Study on How to Maximize the Profit Margin & Widen the Customer-base of a Motor-bike Company - Cyclistic

Presented by **Yusuf Olanrewaju Bello**
NIIT Data Analyst (Lekki, Lagos State)

Email: lanrett034@gmail.com
LinkedIn: https://www.linkedin.com/in/yusuf-olanrewaju-bello-4b7b3967
GitHub: www.github.com/oybello

on 06/02/2023
(as **Google Data Analytics Capstone Project**)

Background

- Currently, Cyclistic has 2 kinds of customers:
- casual riders & annual members

- Casual riders purchase single-ride or full-day passes
- while annual members purchase annual membership &
- also dominate patronage

- Consequently, the company wants to convert
- Casual members to annual members in order to
  - increase annual patronage &
  - maximize yearly profit-margin significantly

Objective

- The primary objective of this study is to:
- Gain insight into how casual and annual members differ
- Understand why casual members will buy a membership
- Recommend the marketing campaign that will:
- increase Cyclistic's revenue significantly
- expand customer-base significantly

Methodology

- Cyclistic data from 2023 (one-year operation) was obtained via:
  https://divvy-tripdata.s3.amazonaws.com/index.html

- 12 different csv files were downloaded for 2023

- Each csv file has 13 fields: 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

- 2 more fields were created: ride_length & day_of_week

- Each csv file also has different rows for different months:
  Jan (190301), Feb (190445), Mar (258678), Apr (426590), May (604827), June (719618), July (767651), Aug (771694), Sep (666372), Oct (537114) Nov (362519) & Dec (224074)

Methodology Continued

- Each csv file was analyzed in MS Excel for trends in each month

- Rows appended in PostgreSQL (for a year review)
  - summed up to 5 719 877

- Only distinct rows were considered for analysis

- Pertinent fields considered for analysis include:
  - ride_id, rideable_type, day_of_week, ride_length (ended_at – started_at) & member_casual

- The day a customer rode a bike
- was considered day_of_week

Data Cleaning

- Though, blank rows were seen in these columns:
- start_station_name, start_station_id, end_station_name & end_station_id
- they were ignored because
- those columns were excluded from the analysis

- Only distinct customers' ride_ids were considered

- ride_ids were used to determine
- the count of casual members & annual members

Results & Explanation

- Casual members spend more time riding than annual members did (fig 1 &fig 2, fig 5 & fig 6)
- There were more annual members than casual members
  - For each month and the whole year (fig 3 & fig 4, fig 7 & fig 8)
- Only casual members have preference for docked bike (fig 9 & fig 10)
- Docked bike was the least liked bike (fig 11 & fig 12)
- Ironically, casual members spent more time riding docked bike
  - than riding any other kind of bike (fig 13 -16)
- Similar observations were made for different months (fig 17 -20

Visualizations & Key Findings

Fig 1: Average ride length of casual and annual members of Cyclistic motor-bike for Jan, 2023
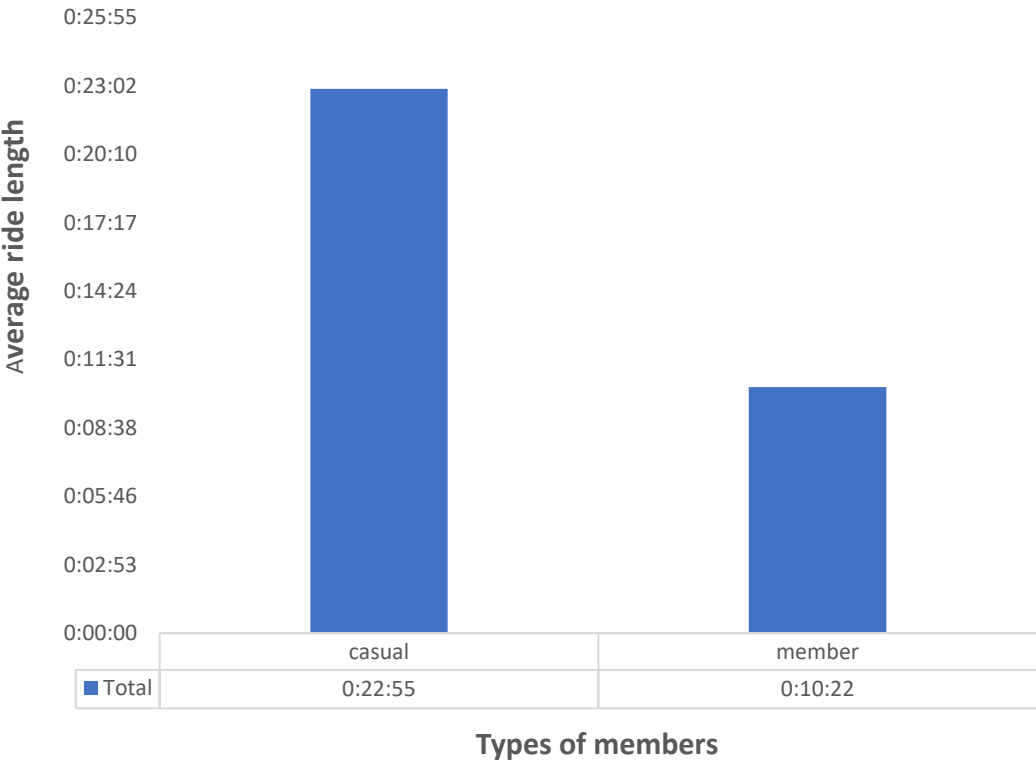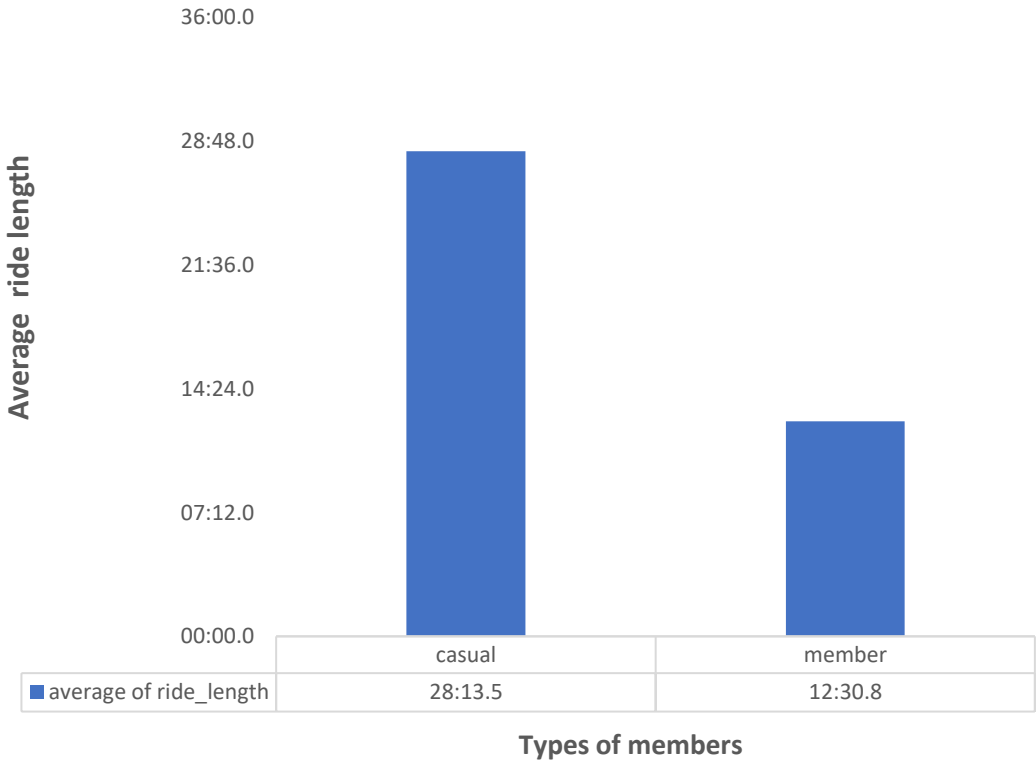
Fig 2: Average ride length of casual and annual members of Cyclistic motor-bike for 2023

