Members vs. Casual Users of Cyclistic

Questions:

1. How do annual members differ from casual users?
2. Why would casual riders buy Cyclistic annual memberships?
3. How can Cyclistic use digital media to influence casual riders to become members?

Data Sources Used:

- For this analysis data from "divvy-tripdata" was utilized. This data can be found here.

Data Cleaning Process:

1. Data was first downloaded from divvy-tripdata and unzipped.
2. The files were named as such, "202101-divvy-tripdata", and will be referred to by their year and month combinations.
3. The files 202101 through 202104, 202010 through 202012, and 202004 through 202006 were combined into one spreadsheet. However, files 202007 through 202009 were analyzed individually as they were too big to combine into one spreadsheet.
4. Total ride length was calculated by subtracting the "ended_at" column from the "started_at column. The day of the week the ride started was also calculated, represented by a number (1 = Sunday and so on) using the "WEEKDAY" formula.
5. Any negative values in the ride_length column (represented by ###) were deleted as those indicate bikes that were moved for maintenance or testing purposes.
6. All the data was then pivoted and combined into one spreadsheet, as shown below in *Figure 1*.
7. The start and end stations were concatenated. A new sheet was made and rows that were blank in both start and end stations were deleted. The following formula was then used to find the most common value in each (=INDEX(E2:E627364,MODE(MATCH(E2:E627364,E2:E627364,0)))).
8. Individuals were grouped based on "member" or "casual" and the bike type that was used.

year	member_type	sunday_avg_ride_length	monday_avg_ride_length	tuesday_avg_ride_length	wednesday_avg_ride_length	thursday_avg_ride_length	friday_avg_ride_length	saturday_avg_ride_length	Total_Average_ride_length
Q1_2021	casual	0:41:11	0:38:47	0:37:46	0:33:24	0:25:49	0:37:58	0:40:00	0:37:38
Q1_2021	casual_classic_bike	0:35:24	0:32:29	0:31:27	0:27:57	0:25:38	0:29:27	0:33:06	0:31:40
Q1_2021	casual_docked_bike	1:17:22	1:26:01	1:25:42	1:28:39	0:55:35	1:52:56	1:21:23	1:24:30
Q1_2021	casual_electric_bike	0:23:51	0:22:09	0:21:47	0:17:54	0:16:32	0:17:50	0:22:23	0:20:38
Q1_2021	member	0:16:21	0:14:27	0:14:02	0:13:40	0:12:59	0:13:49	0:16:02	0:14:26
Q1_2021	member_classic_bike	0:16:49	0:14:53	0:14:19	0:14:02	0:13:16	0:14:10	0:16:29	0:14:50
Q1_2021	member_docked_bike				0:02:38				0:02:38
Q1_2021	member_electric_bike	0:15:00	0:13:16	0:13:14	0:12:44	0:12:20	0:12:59	0:14:52	0:13:26
Q1_2021	Grand Total	0:27:37	0:22:12	0:21:37	0:18:57	0:16:15	0:21:40	0:26:56	0:22:33

Figure 1: Sample of Average Ride Data

Summary of Analysis:

- Based on my findings casual riders use the Cyclistic service significantly more than members do. This can be since the casual riders outnumber the annual members. Specifically, riders use the service most at the head and tail ends of the week, being Sunday, Monday, Friday, and Saturday. Also, assuming that the "docked bike" option is a bike that is not currently in use, the electric bike is the most popular choice by both riders.

Note:

- All rideable bike types from 202004 through 202006 were docked bikes. These were included, as without them this quarter would have no data representation, even though I assume that these are bikes that are not in use. The max ride times for these types of bikes were excessively high and can skew the data.
- All rideable bike types from 202007 through 202009 were either docked or electric, therefor classic bike types were not represented during that time period.

Conclusion:

1. To convert more people from casual riders into members I recommend running a promotion for individuals who activate a Cyclistic annual membership.
2. Providing an incentive to use the annual membership option such as, billing discounts, free rides, and/or other reward options may also gain more annual memberships.
3. The company can also sponsor popular social media individuals to gain more publicity about the company and what they offer.
4. Providing more electric bikes may also increase activity as this is the most popular bike option.

