Cyclistic Bike Rider Usages

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Executive Summary

- How do annual members and casual riders use Cyclistic bikes differently?
- The scope of this case study is for the time frame December 2022 to November 2023 in the Chicago area.
- Key points on annual members:
  - Annual members tend to have more bike rides than casual riders, but with shorter and more consistent ride durations throughout the week.
  - Member bike rides are more focused on areas in downtown Chicago.
- Key points on casual riders:
  - Casual riders tend to have longer bike rides than annual members, but the ride duration is not consistent for every day of the week.
  - Casual riders ride bikes less frequently than annual members.
  - Casual riders have their bike rides more spread out across the suburban areas around Chicago than annual members.
- Cyclistic must design marketing strategies using digital media that will convert casual riders to become annual members.

Data Organization

x
ride_id
rideable_type
started_at
ended_at
~~start_station_name~~
~~start_station_id~~
~~end_station_name~~
~~end_station_id~~
start_lat
start_lng
end_lat
end_lng
member_casual

The data set has been modified with the station names and station ids columns removed.

The table below shows the first six rows of bike rides, the "ride_id" and "rideable_type" are not included here.

started_at	ended_at	start_lat	start_lng	end_lat	end_lng	member_casual
2022-12-05 10:47:18	2022-12-05 10:56:34	41.91824	-87.65711	41.92217	-87.63889	member
2022-12-18 06:42:33	2022-12-18 07:08:44	41.94011	-87.64545	41.92217	-87.63889	casual
2022-12-13 08:47:45	2022-12-13 08:59:51	41.88592	-87.65113	41.89435	-87.62280	member
2022-12-13 18:50:47	2022-12-13 19:19:48	41.83846	-87.63541	41.88137	-87.67493	member
2022-12-14 16:13:39	2022-12-14 16:27:50	41.89595	-87.66773	41.92008	-87.67785	casual
2022-12-02 15:24:47	2022-12-02 15:34:14	41.87068	-87.62571	41.88314	-87.63724	member

The "ride_length" mean, 25 percentile, median, and 75 percentile values for casual riders are all higher than those for members.
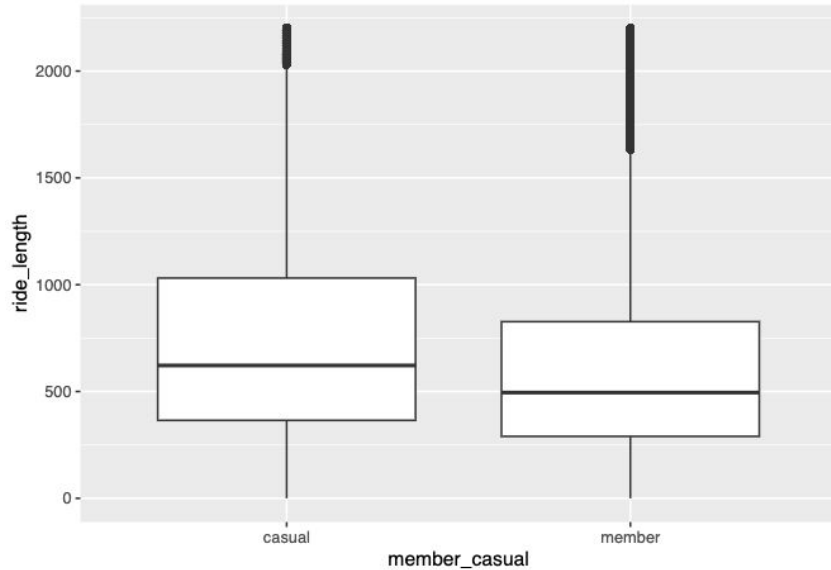
member_casual	mean	minimum	q25	median	q75	maximum
casual	1238.426	0	397	709	1321	728178
member	724.076	0	296	511	876	89996

All of the values are in seconds.

The average "ride_length" of casual riders appears to be higher than the average "ride_length" of members on each day of the week.

The quantiles of casual riders is also higher than the quantiles of members by day of the week.

member_casual	day_of_week	mean	minimum	q25	median	q75	maximum
casual	Sunday	1440.2958	0	451	833	1579	229104
casual	Monday	1218.3205	0	377	675	1289	89995
casual	Tuesday	1106.1613	0	365	635	1158	728178
casual	Wednesday	1059.4184	0	360	618	1100	322740
casual	Thursday	1082.0231	0	366	631	1124	413473
casual	Friday	1204.3415	0	393	696	1286	198050
casual	Saturday	1403.5057	0	456	831	1541	669136
member	Sunday	808.8823	0	308	550	979	89995
member	Monday	687.9945	0	285	486	831	89996
member	Tuesday	695.1957	0	293	499	845	89144
member	Wednesday	692.7765	0	293	501	842	89994
member	Thursday	693.0186	0	293	502	850	89995
member	Friday	720.8727	0	293	504	862	89996
member	Saturday	806.1553	0	318	559	977	89994

All of the values are in seconds.