Visualizations and Key Findings

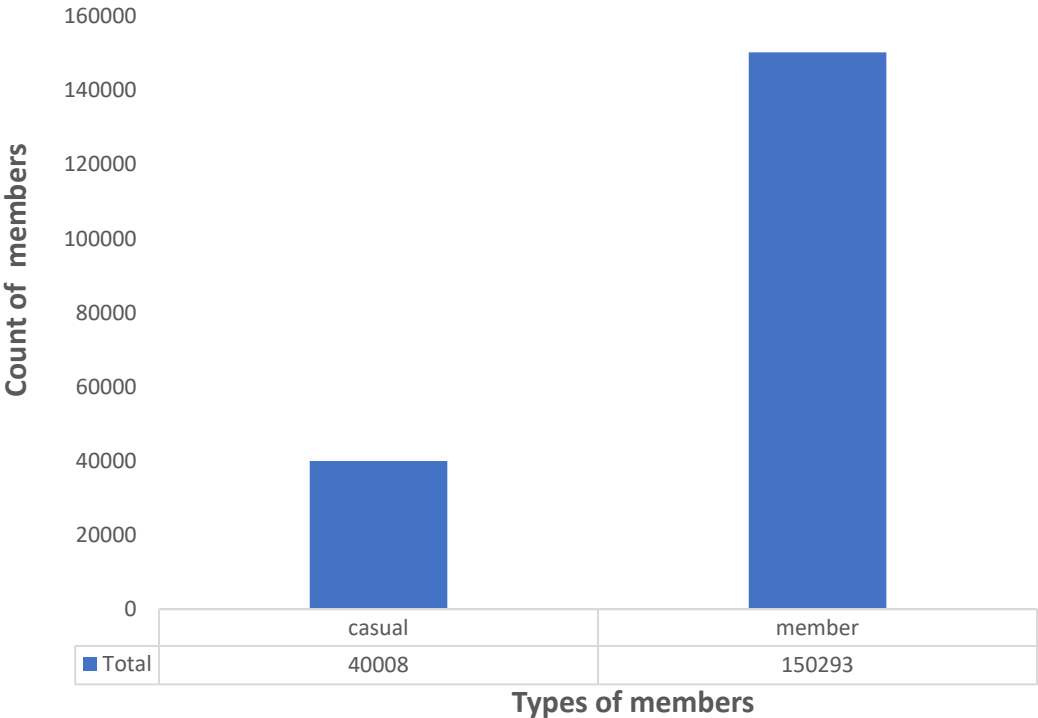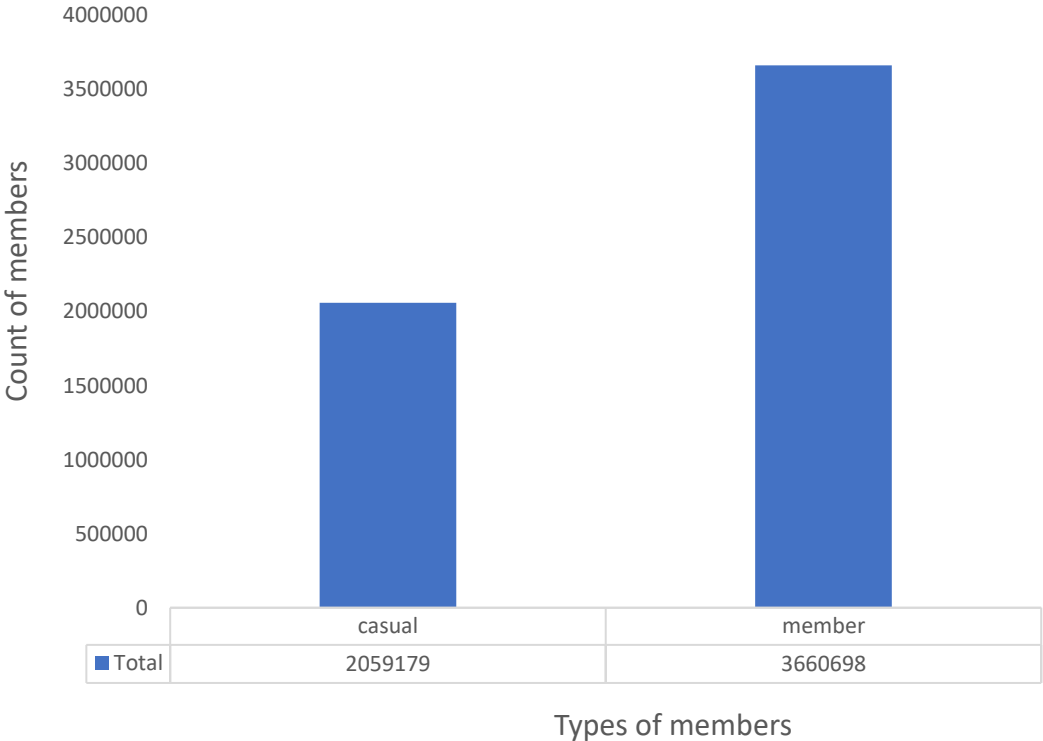Fig 3: Total counts of casual and annual members who patronized Cyclistic in Jan, 2023

Fig 4:. Total counts of casual and annual members who patronized Cyclistic in 2023

Visualizations and Key Findings

Fig 5: Daily breakdown of customers who patronized Cyclistic during the week in Jan, 2023. 1: Sun, 2: Mon, 3: Tues, 4: Wed, 5: Thurs, 6: Fri & 7: Sat

Fig 6: Daily breakdown of customers who patronized Cyclistic during the weeks of 2023. 1: Sun, 2: Mon, 3: Tues, 4: Wed, 5: Thurs, 6: Fri & 7: Sat

	casual	member
1	6377	15989
2	5698	22649
3	6904	29377
4	5978	24743
5	5022	22645
6	5012	20109
7	5017	14781

Types of members

	casual	member
1	335718	408860
2	234828	494576
3	246224	576754
4	249166	586459
5	270612	589590
6	311925	531599
7	410706	472860

Types of members

Visualizations & Key Findings

Fig 7: Daily breakdown of the average ride length of the customers who patronized Cyclistic during the weeks of 2023. 1: Sun, 2: Mon, 3: Tues, 4: Wed, 5: Thurs, 6: Fri & 7: Sat

