

Bike-Share Data Analysis

A Case Study of Google Analytics Course

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Background and Objective

- A fictional company, Cyclistic, provides bike-share services in Chicago.
- The company has a fleet of 5,824 bicycles that are geotracked and locked into a network of 692 stations across Chicago. The bikes can be unlocked from one station and returned to any other station in the system anytime.
- The company is interested in analyzing the Cyclistic historical bike trip data to identify trends.
- A dataset of all Cyclistic bike trips during the previous 12 months is provided.

Methods

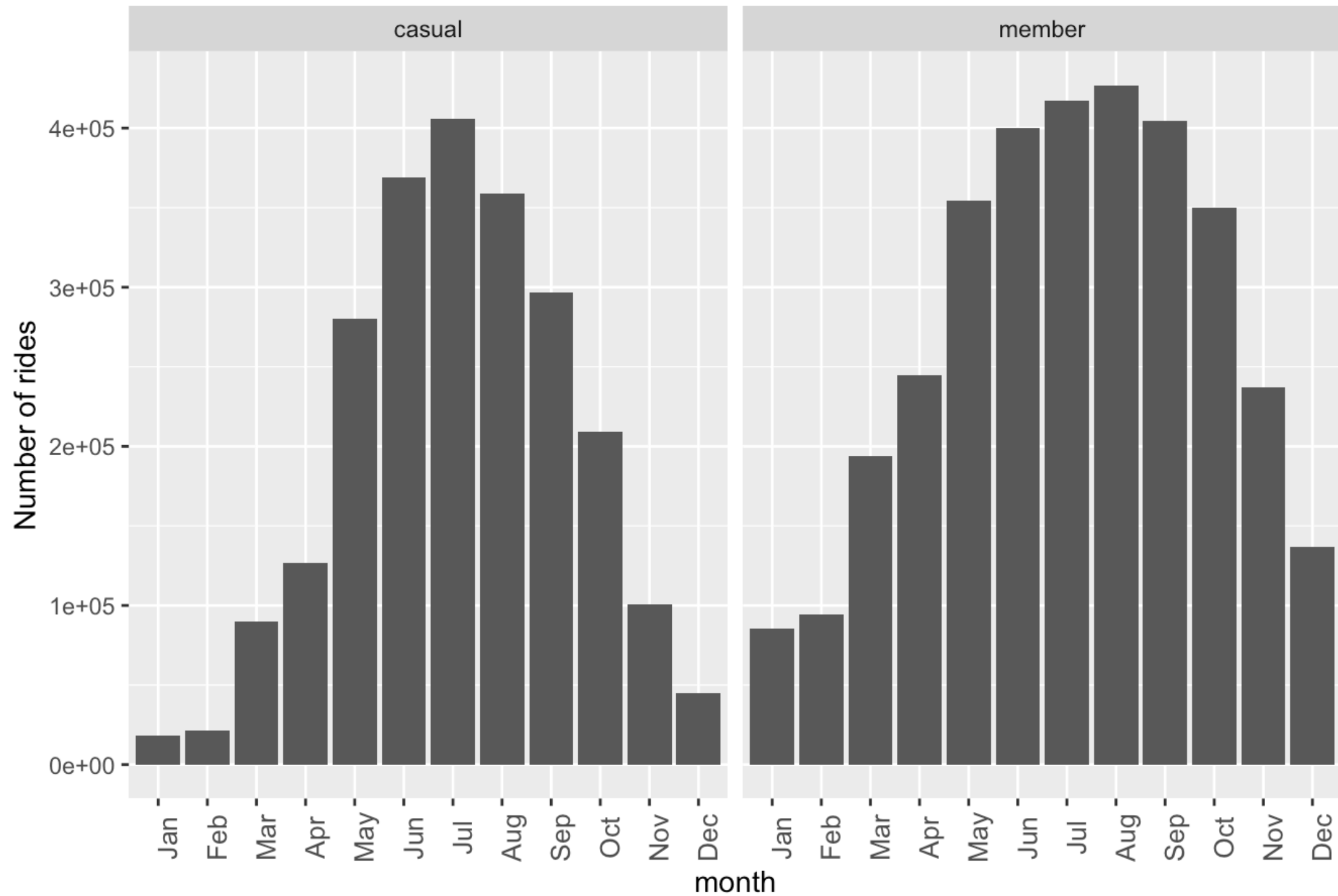
- R was used for analysis and visualization.
- Data files were imported and inspected; data files were clean.