Charting:

- Figure 2: The most popular start and end locations for each respective quarter.
- Figure 3: Total average ride duration based on rider and bike type.
- Figure 4: Total average ride duration based on each day of the week.

- **Clark St & Elm St-176**
- **Streeter Dr & Grand Ave-35**
- **Clark St & Elm St-176**
- **Lake Shore Dr & Monroe St-13300**

Q2 2020

Q3 2020

Q4 2020

Q1 2021

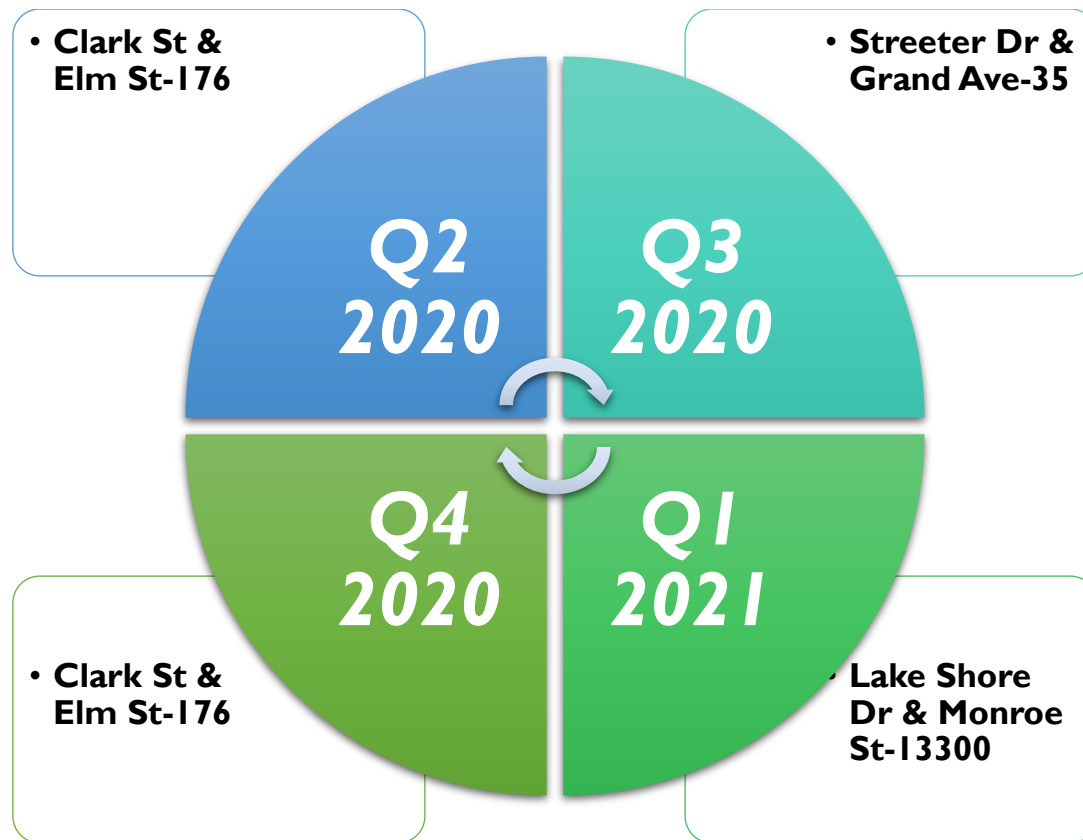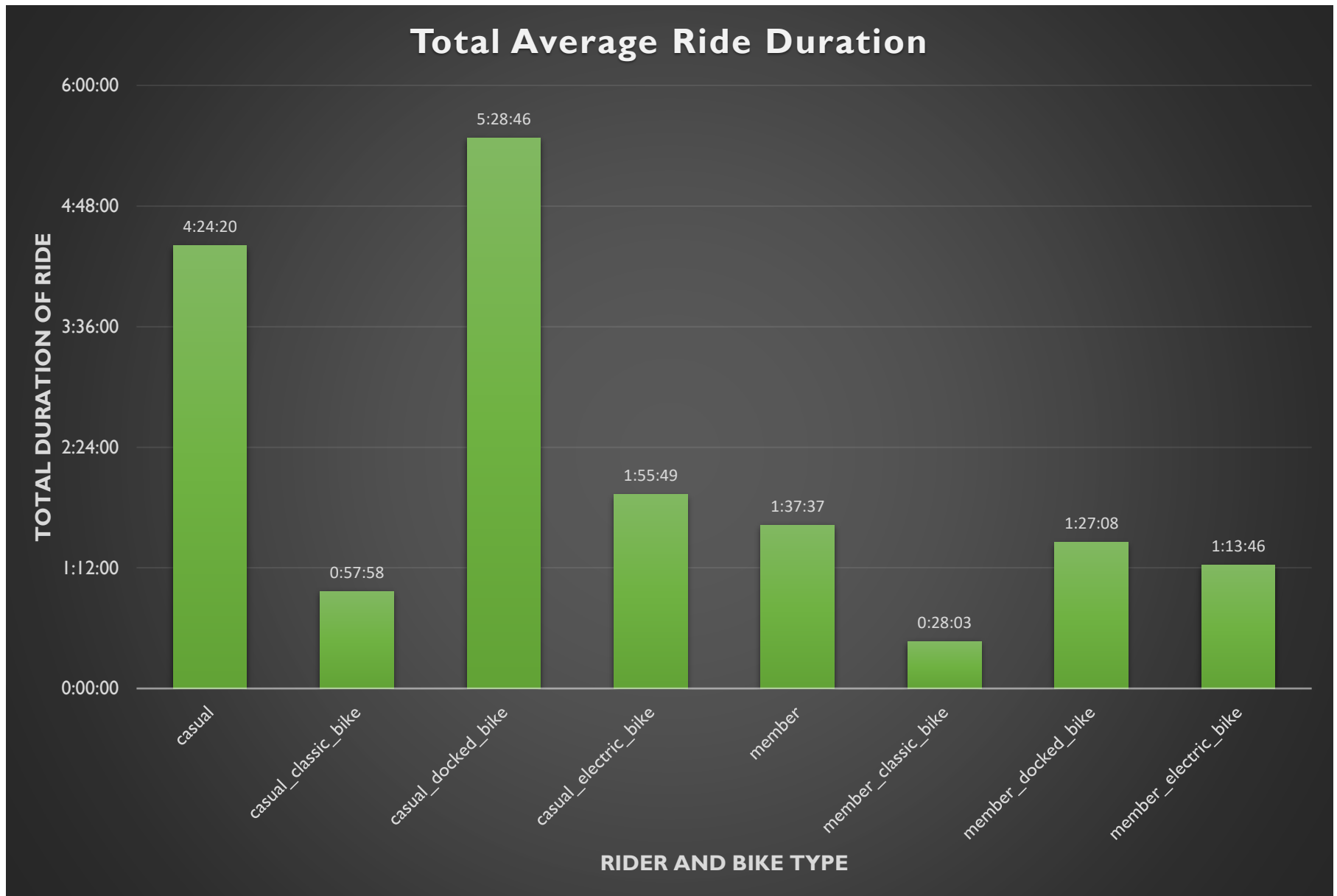*Figure 2: Popular Start and End Locations*