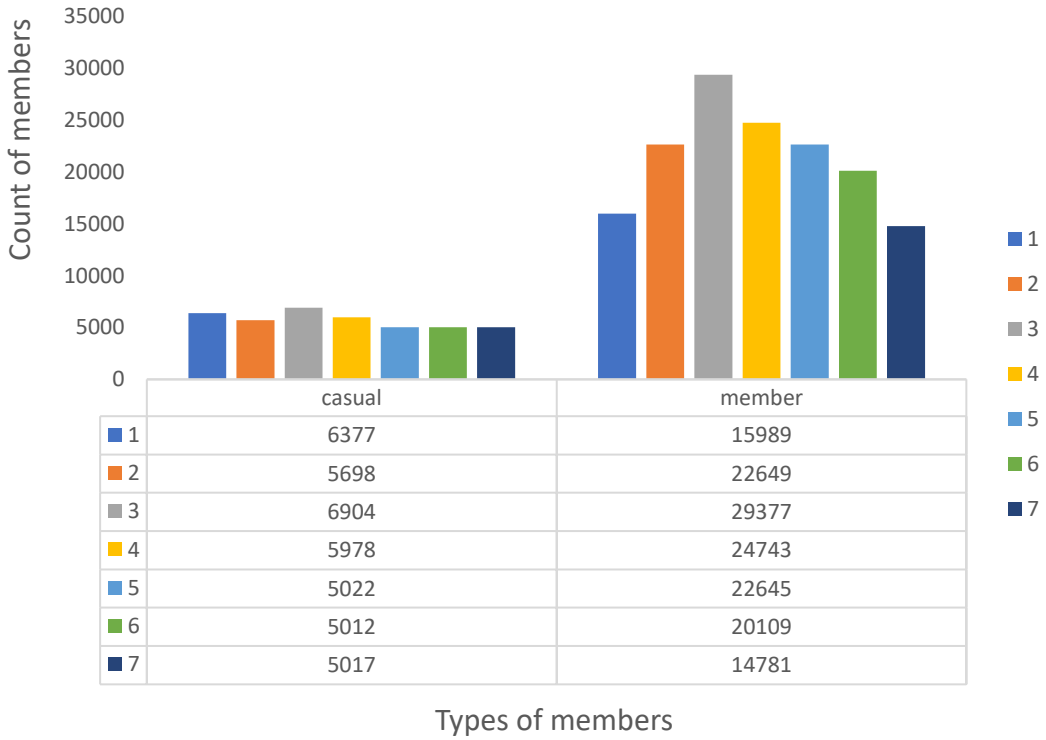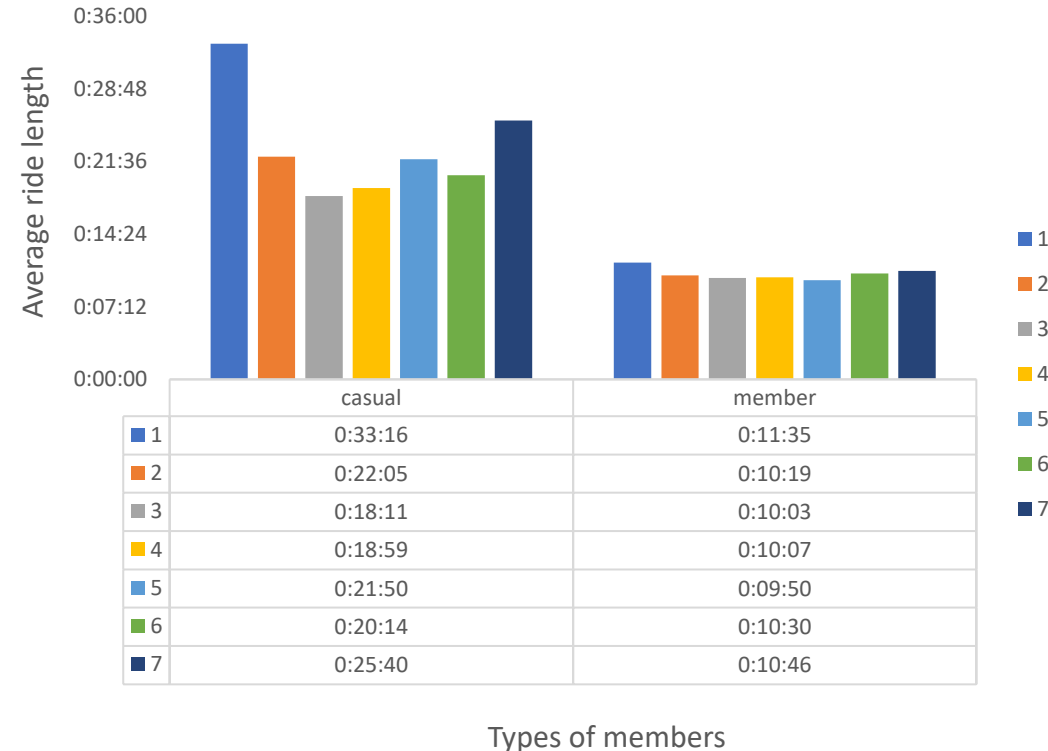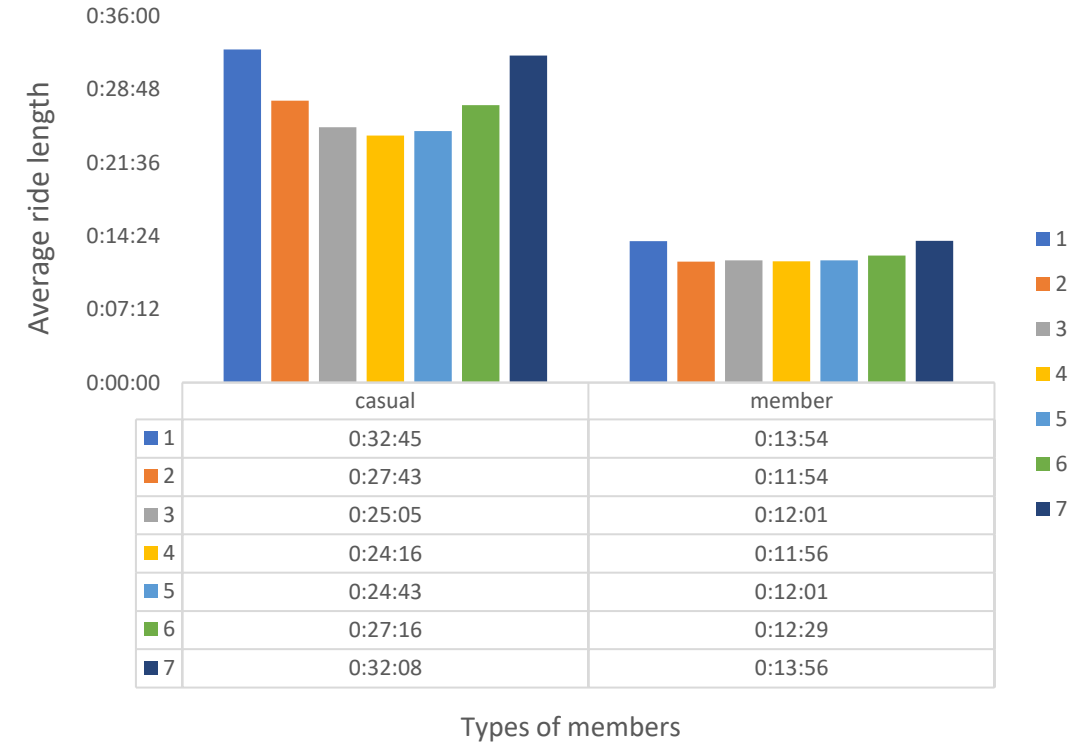Fig 8: Daily breakdown of the average ride length of the customers who patronized Cyclistic during the weeks of 2023. 1: Sun, 2: Mon, 3: Tues, 4: Wed, 5: Thurs, 6: Fri & 7: Sat

