



A DATA ANALYTICS CASE
STUDY

How Cyclistic bikes usage varies between casual riders and annual members ?

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Question

- The Cyclistic bike sharing company's future success depends on maximizing the number of annual memberships. The question is, how casual riders and annual members use Cyclistic bikes differently ?

Executive Summary

- Casual riders and annual members exhibit distinct usage patterns when utilizing Cyclistic bikes, as overall, **casual riders exhibit longer ride length of 1.89K secs** , while **members take a higher number of rides of 1294.28K**
- Casual riders' most ridden bike was **electric bikes** with **439.57K** and they mostly rode their bikes on **Saturdays** with **194.52K** rides.
- Members' most ridden bike was **classic bikes** with **682.64K** and they mostly rode their bikes on **Thursday** with **204.64K** rides.

Data Collection and Cleaning Strategies

Data Collection with R:

- Utilized R as the primary tool for data collection, cleaning, and analysis.
- Imported datasets for the Q3 of 2023.

Data Inspection:

- Conducted a comprehensive data inspection to identify any inconsistencies or anomalies.

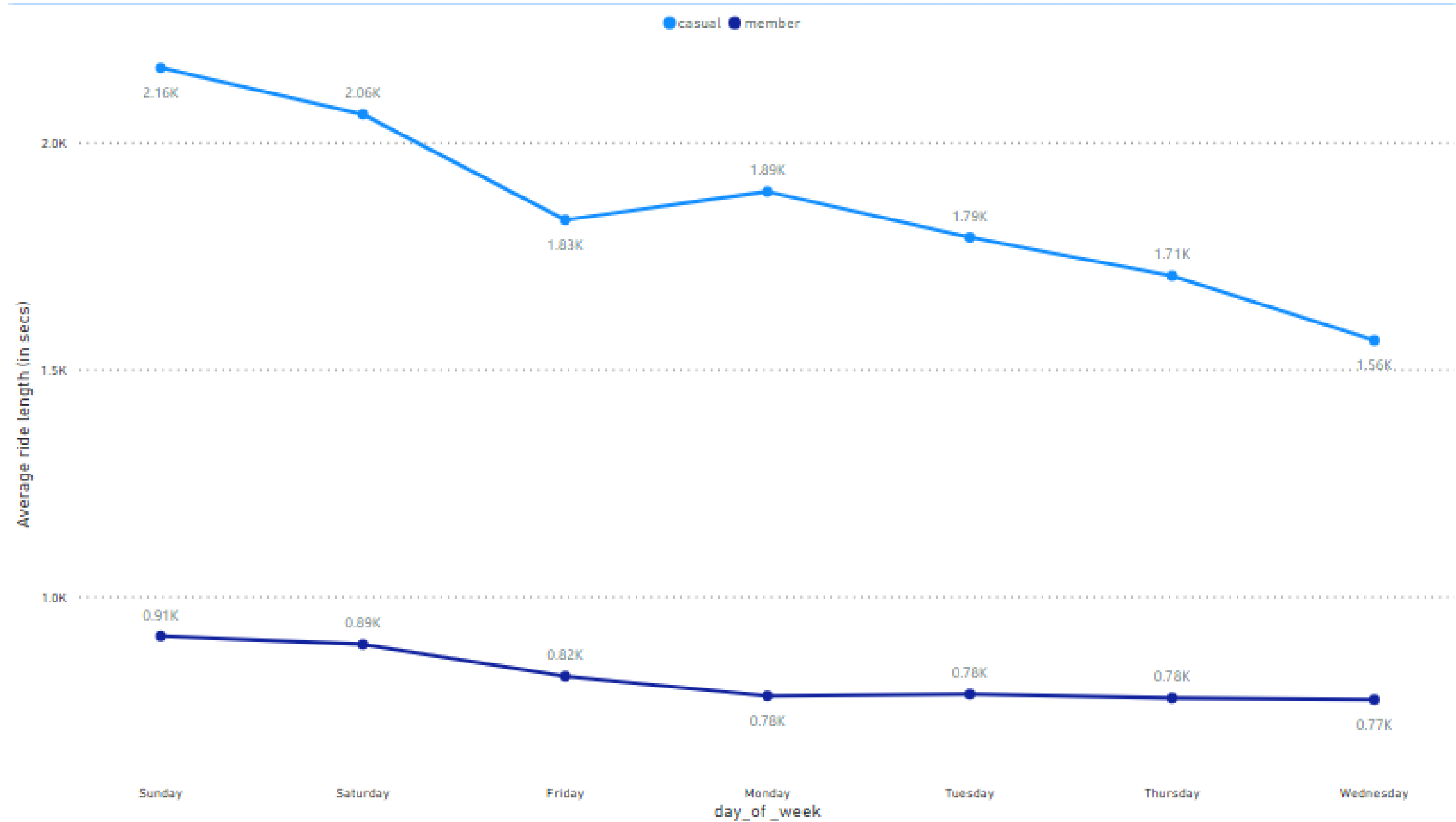
Data Aggregation:

- Aggregated individual monthly datasets into one consolidated data frame for a holistic analysis.

