishes to make a change when it comes to Seoul's future.

Challenges:

- Lee is fairly good with numbers and wants to derive deeper insights, but is not great with narrowing down the most important findings through visualization.
- She must share this information at a meeting with other members of city council, as well as the mayor, most of which are not as statistically inclined.
- Lee is aware that tourism to Seoul is increasing, especially post-pandemic, and is worried that they are not doing enough to combat it.

Relevant Notes:

She is a member of the city council. She will be using the findings to share current trends at the next board meeting.

REFLECTION ON FOLLOWING PAGE

Reflection

One of the biggest things that I wanted to get right was the level of detail that was displayed. Essentially I wanted to make it “as simple as possible, but not simpler.” The reason being that it was for the mayor and city council, presented at the monthly meeting. By removing unnecessary legends, axes, headers, and numbers, the focus is on the graphs and the trends they represent. Another design choice that I made was using elements that made understanding easier. These things included color like representing temperature with a blue-red diverging scale, trend lines on scatter plots, annotations, and a circle to focus on a certain time period. While this also plays into the limited time frame of the presentation, they were utilized because the Mayor and the council are not the most numerically or statistically inclined. I also set the dashboards in the story to show the year of data; or all 365 days. This way overarching trends are clearer when it comes to atmospheric conditions or time. I did however add filters for seasons, months, and days if they wanted or needed to narrow in.

In comparison to my original proposal I think it is very similar with some changes. I think my plan stayed pretty much the same because I reviewed the problem and the data to a fair degree before completing the proposal. What did change however was the depth that I wanted to go when it came to interactivity and certain calculated fields. It just did not make sense when it came down to it and rather complicated the visual instead of making it clear and simple. For example, I thought I wanted to use IF THEN ELSEIF ELSE fields to create different levels for each atmospheric condition, like really cold, cold, warm, and hot. Yet, I was able to visualize these things in better ways where it was not necessary to add filters to see the differences. If I were to continue working with this data set, I would like to learn more statistical analysis so that I could shift the business question to something that was more numbers focused. - Beyond that the main thing I learned was utilizing Tableau for a different kind of data set from what we have been practicing with. I thought I knew what visuals I would use prior to importing the data but it did not work out as intended. Thus, I had to go through and try different combinations and chart types with aggregated or disaggregated data to find what worked best. It was exploratory.

Final Viz:
https://public.tableau.com/shared/J5GQWX8ZN?:display_count=n&:origin=viz_share_link