	casual	member
1	0:33:16	0:11:35
2	0:22:05	0:10:19
3	0:18:11	0:10:03
4	0:18:59	0:10:07
5	0:21:50	0:09:50
6	0:20:14	0:10:30
7	0:25:40	0:10:46

	casual	member
1	0:32:45	0:13:54
2	0:27:43	0:11:54
3	0:25:05	0:12:01
4	0:24:16	0:11:56
5	0:24:43	0:12:01
6	0:27:16	0:12:29
7	0:32:08	0:13:56

Visualizations & Key Findings

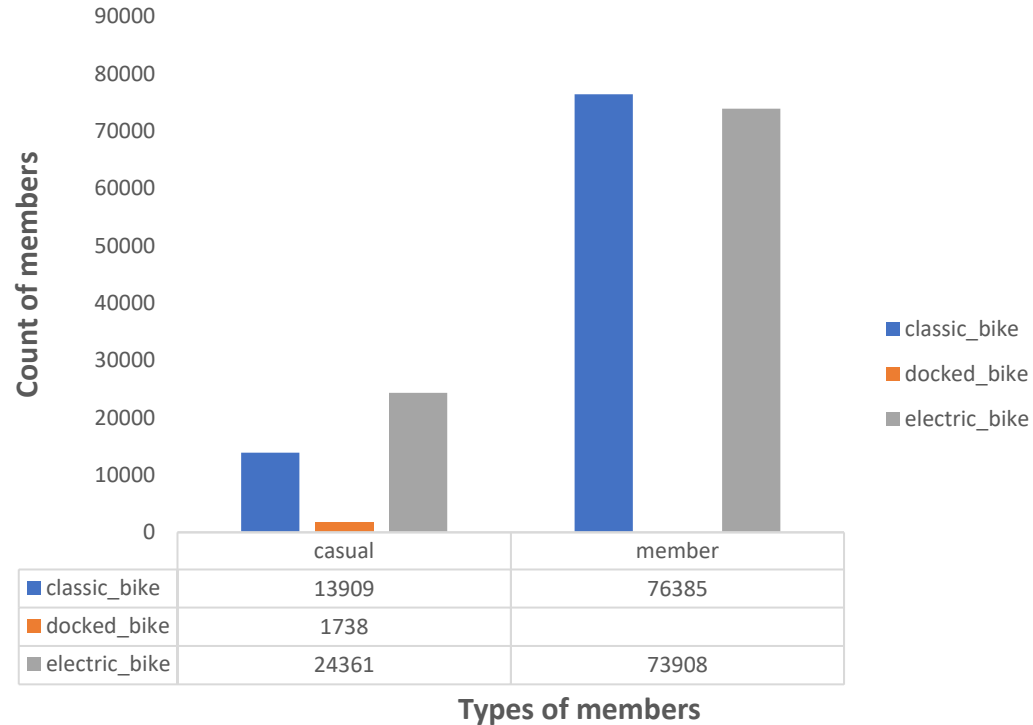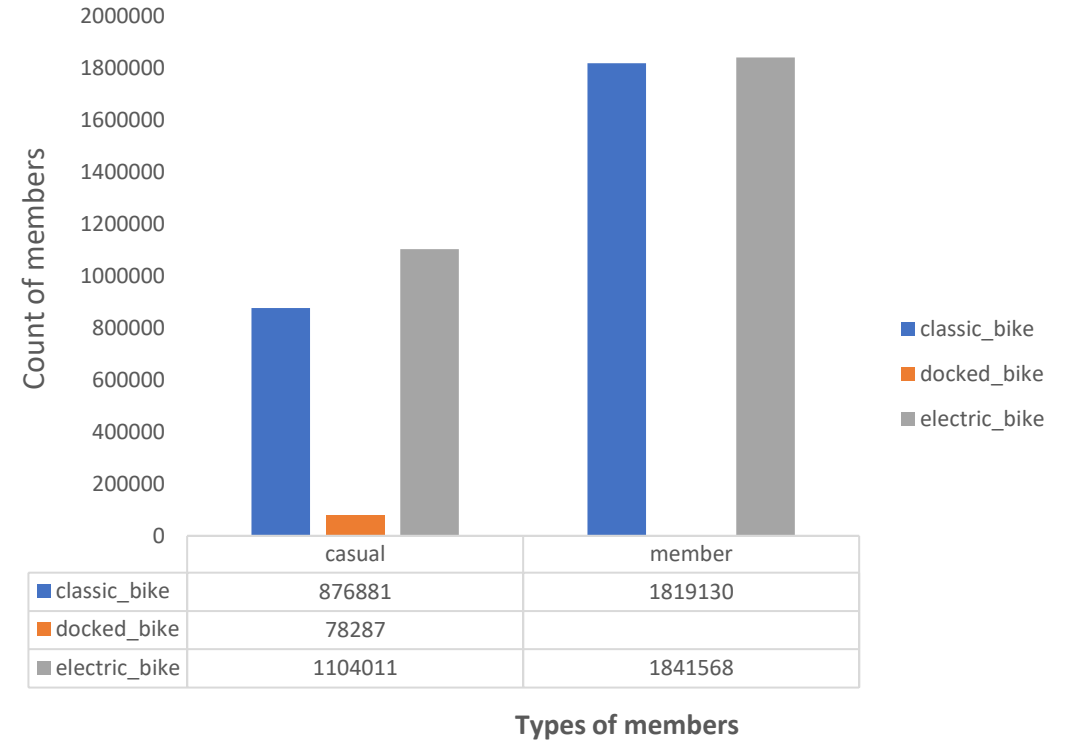Fig 9: Breakdown of count of members who rode different bikes and the bikes that they rode in Jan 2023

	casual	member
■ classic_bike	13909	76385
■ docked_bike	1738	
■ electric_bike	24361	73908

Fig 10: Breakdown of count of members who rode different bikes and the bikes that they rode in 2023

	casual	member
■ classic_bike	876881	1819130
■ docked_bike	78287	
■ electric_bike	1104011	1841568

Visualizations and Key Findings

Fig 11: Breakdown of counts of members who rode different bikes and the bikes that they rode in different days of the week in Jan, 2023. 1: Sun, 2: Mon, 3: Tues, 4: Wed, 5: Thurs, 6: Fri & 7: Sat