Seasonal differences between members and casual users

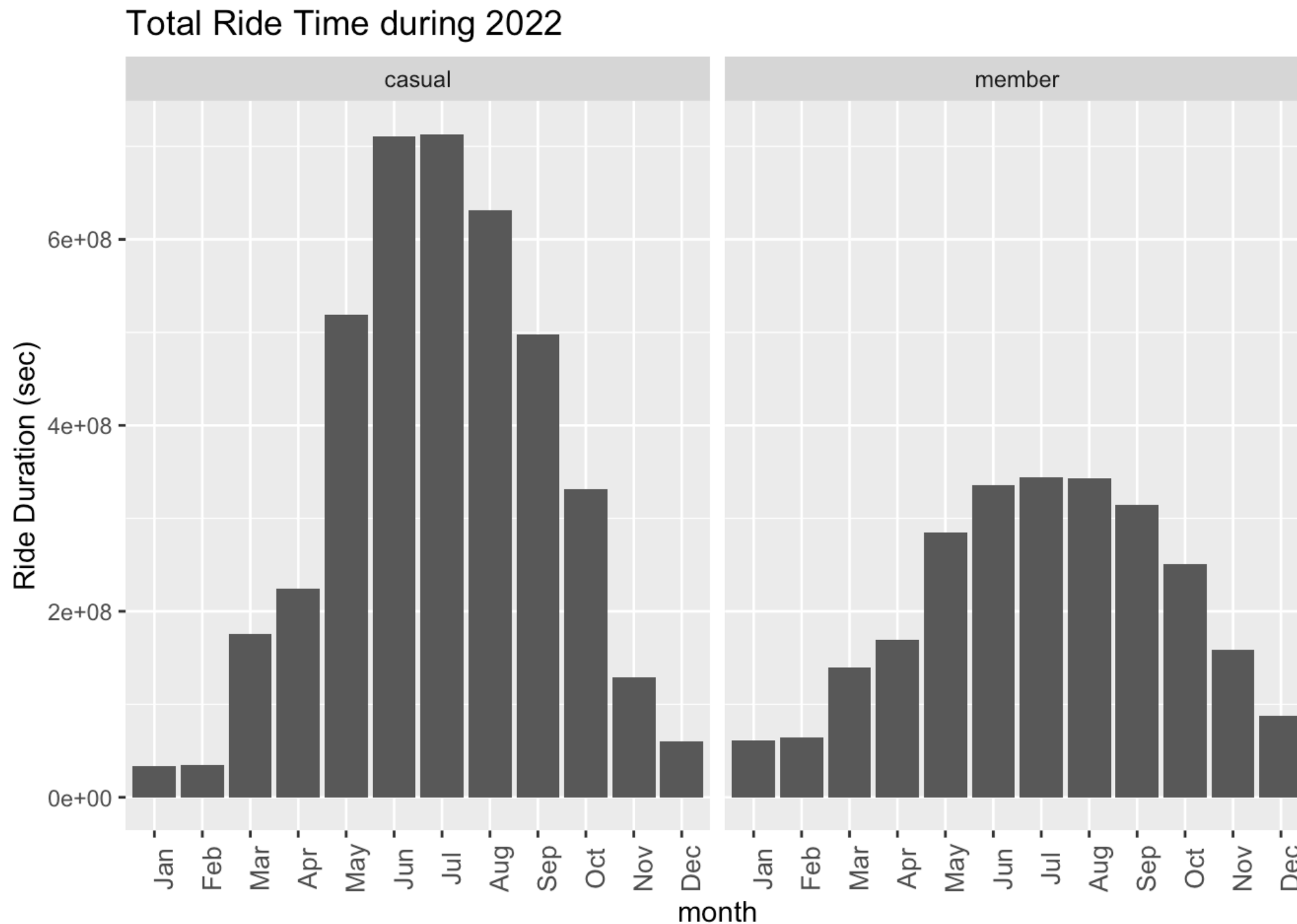
- For both members and casual users, the distribution of ride numbers during the year followed a bell-shaped curve, with the peak centered around July and August.
- Median ride duration during summer months shows a much larger increase for casual users than members.
- For the 12-month period, members made 44% more trips than casual users. However, the median trip duration of members was 38% shorter than that of casual users (8 vs. 13 min).

