### Summary Statistics

Let's start with some summary statistics to get an overview of the dataset.

#### Descriptive Statistics for Numerical Columns

- Basic statistics such as mean, median, standard deviation, min, and max for `start\_lat`, `start\_lng`, `end\_lat`, and `end\_lng`.

#### Trends Over Time

- Number of rides per day.

- Number of rides by hour of the day.

- Number of rides by day of the week.

- Distribution of ride durations.

Let's generate these analyses.

#### Summary Statistics for Numerical Columns

### Summary Statistics for Numerical Columns

- \*\*start\_lat\*\*:

- Mean: 41.897

- Standard Deviation: 0.049

- Min: 41.649

- Max: 42.070

- \*\*start\_lng\*\*:

- Mean: -87.647

- Standard Deviation: 0.028

- Min: -87.830

- Max: -87.528

- \*\*end\_lat\*\*:

- Mean: 41.897

- Standard Deviation: 0.049

- Min: 41.649

- Max: 42.080

- \*\*end\_lng\*\*:

- Mean: -87.647

- Standard Deviation: 0.029

- Min: -87.840

- Max: -87.528

### Ride Duration Summary

- \*\*Mean\*\*: 10.85 minutes

- \*\*Standard Deviation\*\*: 27.16 minutes

- \*\*Min\*\*: 0 minutes

- \*\*Max\*\*: 1499.92 minutes

- \*\*Median (50%)\*\*: 7.12 minutes

### Trends Over Time

- \*\*Number of Rides per Day\*\*: Rides range from around 5,122 to 7,257 per day.

- \*\*Number of Rides by Hour of the Day\*\*:

- Peak hours: 16:00 - 18:00 (4 PM - 6 PM)

- Lowest usage: 03:00 - 04:00 (3 AM - 4 AM)

- \*\*Number of Rides by Day of the Week\*\*:

- Highest on Tuesday (36,264 rides)

- Lowest on Saturday (19,776 rides)

Would you like to delve deeper into any specific trends or visualizations?

### Visualization Suggestions

Here are some potential visualizations we can create to better understand the data:

1. \*\*Number of Rides per Day\*\*: A line plot to show the trend over the month.

2. \*\*Number of Rides by Hour of the Day\*\*: A bar chart to show peak and off-peak hours.

3. \*\*Number of Rides by Day of the Week\*\*: A bar chart to highlight the most and least popular days for riding.

4. \*\*Distribution of Ride Durations\*\*: A histogram to show the distribution of ride lengths.

Let's start by creating these visualizations.

#### Number of Rides per Day

#### Number of Rides by Hour of the Day

Let's create a bar chart to visualize the number of rides by hour of the day.

#### Number of Rides by Day of the Week

Next, let's create a bar chart to show the number of rides for each day of the week.

#### Distribution of Ride Durations

Finally, let's create a histogram to show the distribution of ride durations.

### Summary of Visualizations

1. \*\*Number of Rides per Day\*\*: The line plot shows fluctuations in daily rides throughout January 2023, with notable peaks and troughs.

2. \*\*Number of Rides by Hour of the Day\*\*: The bar chart highlights peak riding hours between 4 PM and 6 PM, and the lowest usage in the early morning hours around 3 AM.

3. \*\*Number of Rides by Day of the Week\*\*: The bar chart indicates that Tuesdays see the highest number of rides, while Saturdays have the lowest.

4. \*\*Distribution of Ride Durations\*\*: The histogram shows that most rides are relatively short, with a large number of rides lasting around 5-15 minutes.

Would you like to explore any additional analyses or visualizations?