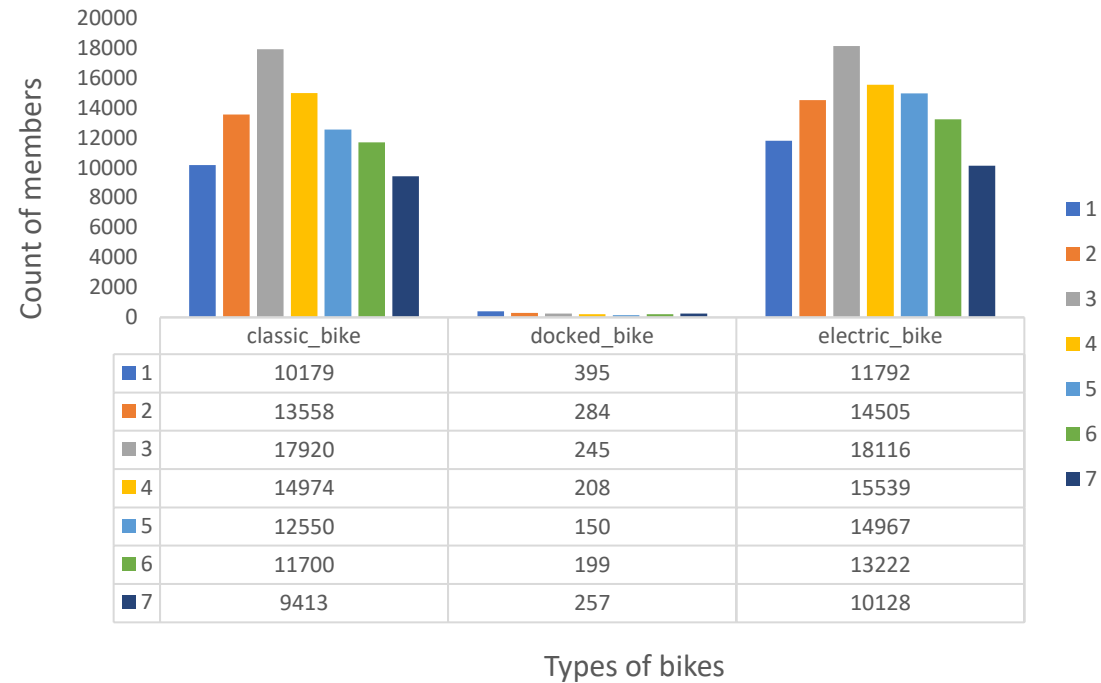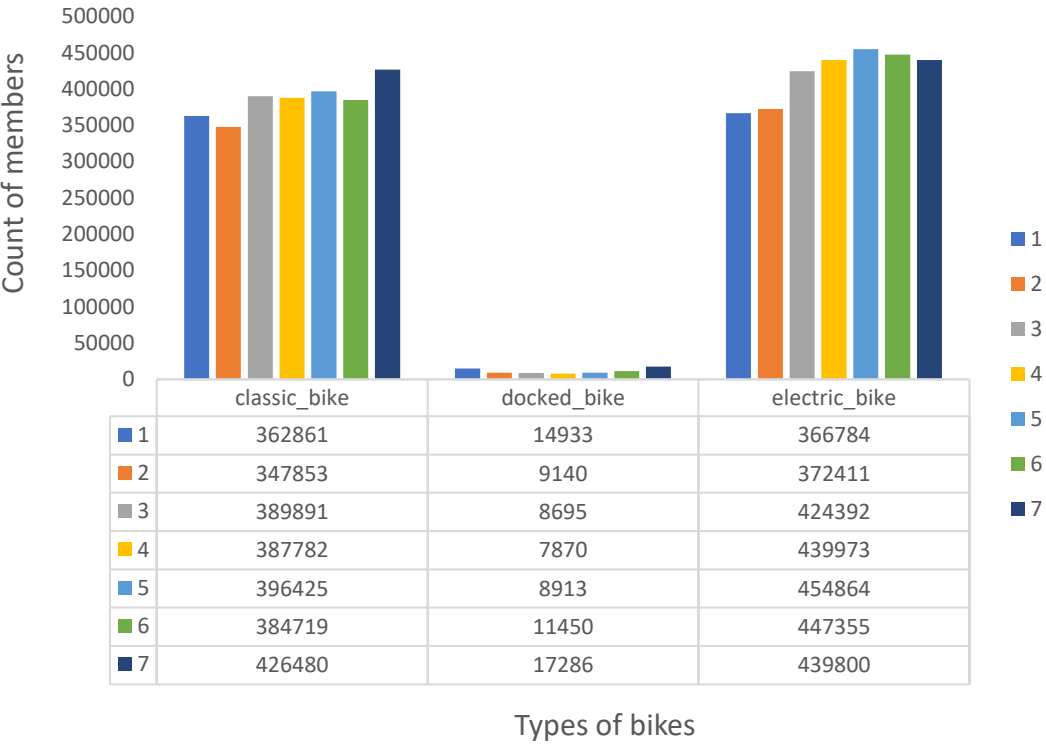|	classic_bike	docked_bike	electric_bike
1	10179	395	11792
2	13558	284	14505
3	17920	245	18116
4	14974	208	15539
5	12550	150	14967
6	11700	199	13222
7	9413	257	10128

Types of bikes

Fig 12: Breakdown of counts of members who rode different bikes and the bikes that they rode in different days of the weeks of 2023. 1: Sun, 2: Mon, 3: Tues, 4: Wed, 5: Thurs, 6: Fri & 7: Sat

	classic_bike	docked_bike	electric_bike
1	362861	14933	366784
2	347853	9140	372411
3	389891	8695	424392
4	387782	7870	439973
5	396425	8913	454864
6	384719	11450	447355
7	426480	17286	439800

