



Case Study: Cyclistic bike-share analysis



Introduction

In this case study, I will be working as a junior data analyst. As part of this will have to follow the analysis phases of ask, prepare, process, analyze, share and act. With this process, I need to come up with a solution for the business task with data insights for the business task with insights of the data.

Company & Scenario overview:

In 2016, Cyclistic launched a successful bike-share offering. Since then, the program has grown to a fleet of 5,824 bicycles that are geo-tracked 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.

Until now, Cyclistic's marketing strategy relied on building general awareness and appealing to broad consumer segments. One approach that helped make these things possible was the flexibility of its pricing plans: single-ride passes, full-day passes, and annual memberships. Customers who purchase single-ride or full-day passes are referred to as casual riders. Customers who purchase annual memberships are Cyclistic members.

Cyclistic's finance analysts have concluded that annual members are much more profitable than casual riders. Although the pricing flexibility helps Cyclistic attract more customers, Moreno believes that maximizing the number of annual members will be key to future growth. Rather than creating a marketing campaign that targets all-new customers, Moreno believes there is a very good chance to convert casual riders into members. She notes that casual riders are already aware of the Cyclistic program and have chosen Cyclistic for their mobility needs.

As part of the data analyst process ASK:

We want to look at the future growth of the business which is making more profit in the annual members of bike riders when compared to the casual riders.

We would like to convert all the casual riders to Cyclistic members. To find a solution to this problem I have to analyze how differently casual, and members use bike share based on the seasons, day of the week & locations.

Coming up with a solution to report to the executive team, Director of Marketing & Marketing analytics team.

Prepare:

Got data from the link <https://divvy-tripdata.s3.amazonaws.com/index.html> 12 months from May-2021 to Apr-2022. Data is open source vetted, and reliable as per the license link below:
<https://ride.divvybikes.com/data-license-agreement>

Downloaded files in CSV format which contains bike riders' info with 13 variables of more than 200K records for each month. By looking at the data figured out some incomplete information of some columns info and had missing values in columns start_station_name, start_station_id, end_station_name & end_station_id by filtering and sorting data. All the other columns had some level of credibility to use for analysis.

Process:

Saved all the 12 months in Excel format. Created column to find out day_of_week for each month for the further phase of analysis. Did some initial



Case Study: Cyclistic bike-share analysis



Using SQL as part of the processing phase of Data Analytics. Merging data in SQL is easy compared to Excel. Imported 12 months of excel data into SQL management studio.

Before merging data found that all the data types are consistent and accurate.

Analyze:

--checking tables rows from SQL aligned with excel files

```
select * from dbo.jan
select * from dbo.feb
select * from dbo.mar
select * from dbo.apr
select * from dbo.may
select * from dbo.june
select * from dbo.july
select * from dbo.aug
select * from dbo.sep
select * from dbo.oct
select * from dbo.nov
select * from dbo.dec
```

--INSERT INTO ONE DATAFRAME FROM 12 MONTHS OF DATA

```
SELECT * INTO year FROM dbo.jan
```

```
SELECT * FROM dbo.year
```

```
INSERT INTO year
SELECT * FROM dbo.feb
```

```
INSERT INTO year
SELECT * FROM dbo.mar
```

```
INSERT INTO year
SELECT * FROM dbo.apr
```

```
INSERT INTO year
SELECT * FROM dbo.may
```

```
INSERT INTO year
SELECT * FROM dbo.june
```

```
INSERT INTO year
SELECT * FROM dbo.july
```

```
INSERT INTO year
SELECT * FROM dbo.aug
```



Case Study: Cyclistic bike-share analysis



```
INSERT INTO year
SELECT * FROM dbo.sep
```

```
INSERT INTO year
SELECT * FROM dbo.oct
```

```
INSERT INTO year
SELECT * FROM dbo.nov
```

```
INSERT INTO year
SELECT * FROM dbo.dec
```

--checking for the accuracy of data per month compared with excel files.

```
SELECT month(started_at) month, count(*) from total group by month(started_at)
order by month
```

--ADD Ride_length1 total of seconds value

```
ALTER TABLE dbo.year
ADD ride_length1 BIGINT NULL
```

--Getting ride_length1 diff of started_at, ended_at

```
UPDATE dbo.year
SET ride_length1 = DATEDIFF(second, started_at, ended_at)
```

--deleting 0 value from ride_length1

```
DELETE FROM year
WHERE ride_length1 <=0
```