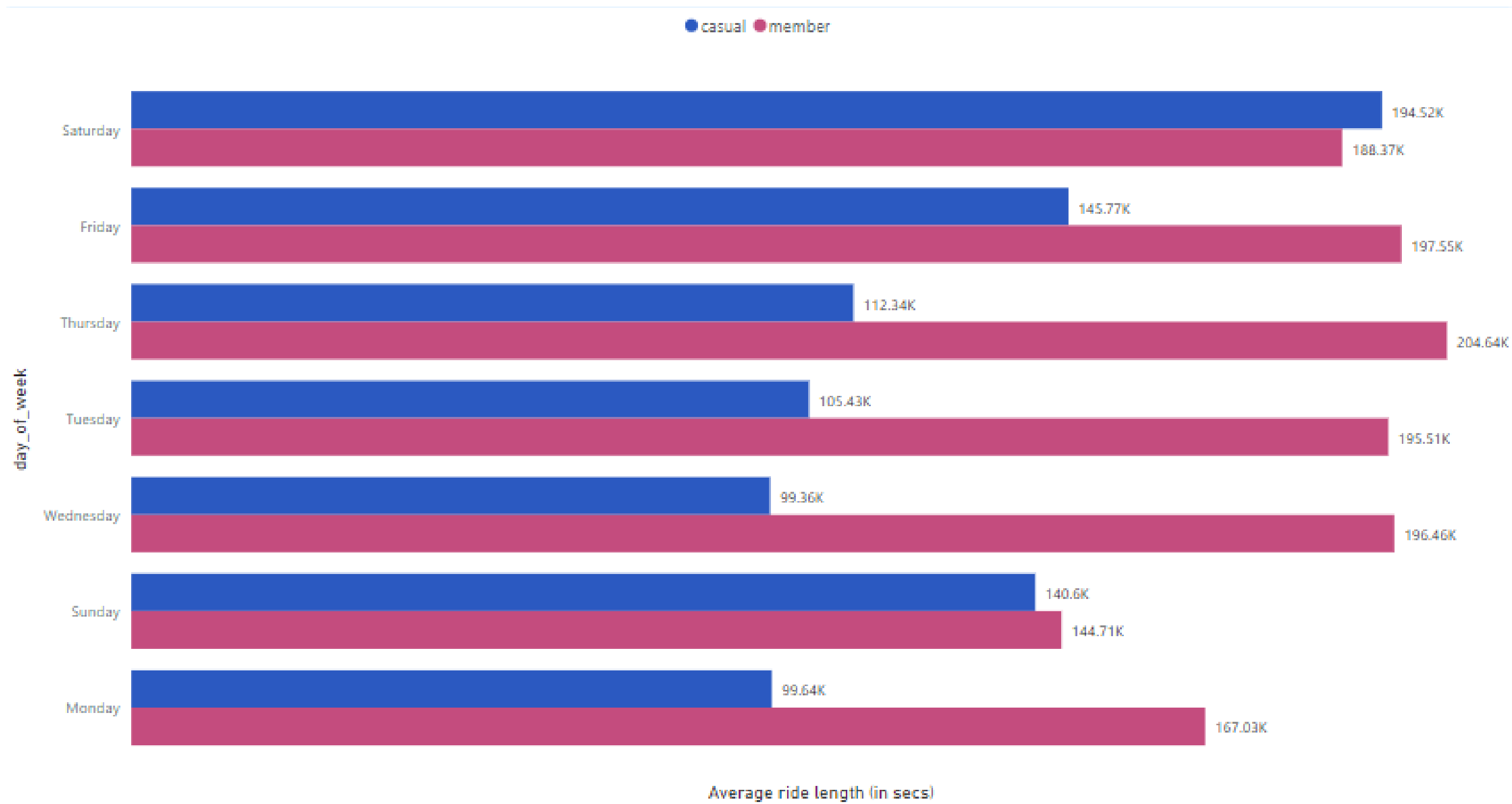
Feature Engineering:

- Introduced a new data feature by creating a "ride length" column. Calculated the ride length using the starting and ending times of each ride.

Average ride length of riders with respect to day of week



Total rides by causals and members in each day of the week



Descriptive Analysis

Ride Length Comparison: Casual riders tend to have a higher ride length compared to annual members with **1.89K** seconds.

Ride Frequency: Annual members consistently take more rides than casual riders with **1294.28K** rides.

Bike Preference:

- **Most Ridden Bike (Casual Riders):** The most commonly used bike by casual riders is electric bikes with **439.57K** rides.
- **Most Ridden Bike (Annual Members):** Annual members' bike of choice is classic bikes with **682.64K** rides.

Day of the Week:

- **Most Ridden Day (Casual Riders):** Casual riders show a peak in bike usage on **Saturdays** with **194.52K** rides.
- **Most Ridden Day (Annual Members):** Annual members' highest bike usage occurs on **Thursdays** with **204.64K** rides.

Longest Rides: Interestingly, both casual riders and annual members share **Sundays** as the day with the **longest average ride lengths** with **2.16K** and **0.91K** seconds.

Potential Causes of difference in bike usage

- Casual riders use the bikes for longer trips or leisurely rides, while annual members often opt for shorter, more routine rides
- **Most Ridden Bike (Casual Riders):** Casual riders prefer the convenience and flexibility offered by electric bikes, especially for leisure rides.
- **Most Ridden Day (Casual Riders):** Casual riders show a peak in bike usage on Saturdays, potentially indicating a preference for weekend leisure activities.
- Longest Rides: Both casual riders and annual members share Sundays as the day with the longest ride lengths. This could be indicative of riders using Cyclistic for extended weekend activities or recreational purposes.
- Annual members are more frequent and regular users of Cyclistic bikes, potentially for daily commuting or other routine activities.
- **Most Ridden Bike (Annual Members):** Annual members' preference for traditional bike models, often associated with daily commuting or transportation.
- **Most Ridden Day (Annual Members):** Annual members' highest bike usage occurs on Thursdays, suggesting a consistent and frequent weekday usage pattern.

Future Act Strategies

What next steps would I or my stakeholders take based on my findings?



Improved Membership Incentives:

Enhance the annual membership benefits, such as offering exclusive access to electric bikes (most used by casual riders) or discounts for longer rides.



User Surveys and Feedback:

Conduct surveys to understand the preferences and motivations of both casual riders and annual members. Use the feedback to tailor services to their needs.