Types of bikes

Visualization and Key Findings

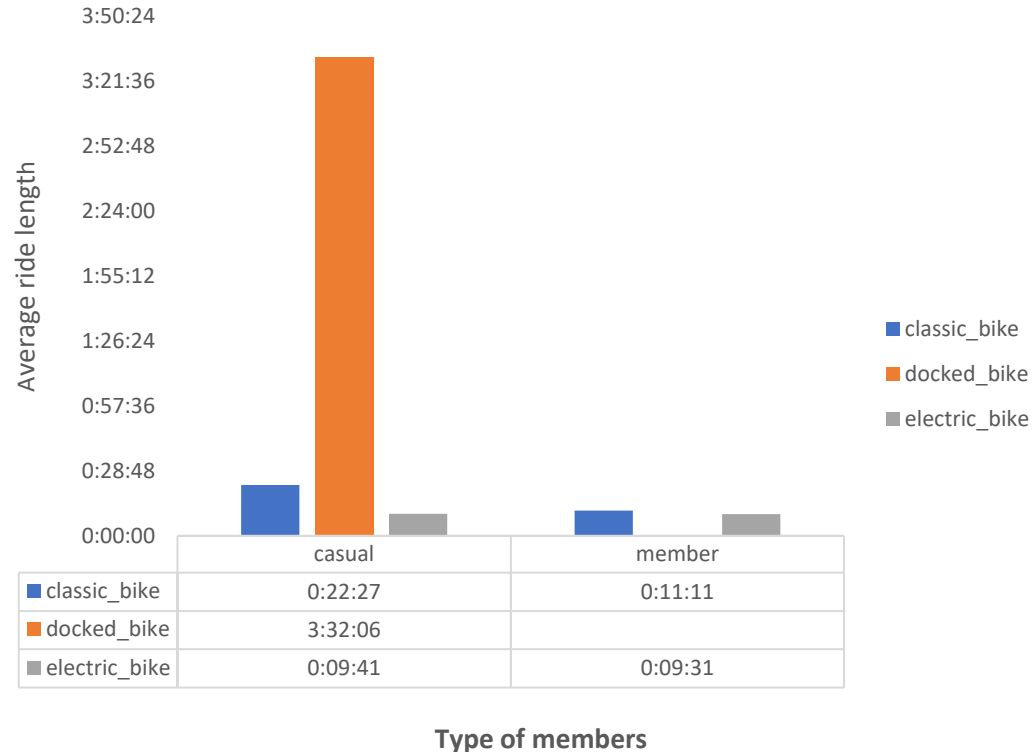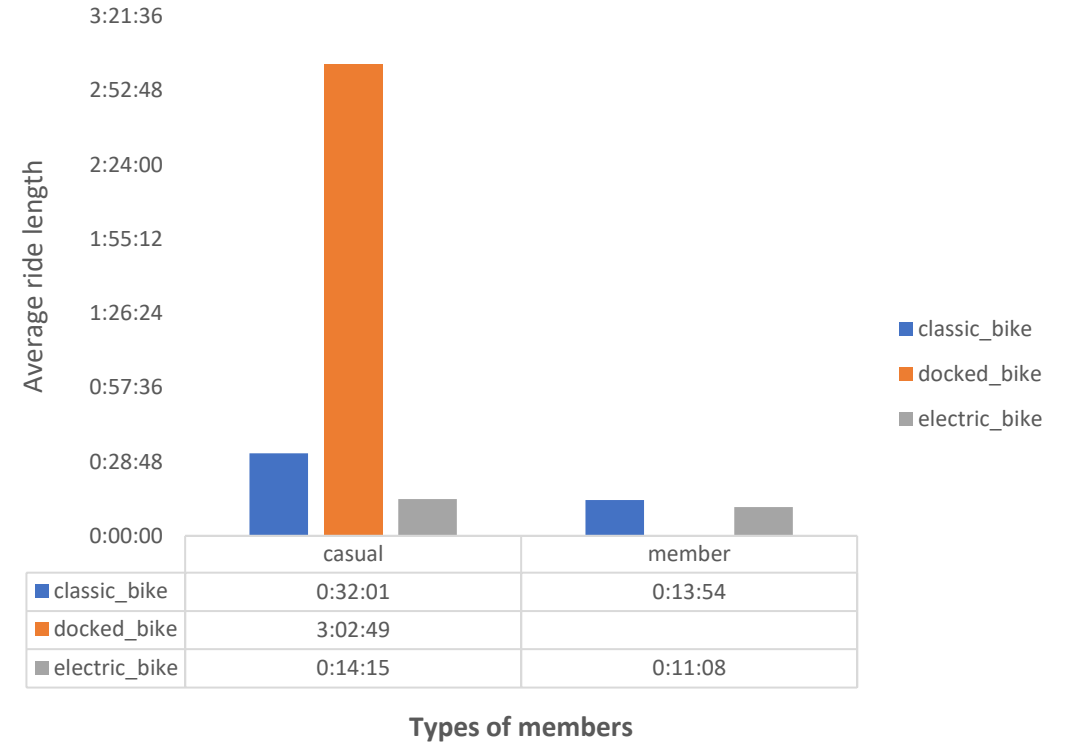Fig 13: Breakdown of average ride lengths of members and the kind of bikes that they rode in Jan, 2023

	casual	member
■ classic_bike	0:22:27	0:11:11
■ docked_bike	3:32:06	
■ electric_bike	0:09:41	0:09:31

Type of members

Fig 14: Breakdown of average ride lengths of members and the kind of bikes that they rode in 2023

	casual	member
■ classic_bike	0:32:01	0:13:54
■ docked_bike	3:02:49	
■ electric_bike	0:14:15	0:11:08

Types of members

Visualization and Key Findings

Fig 15: Breakdown of average ride lengths spent on riding different bikes for different days of the week in Jan, 2023. 1: Sun, 2: Mon, 3: Tues, 4: Wed, 5: Thurs, 6: Fri & 7: Sat
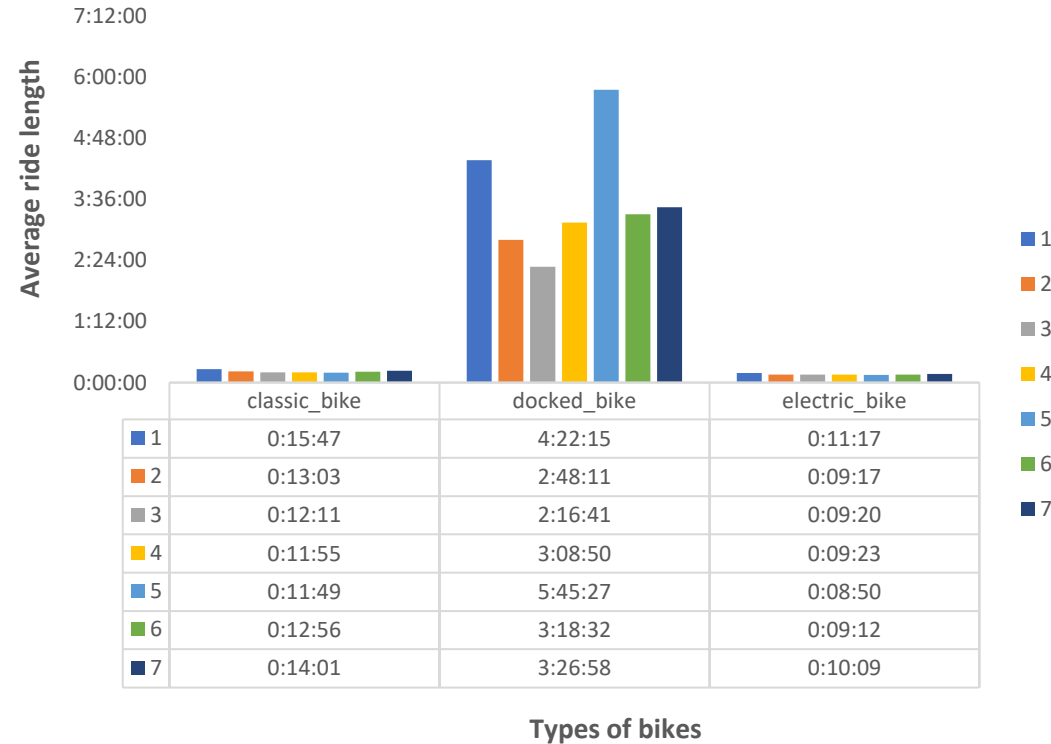