The number of rides for members by day of the week is higher than the number of rides for casual riders, especially during the weekdays.

The three statistics "number_of_rides", "average_duration", and "median_duration" will be used for plotting column charts.

member_casual	weekday	number_of_rides	average_duration	median_duration
casual	Sun	332373	1440.2958	833
casual	Mon	234090	1218.3205	675
casual	Tue	246195	1106.1613	635
casual	Wed	247254	1059.4184	618
casual	Thu	270439	1082.0231	631
casual	Fri	308708	1204.3415	696
casual	Sat	407395	1403.5057	831
member	Sun	402446	808.8823	550
member	Mon	491717	687.9945	486
member	Tue	575225	695.1957	499
member	Wed	578664	692.7765	501
member	Thu	587963	693.0186	502
member	Fri	521761	720.8727	504
member	Sat	466239	806.1553	559

In seconds.

Annual members tend to have more bike rides than casual riders for every day of the week, especially on the weekdays.
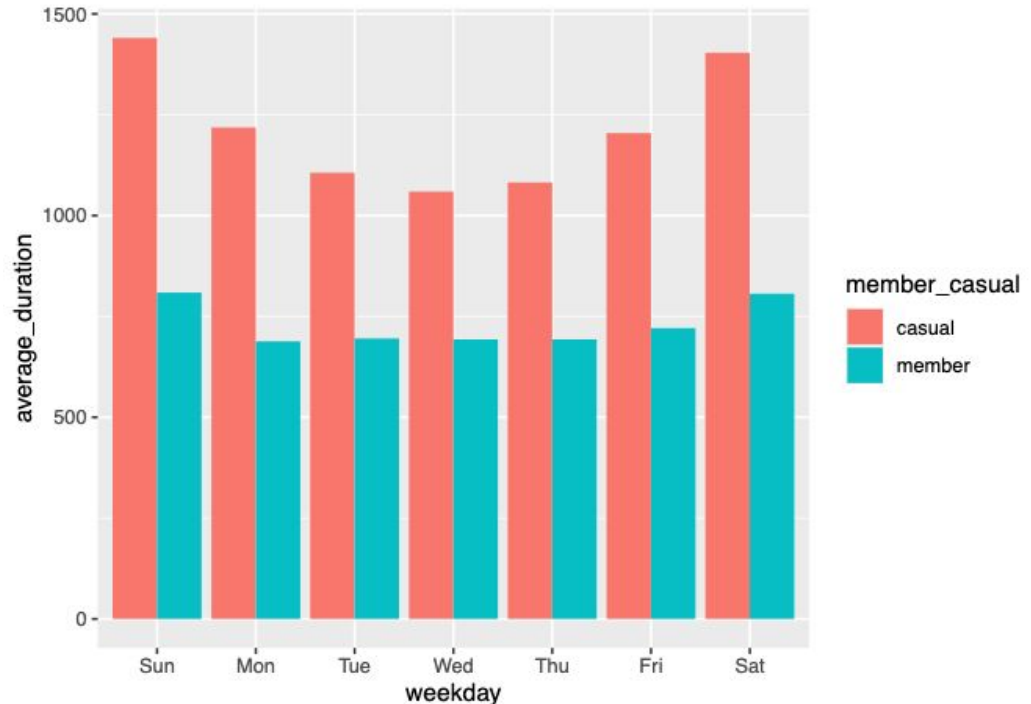
"2e+05" = 200,000
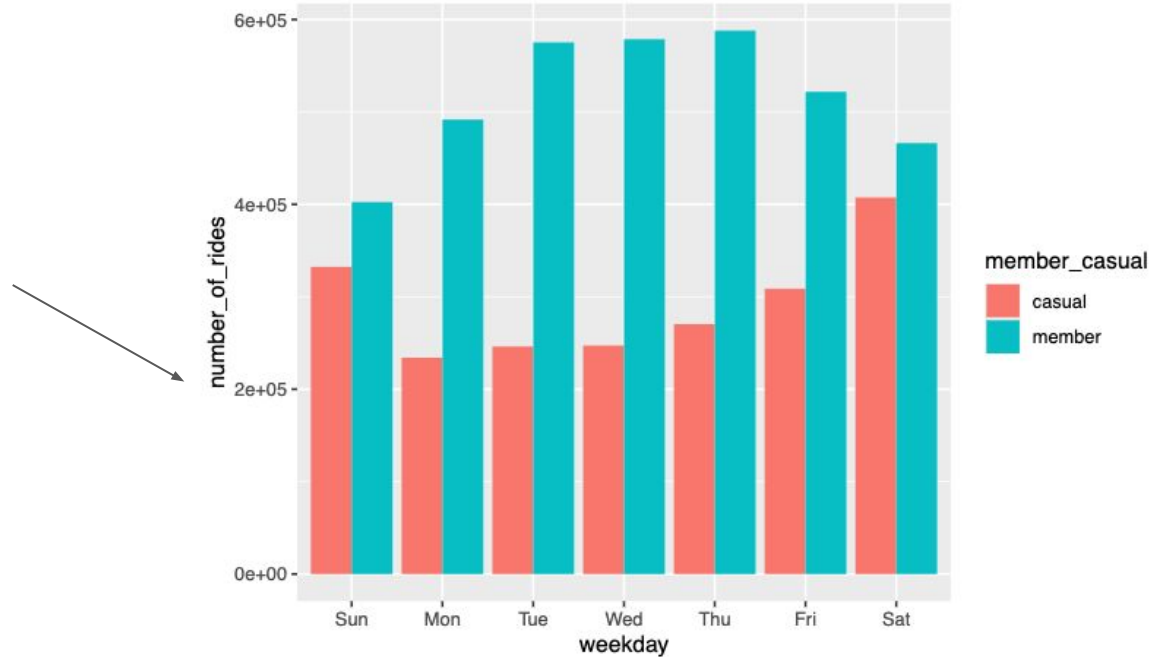
Casual riders tend to have longer average bike rides than for annual members, especially on the weekends.