Members made more trips than casual users

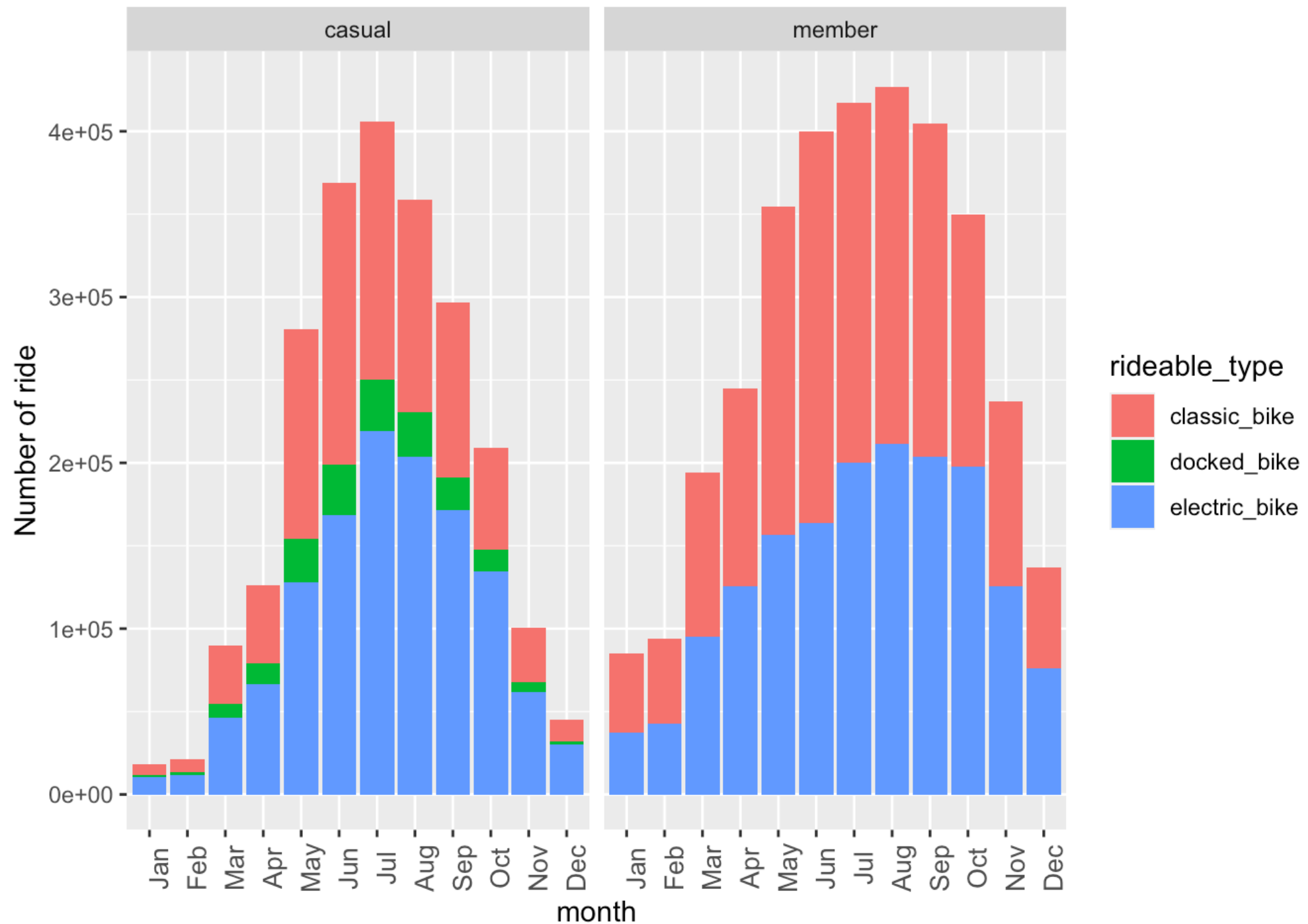
Number of rides during 2022



A larger increase of casual users during the summer



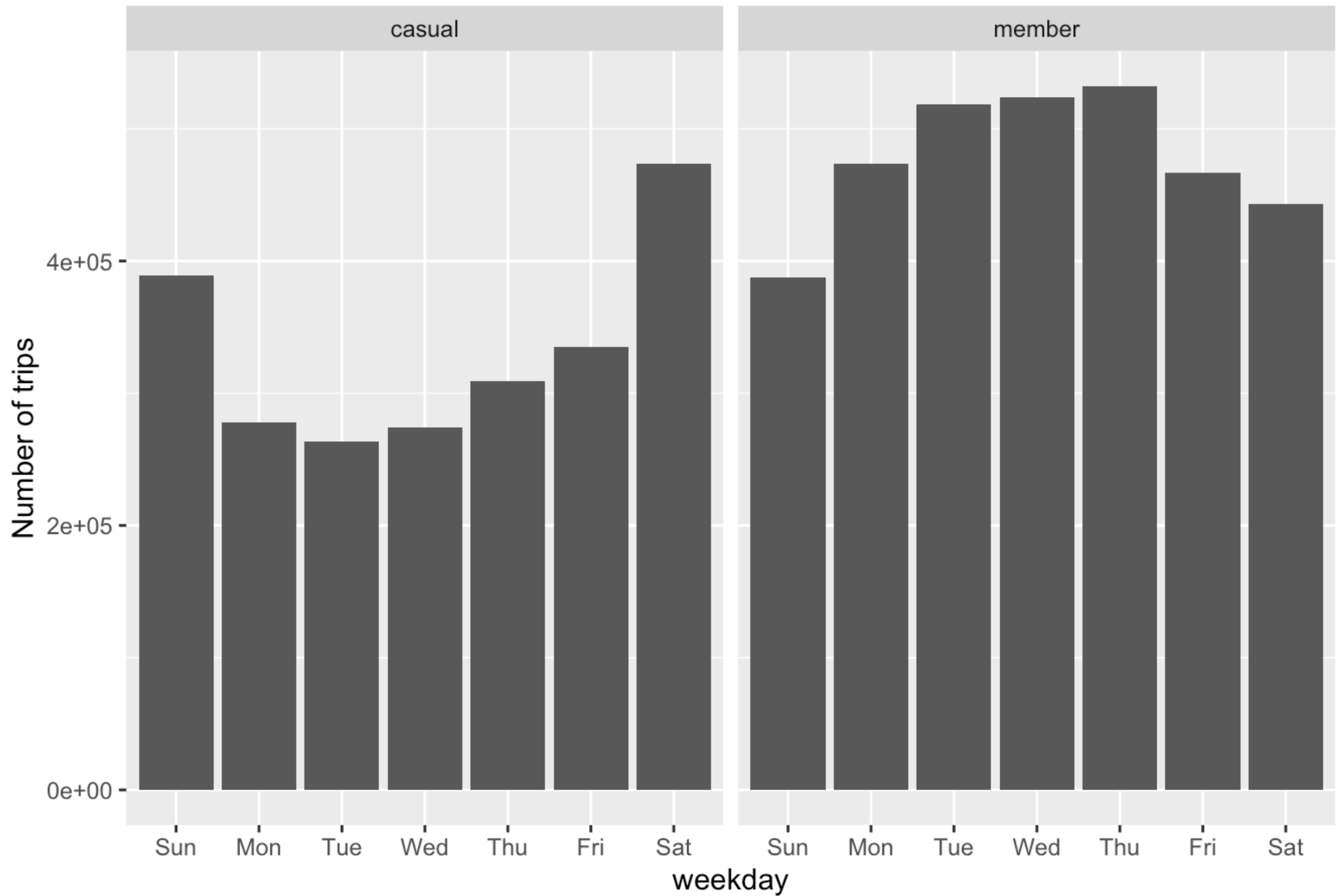
Casual users preferred e-bikes whereas use of classic and e-bikes by members were equal



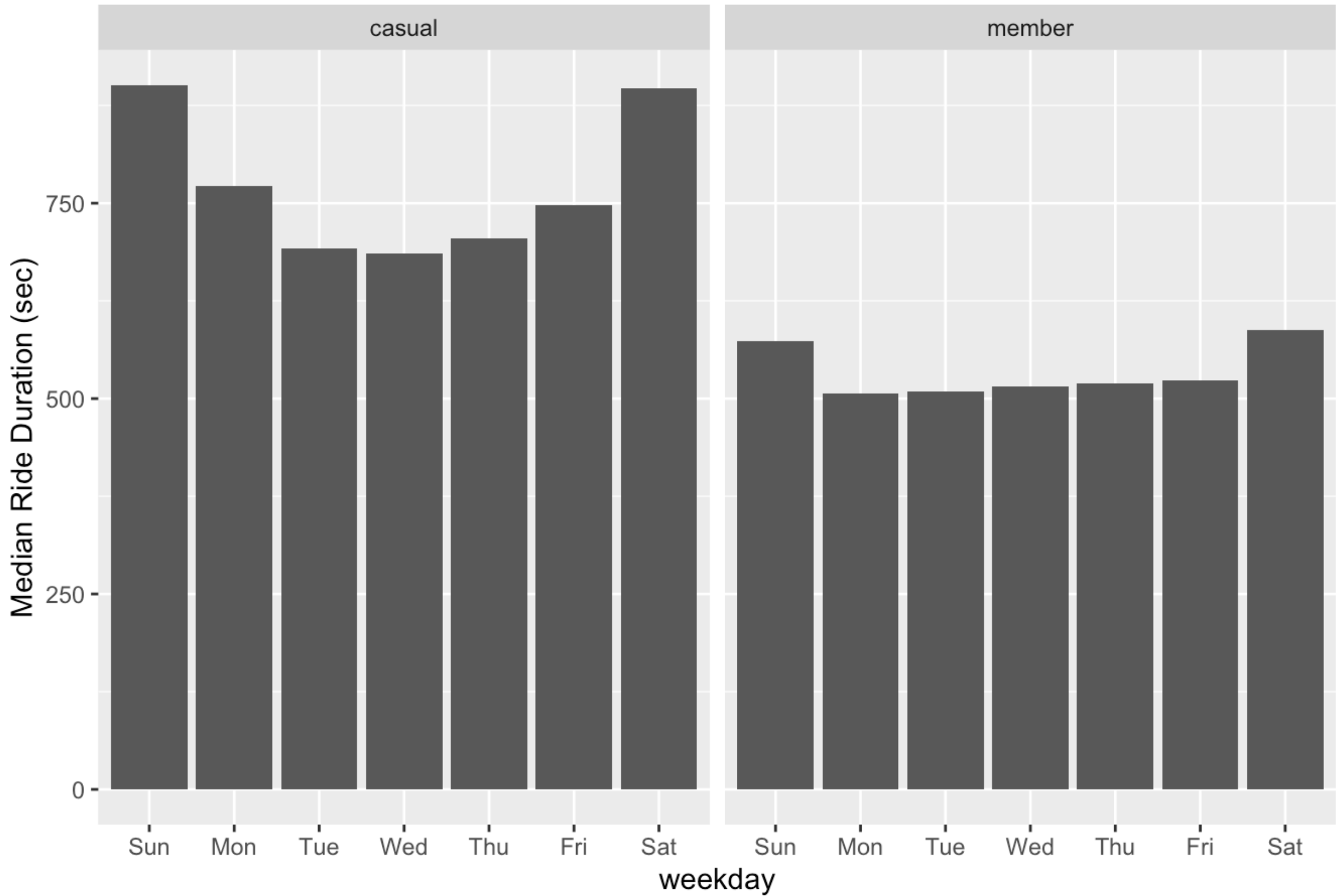
Weekly differences between members and casual users