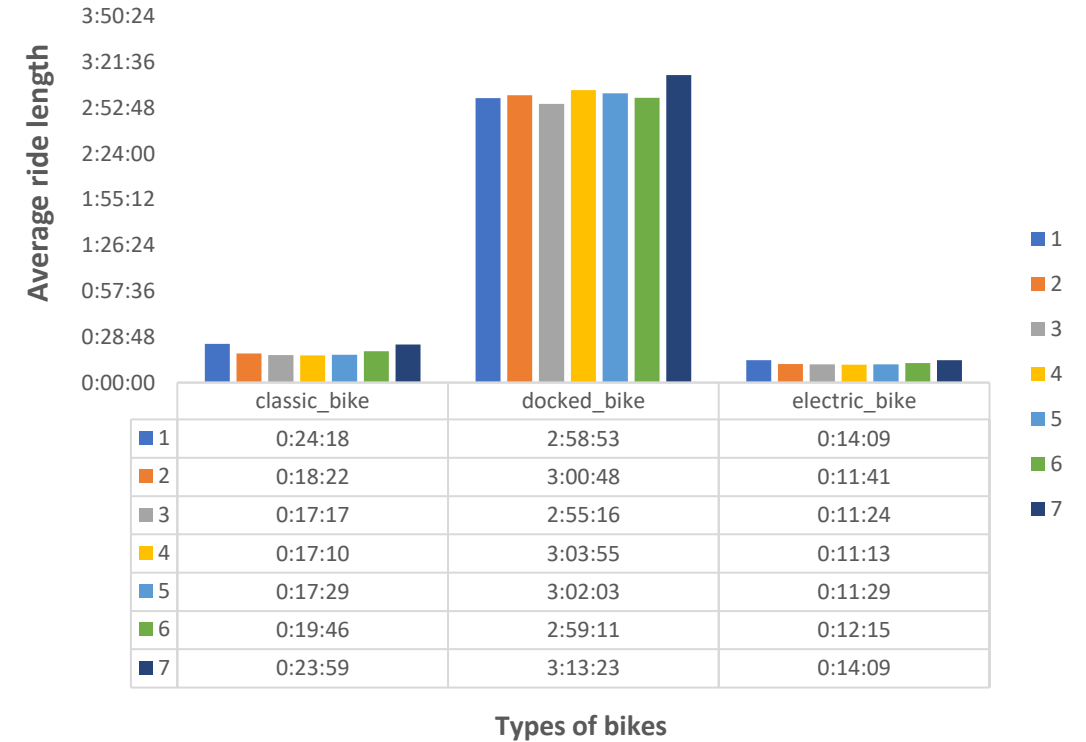|	classic_bike	docked_bike	electric_bike
1	0:15:47	4:22:15	0:11:17
2	0:13:03	2:48:11	0:09:17
3	0:12:11	2:16:41	0:09:20
4	0:11:55	3:08:50	0:09:23
5	0:11:49	5:45:27	0:08:50
6	0:12:56	3:18:32	0:09:12
7	0:14:01	3:26:58	0:10:09

Fig 16: Breakdown of average ride lengths spent on riding different bikes for different days of the weeks in 2023. 1: Sun, 2: Mon, 3: Tues, 4: Wed, 5: Thurs, 6: Fri & 7: Sat

	classic_bike	docked_bike	electric_bike
1	0:24:18	2:58:53	0:14:09
2	0:18:22	3:00:48	0:11:41
3	0:17:17	2:55:16	0:11:24
4	0:17:10	3:03:55	0:11:13
5	0:17:29	3:02:03	0:11:29
6	0:19:46	2:59:11	0:12:15
7	0:23:59	3:13:23	0:14:09

Visualizations & Key Findings

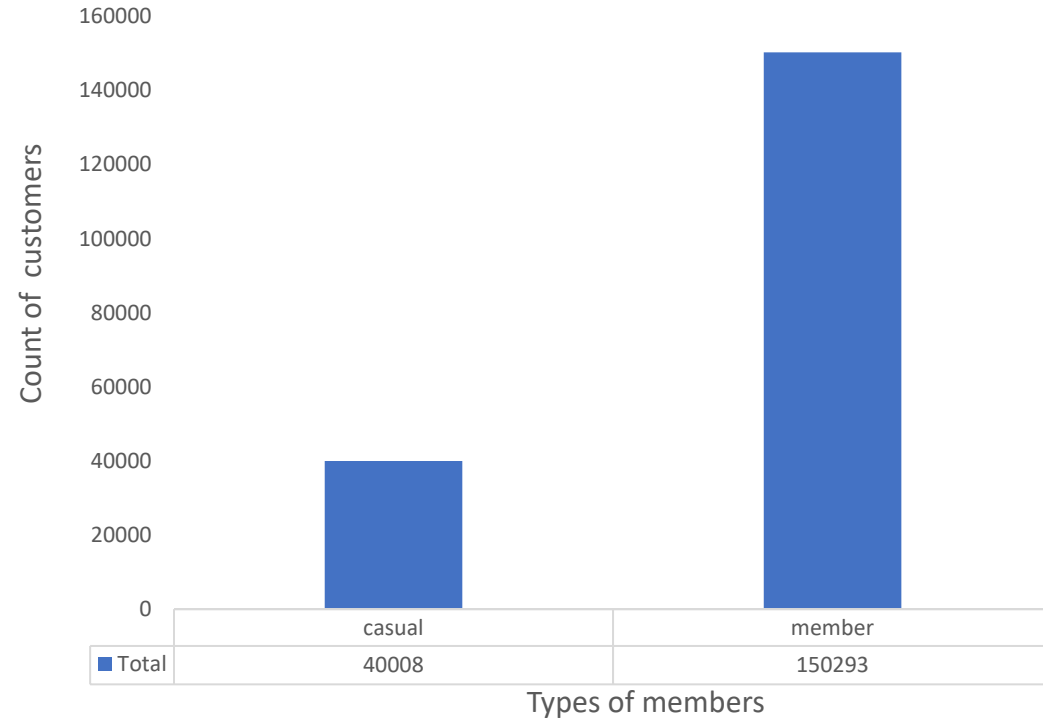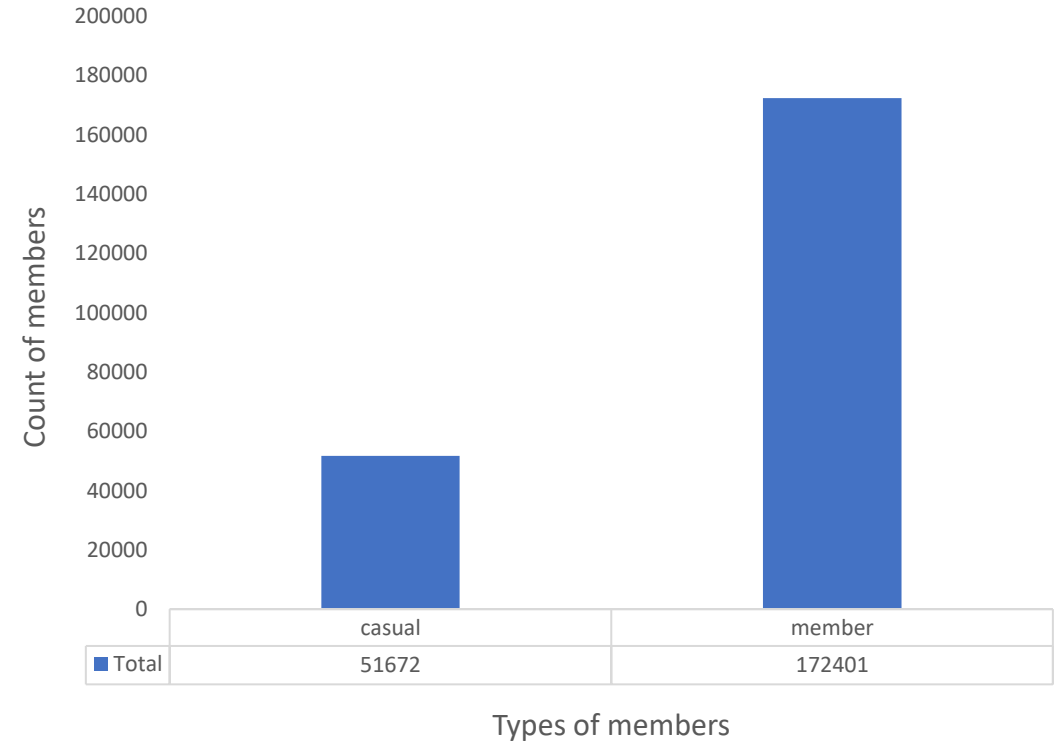Fig 17: Total counts of casual and annual members who patronized Cyclistic in Jan, 2023