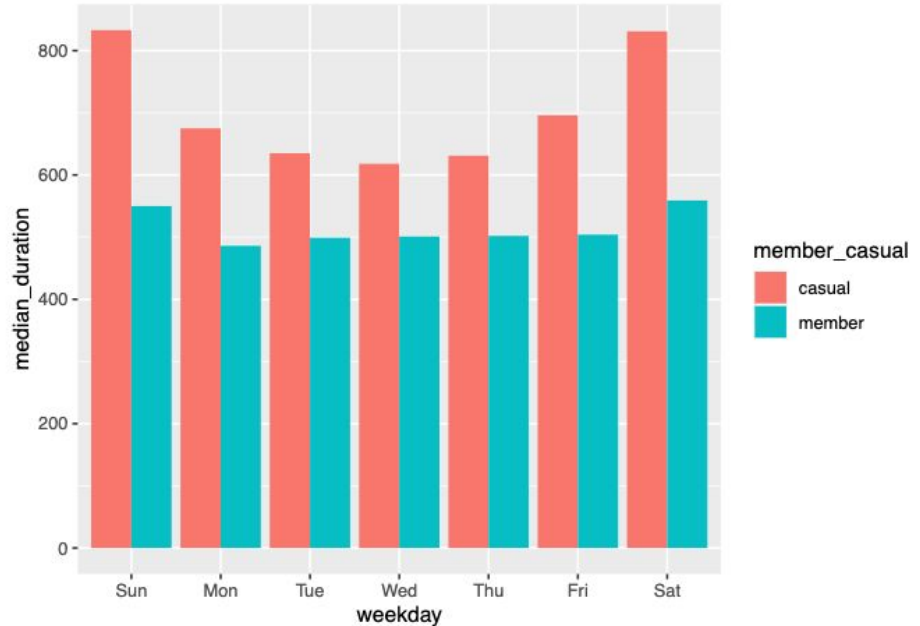Annual members tend to have more consistent average bike ride lengths than for casual riders.

The values are in seconds.

The median bike duration of casual riders tend to be longer than for annual members, especially on the weekends.

