Let's perform some initial data analysis to gain insights into the dataset. We'll cover the following aspects:

1. Summary statistics

2. Trends over time

3. Distribution of rides by type

4. Analysis of ride durations

### 1. Summary Statistics

We'll start by calculating summary statistics for the numeric columns in the dataset.

### 2. Trends Over Time

We'll analyze the trends in the number of rides over the month.

### 3. Distribution of Rides by Type

We'll look at the distribution of rides by the type of user (member or casual).

### 4. Analysis of Ride Durations

We'll calculate the ride durations and analyze the distribution of ride durations.

Let's proceed with these analyses.

### Summary Statistics

Here are the summary statistics for the latitude and longitude columns:

| Statistic | start\_lat | start\_lng | end\_lat | end\_lng |

|-----------|-----------|-----------|---------|---------|

| Count | 426,590 | 426,590 | 426,590 | 426,590 |

| Mean | 41.901507 | -87.646961| 41.902002| -87.647225|

| Std Dev | 0.047098 | 0.027689 | 0.047217| 0.027794|

| Min | 41.648501 | -87.830000| 41.648501| -88.110000|

| 25% | 41.880000 | -87.660224| 41.880317| -87.660984|

| 50% | 41.897733 | -87.644140| 41.898969| -87.644336|

| 75% | 41.930000 | -87.629859| 41.930000| -87.629912|

| Max | 42.070000 | -87.520000| 42.080000| -87.528232|

### Trends Over Time

The plot shows the number of rides per day in April 2023. There are noticeable fluctuations, indicating varying ride usage patterns throughout the month.

### Distribution of Rides by Type

- \*\*Member rides\*\*: 279,305

- \*\*Casual rides\*\*: 147,285

### Analysis of Ride Durations

Summary statistics for ride durations (in minutes):

| Statistic | Value |

|-----------|-------------|

| Count | 426,590 |

| Mean | 17.21 |

| Std Dev | 142.21 |

| Min | -8.93 |

| 25% | 5.02 |

| 50% | 8.92 |

| 75% | 16.17 |

| Max | 18,395.48 |

The negative minimum value for ride duration indicates possible data entry errors or issues that need further investigation.

### Next Steps

1. \*\*Investigate Negative Ride Durations\*\*: Identify and handle records with negative ride durations.

2. \*\*Further Analysis\*\*: Additional analyses could include:

- Ride patterns by day of the week.

- Peak hours for rides.

- Comparison of ride durations between members and casual users.

Would you like to proceed with any of these steps or have any other specific analyses in mind?