

# Matt Jones | Data Visualizations with Python - Task 2.2

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## List of Elements for the Dashboard

1. **Geographic Visualization (map)** – of bike stations across the city, and possibly of trips taken
2. **Heat Map** – of total rentals that can be divided by day of the week, month of the year, and location in the city
3. **Line Chart** – of variation in average temperature over the year
4. **Bar Chart** – of number of rentals at a given station, that is filterable by month of the year and day of the week.

## Questions to Guide Analysis

1. **Are bike stations evenly distributed? Which locations in the city are potential locations for new bike stations? Which locations are not popular enough to warrant a station?**

These questions can be answered with a map that shows where bike stations are currently located, and the paths customers currently take on our bikes.

2. **What seasonal patterns can we find in this bike rental data? Are customers using our bikes more for work transportation? Or for pleasure?**

This question can be answered with a heat map that compares the popularity of rentals across times, months, and rental locations. While we can't be sure of customer intent with this data, we can use generic work transit times (M-F from 8-10am and 4-6pm) to estimate the bike rental purpose.

3. **How does weather impact bike rentals?**

This question can be answered with a line chart that shows how the average temperature varies over the year. And if this visualization is combined with a bar chart showing total rental numbers over the year, it will be easy to see if weather is correlated with bike rentals.

4. **What are the most popular starting bike stations? Are these stations the most popular all year?**

This question can be answered with a bar chart that shows the top bike stations and their total rental numbers at each time. Having this chart filterable by month will also answer if the popularity of a bike station changes over time. For instance, a bike station near the water may be nice during the summer. But if that station is not near a subway station, it may not be something people go out of their way to enjoy.