	casual	member
■ Total	40008	150293

Fig 18: Total counts of casual and annual members who patronized Cyclistic in Jan, 2023

	casual	member
■ Total	51672	172401

Visualization & Key Findings

Fig 19: Average ride length of casual and annual members of Cyclistic motor-bike for Jan, 2023

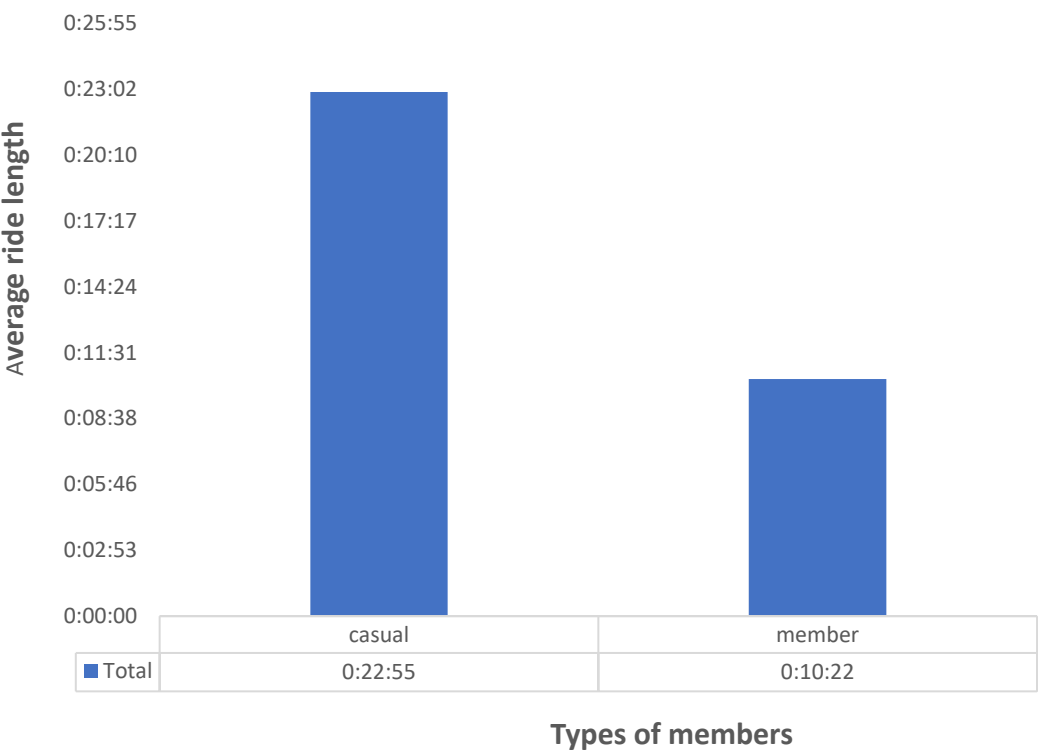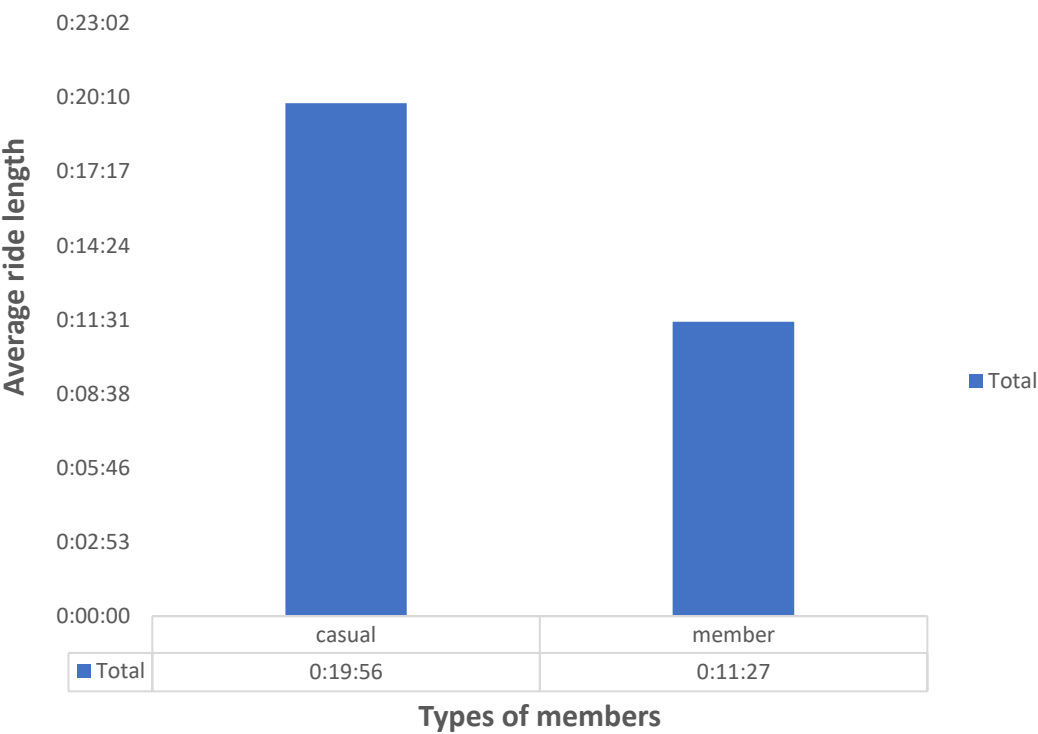|	casual	member
Total	0:22:55	0:10:22

Types of members

Fig 20: Average ride length of casual and annual members of Cyclistic motor-bike for Jan, 2023

	casual	member
Total	0:19:56	0:11:27

Types of members

Conclusion & Recommendation

- Incentives should be offered to current annual members
  - to ride docked bikes

- Gross discount should be offered to casual members
  - who choose docked bikes over other bikes &
  - would like to be annual members

- Since the number of annual members almost doubled
  - that of casual members , converting casual members to annual members
  - will increase the annual sales volume by almost half

Acknowledgement

- The financial aid offered by Coursera for the Google Data Analytics Professional Certificate course is gratefully acknowledged

- Google is also thanked for the training and the career support

- Offered during and after the training period.

- Motivate Inc is also thanked for making the divvy trip data

- publicly available for this study