- Members made more rides during weekdays than weekend days; the opposite was found for casual users.
- During weekdays, the distribution of ride number of members shows two peaks with the first at 8 am and the second one at 5 pm; in contrast, the distribution of casual users shows a single peak at 5 pm.
- There is no difference between member and casual user during weekend in ride distribution throughout the day.

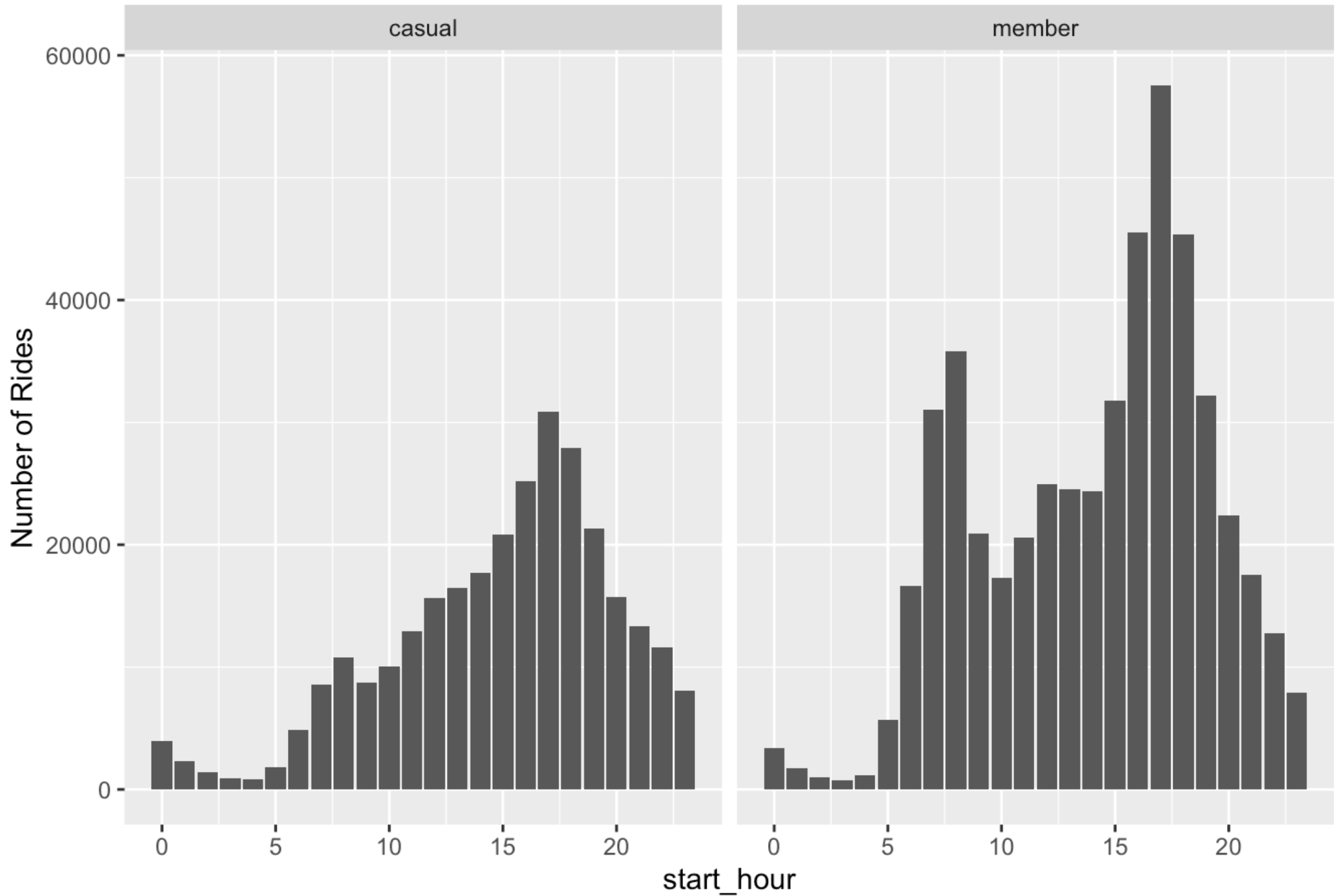
Ride number by days of the week



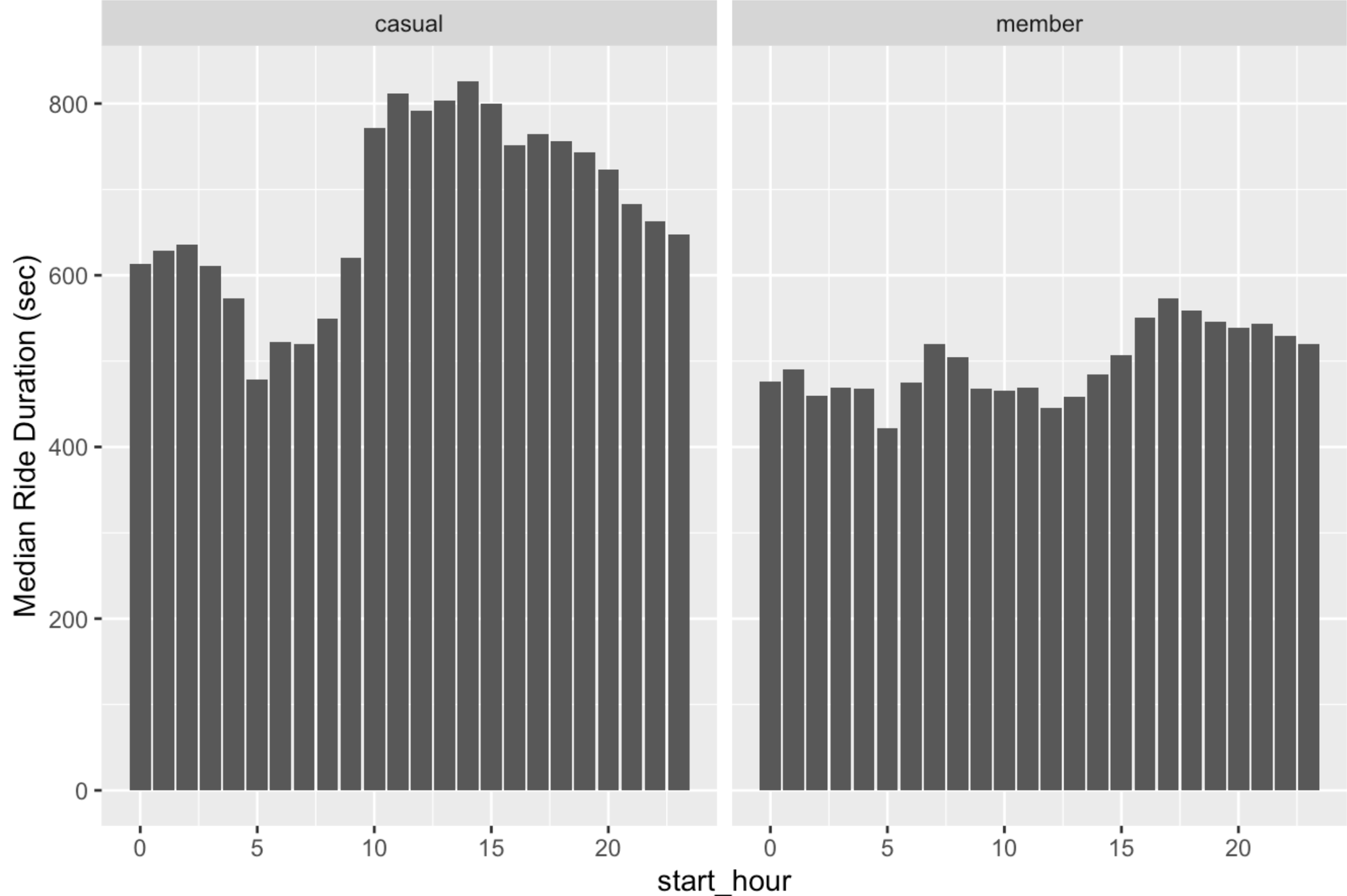
Ride Duration by Days of the Week



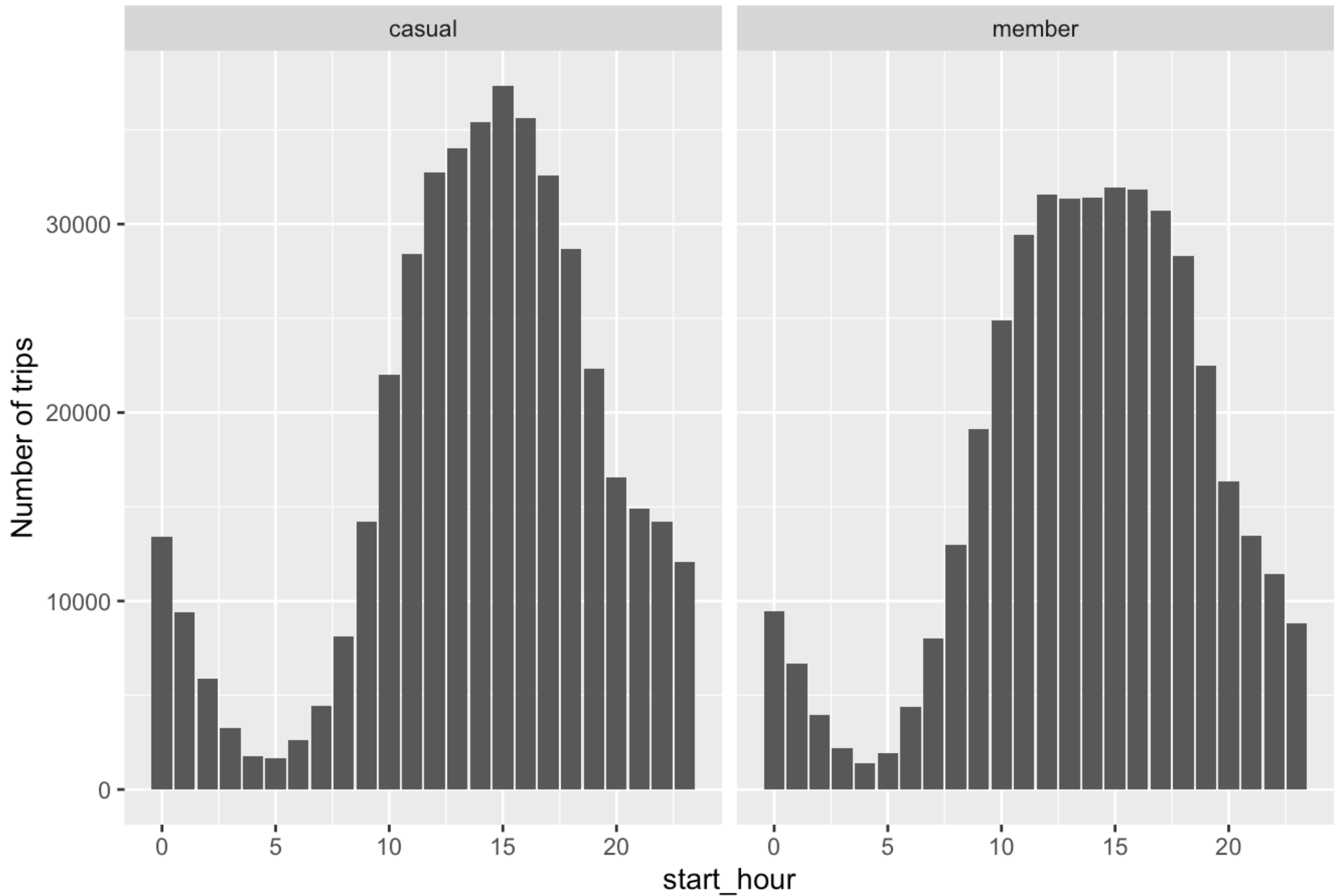
Ride number by hour on weekdays



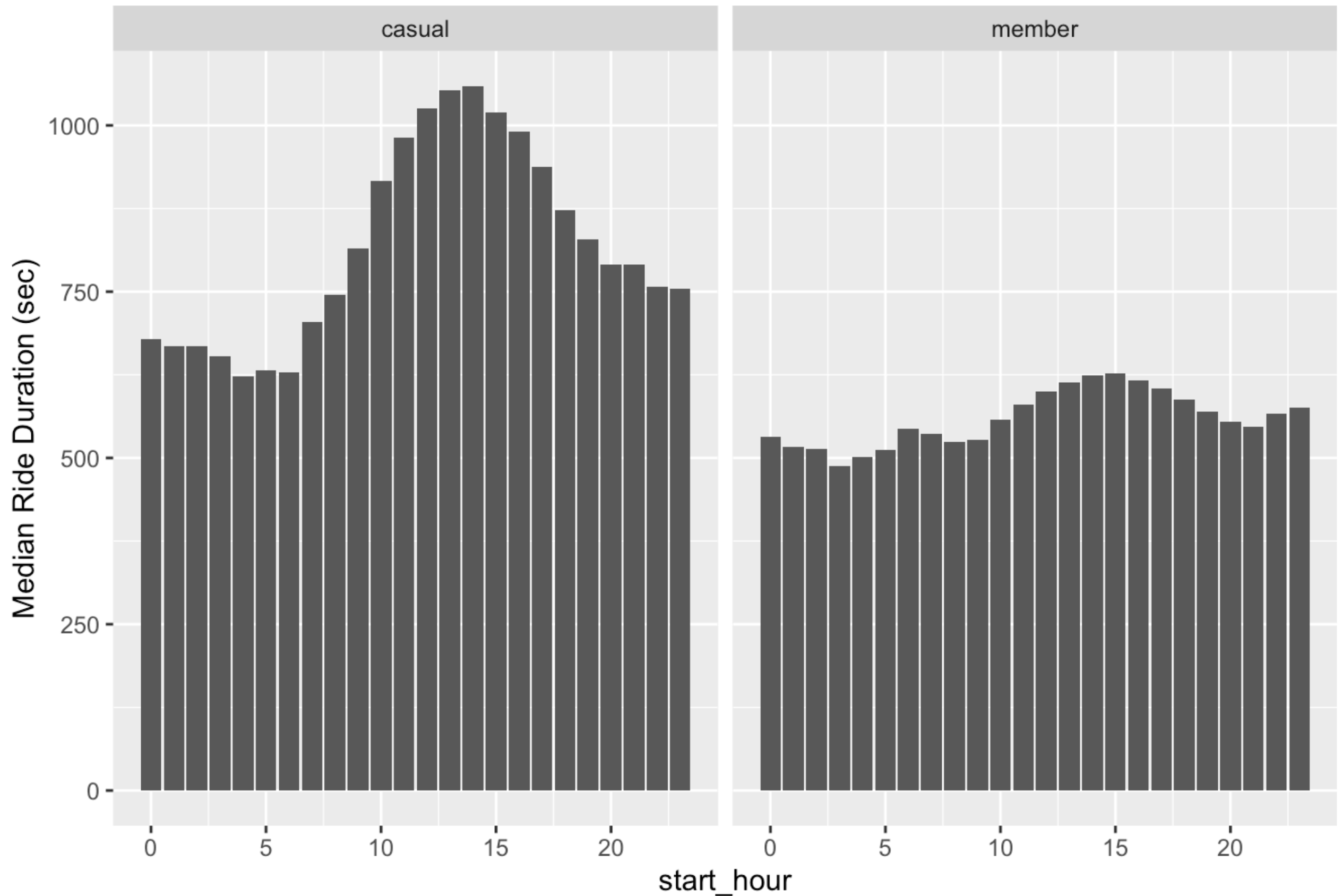