Total Average Ride Duration

Figure 3: Total Average Ride Duration by Rider Type

Total Average Ride Duration per Day

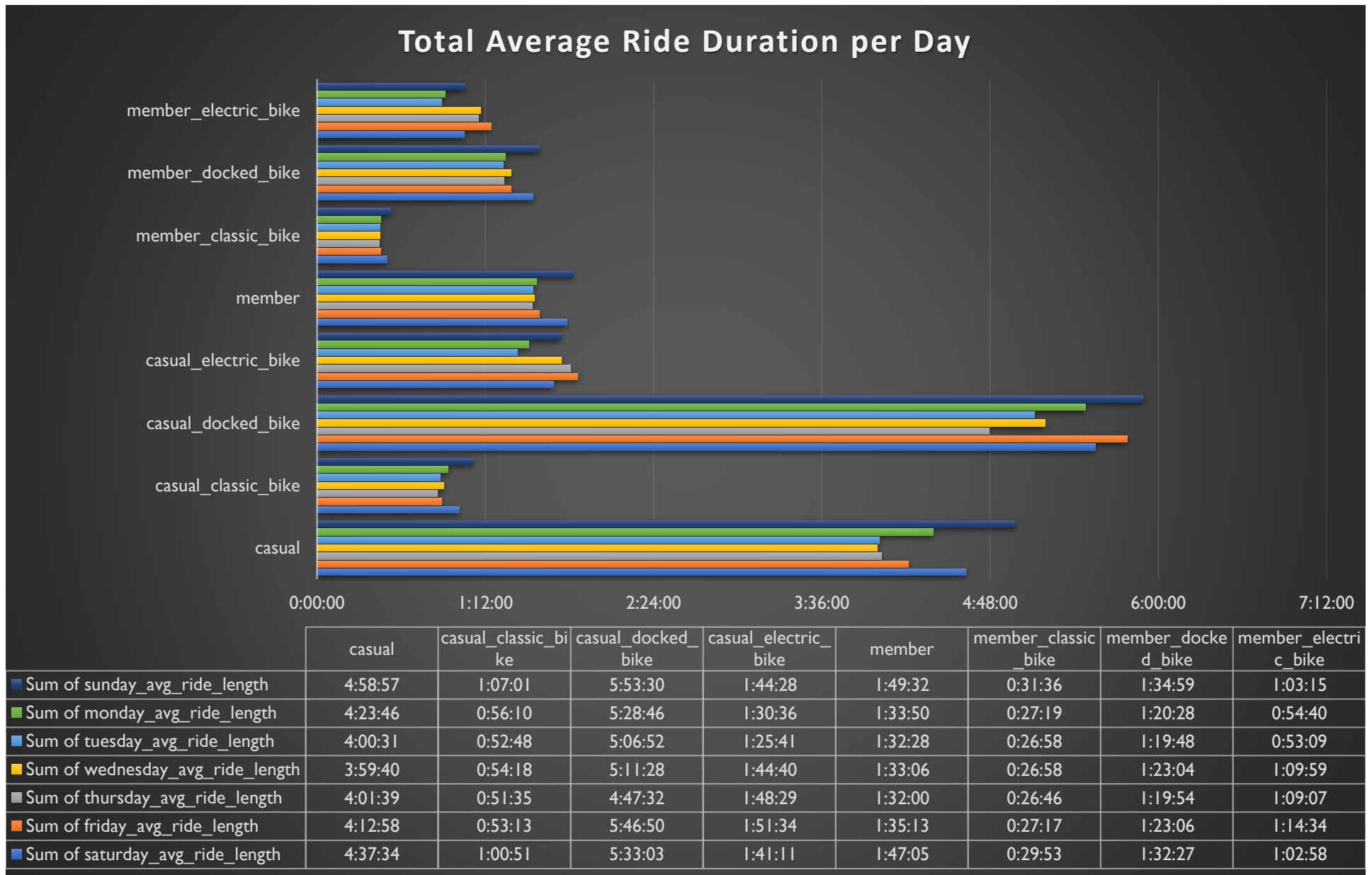|	casual	casual_classic_bike	casual_docked_bike	casual_electric_bike	member	member_classic_bike	member_docked_bike	member_electric_bike
Sum of sunday_avg_ride_length	4:58:57	1:07:01	5:53:30	1:44:28	1:49:32	0:31:36	1:34:59	1:03:15
Sum of monday_avg_ride_length	4:23:46	0:56:10	5:28:46	1:30:36	1:33:50	0:27:19	1:20:28	0:54:40
Sum of tuesday_avg_ride_length	4:00:31	0:52:48	5:06:52	1:25:41	1:32:28	0:26:58	1:19:48	0:53:09
Sum of wednesday_avg_ride_length	3:59:40	0:54:18	5:11:28	1:44:40	1:33:06	0:26:58	1:23:04	1:09:59
Sum of thursday_avg_ride_length	4:01:39	0:51:35	4:47:32	1:48:29	1:32:00	0:26:46	1:19:54	1:09:07
Sum of friday_avg_ride_length	4:12:58	0:53:13	5:46:50	1:51:34	1:35:13	0:27:17	1:23:06	1:14:34
Sum of saturday_avg_ride_length	4:37:34	1:00:51	5:33:03	1:41:11	1:47:05	0:29:53	1:32:27	1:02:58

Figure 4: Total Average Ride Duration by Day