Annual members tend to have more consistent median bike ride lengths than for casual riders.
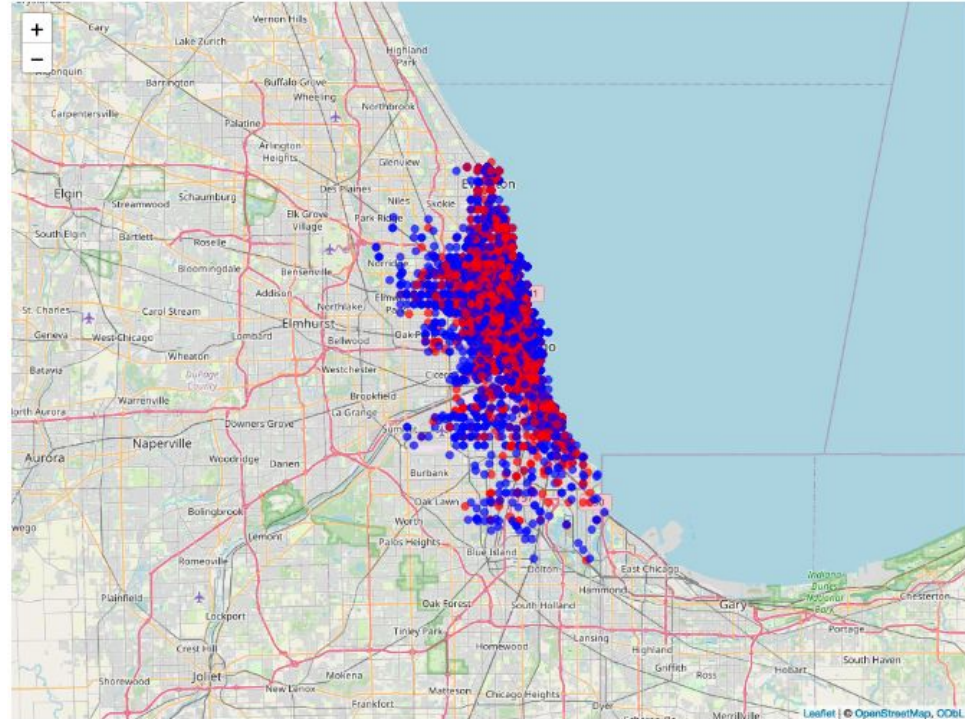
The values are in seconds.

The starting points for casual riders are more spread out than for annual members.

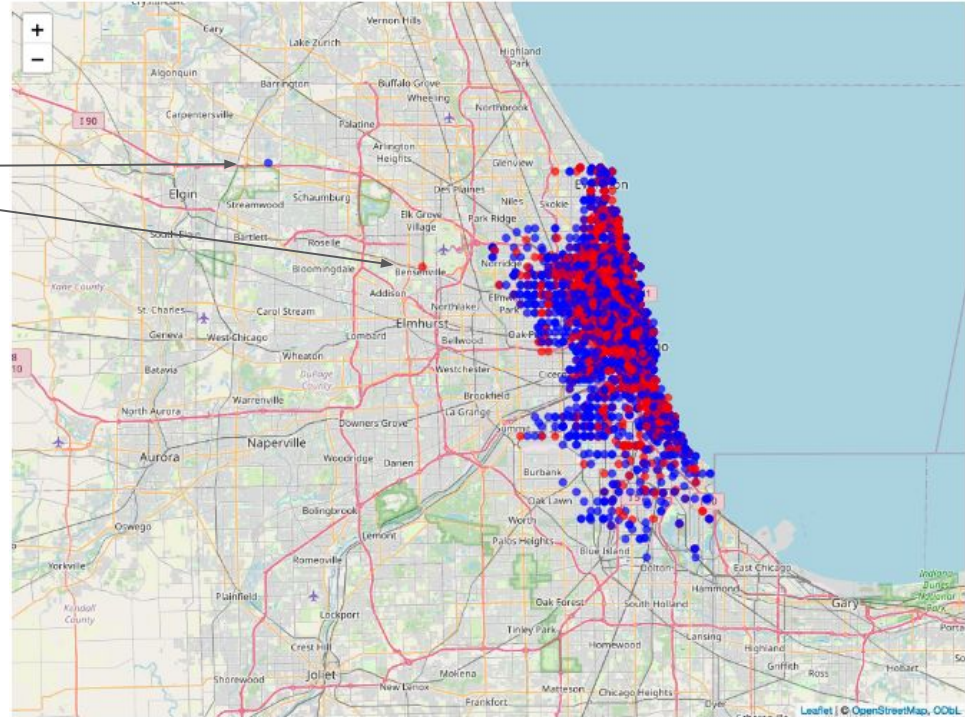The figure on the right shows a map of the Chicago area.

Blue dots are for casual riders.

Red dots are for annual members.

The ending points for casual riders are also more spread out than for annual members.

There is at least one bike ride for each group that ends further away than the rest of their respective groups.

Conclusion

- Annual members tend to have more bike rides than casual riders, but with shorter and more consistent ride durations throughout the week. Member bike rides are more focused on areas in downtown Chicago.
- Casual riders tend to have longer bike rides than annual members, but the ride duration is not consistent for every day of the week. Casual riders ride bikes less frequently than annual members. Casual riders have their bike rides more spread out across the suburban areas around Chicago than annual members.

Recommendations

- Determine the main reasons for current members purchasing their memberships.
- Determine how casual riders can benefit from becoming members.
- Find out which locations are more frequently visited by Cyclistic bikers that can be applied to the marketing strategy.