Ride Duration by hour on weekdays



Ride number by hour on Saturday and Sunday

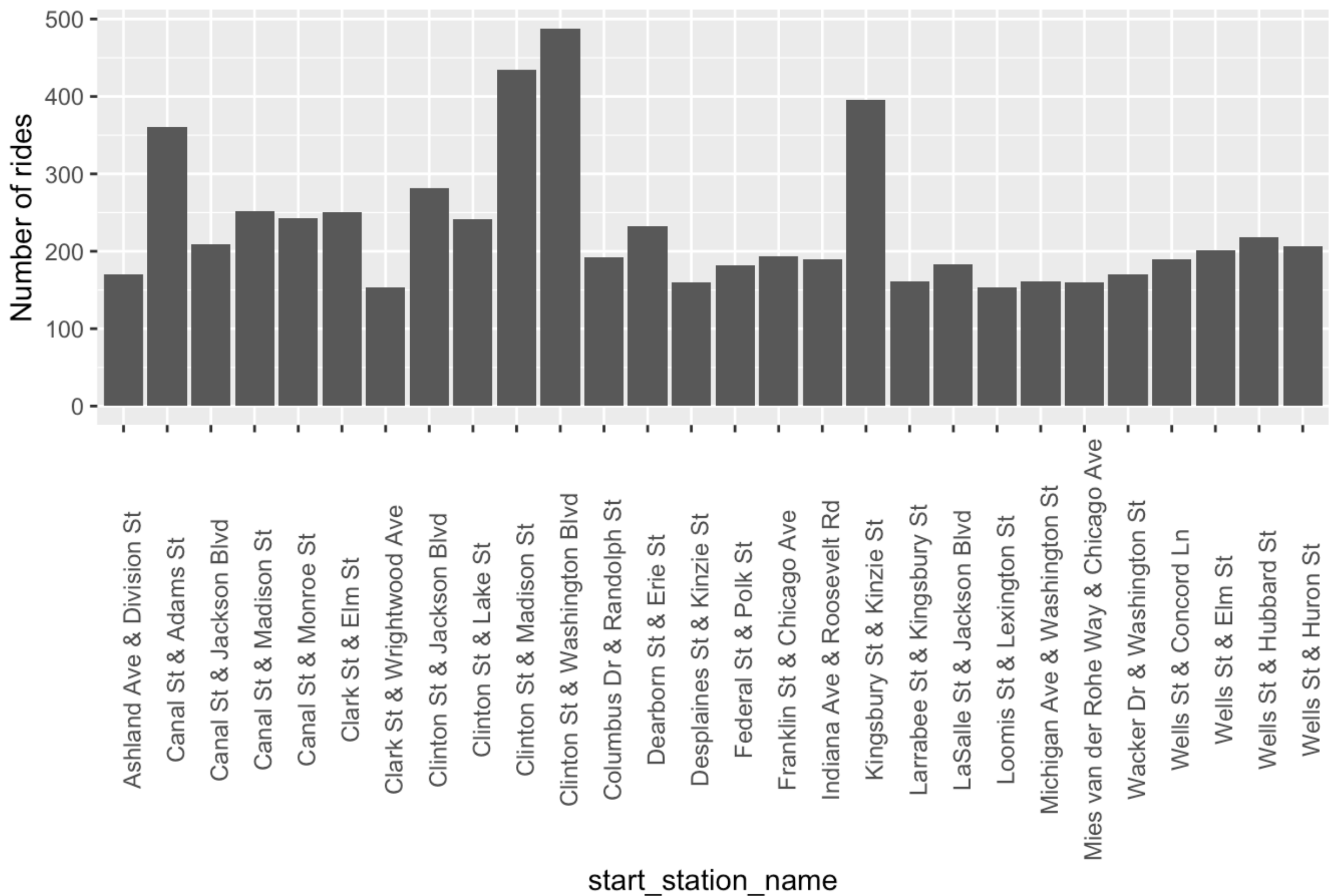


Ride Duration by hour on Saturday and Sunday

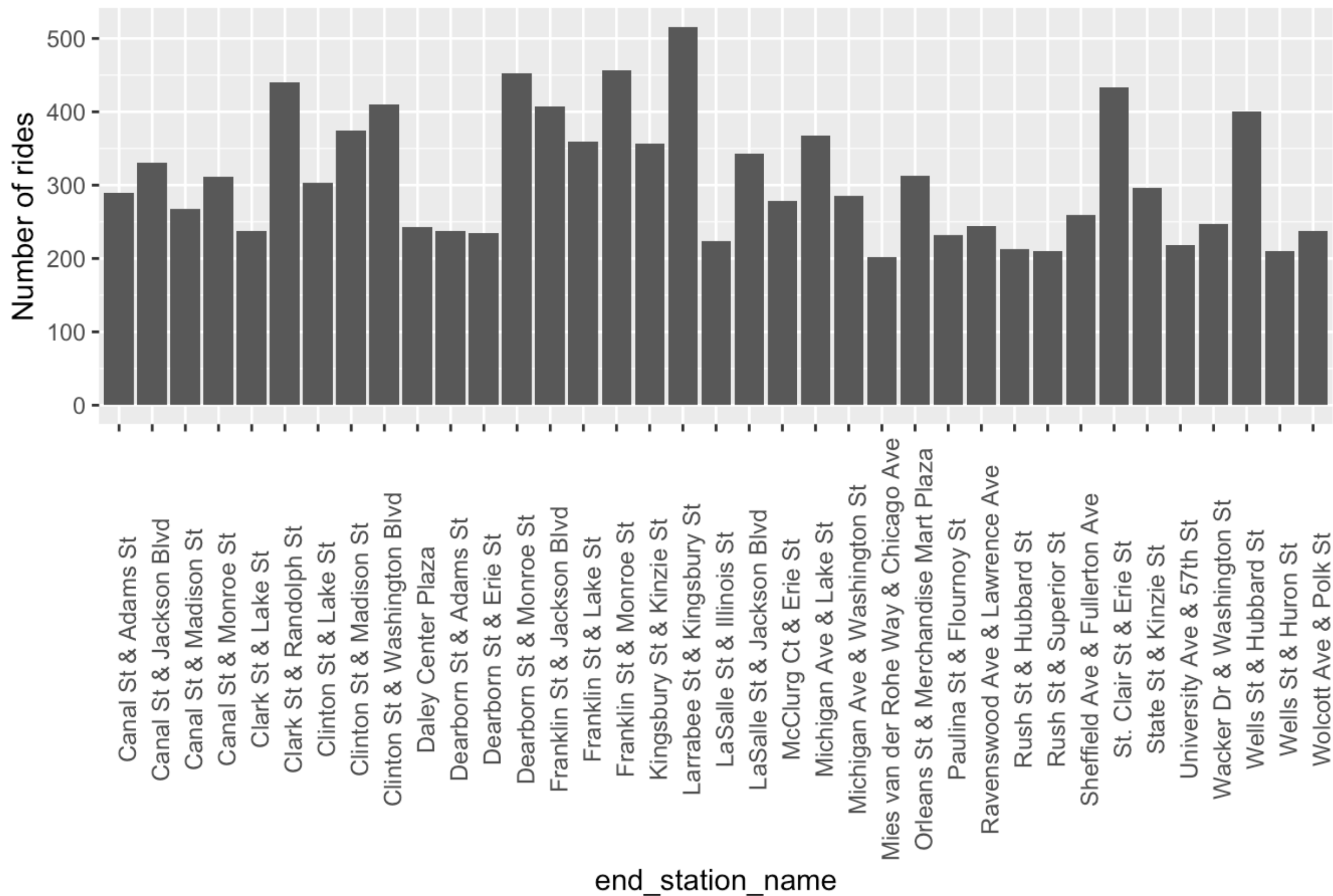


Top Start and End Stations used by Members during Rush Hours on Weekdays

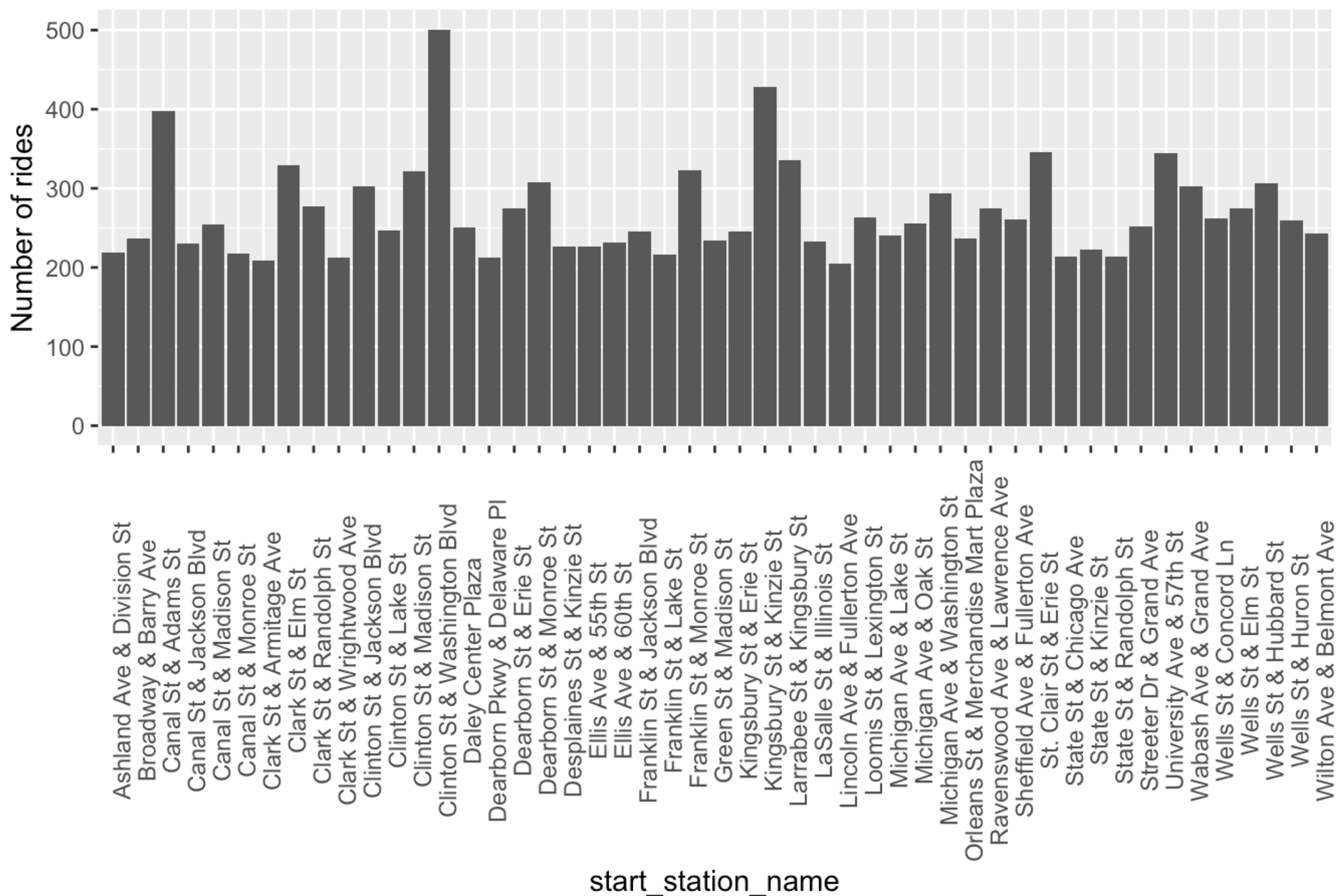
Start stations used by members between 7-8 am during weekdays



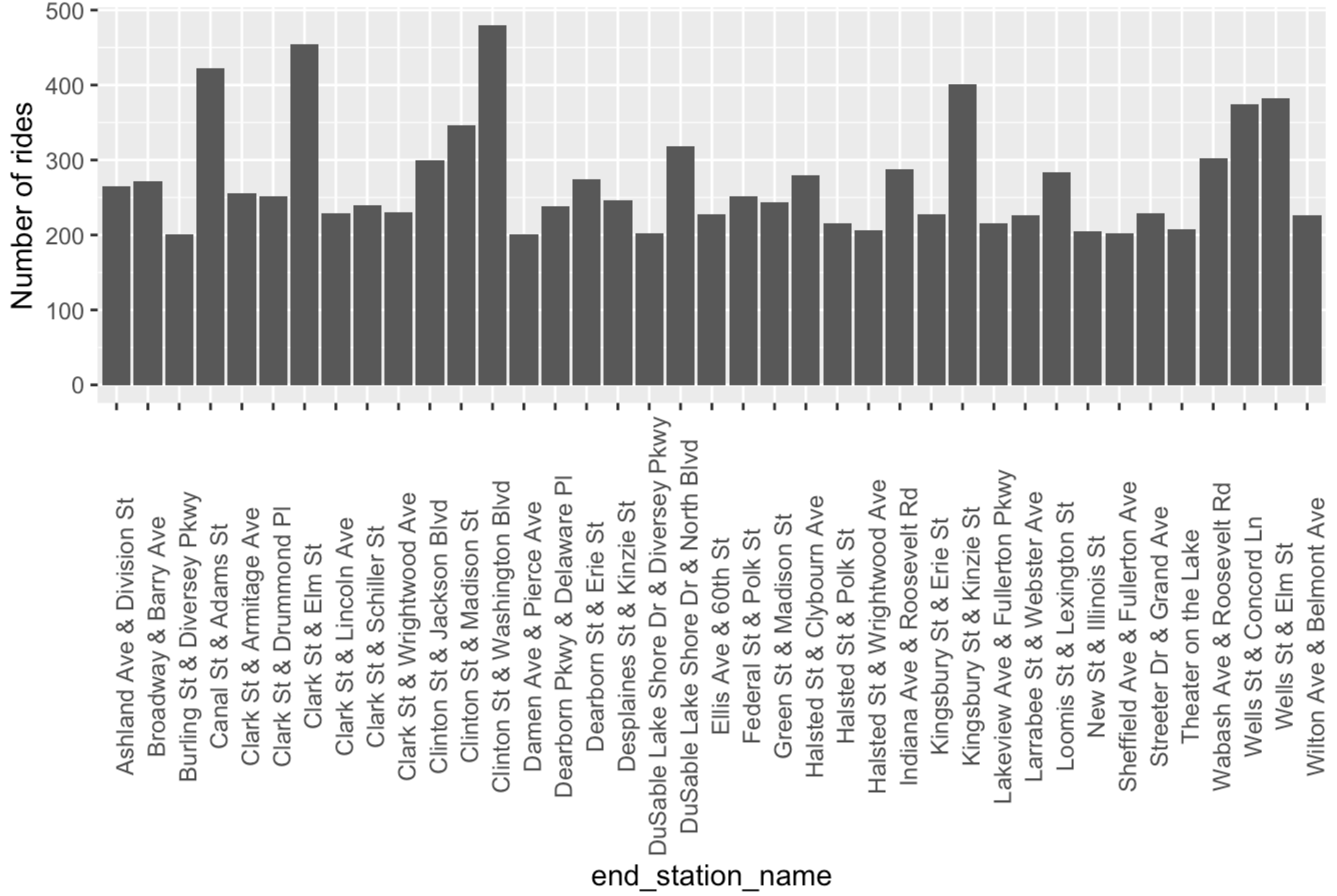
End stations used by members between 7-8 am during weekdays



Start stations used by members between 4-6 pm during weekdays



End stations used by members between 4-6 pm during weekdays



Summary

Key insights

- A large portion of members probably use the service for part of their commute.
- People who commute are a major source of growth for membership.

Suggestions

- Advertisements should target commuters who take public transportations or drive to work.
- More resources should be allocated at popular locations (e.g. commuter train stations) to promote bike sharing by commuters.