--Total avg ride_length as per member & casual

```
SELECT DISTINCT member_casual, avg(ride_length1) avg
FROM dbo.year
GROUP BY member_casual
```

--Findout monthly longest ride_length & average ride_length as per member_casual

```
SELECT DISTINCT month(started_at) month, member_casual, MAX(ride_length1) max,
avg(ride_length1) avg
FROM year
GROUP BY month(started_at), member_casual
ORDER BY month
```

--Findout monthly highest no_of_rides as per member_casual

```
SELECT DISTINCT month(started_at) month, member_casual, count(ride_id) no_of_rides
FROM year
GROUP BY month(started_at), member_casual
ORDER BY month
```

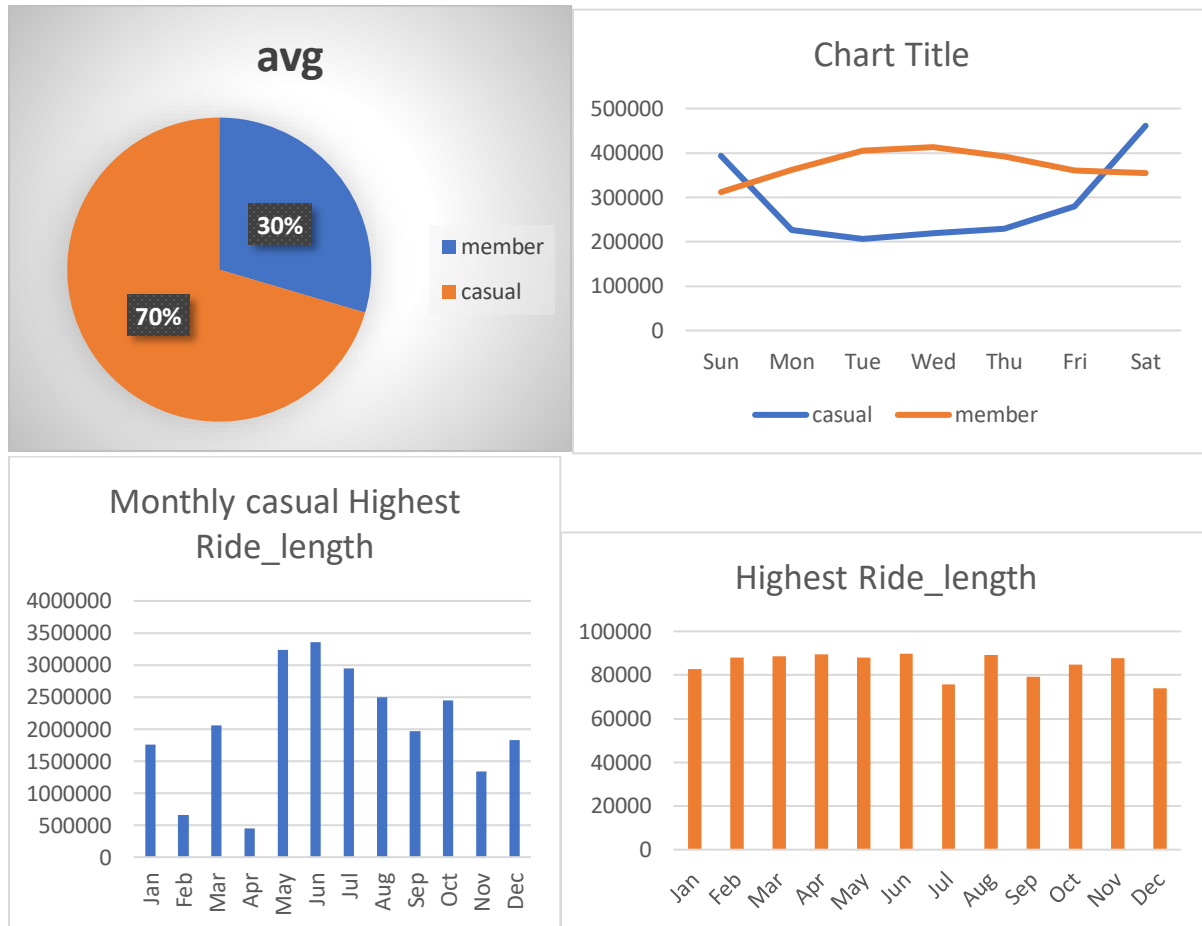


Case Study: Cyclistic bike-share analysis



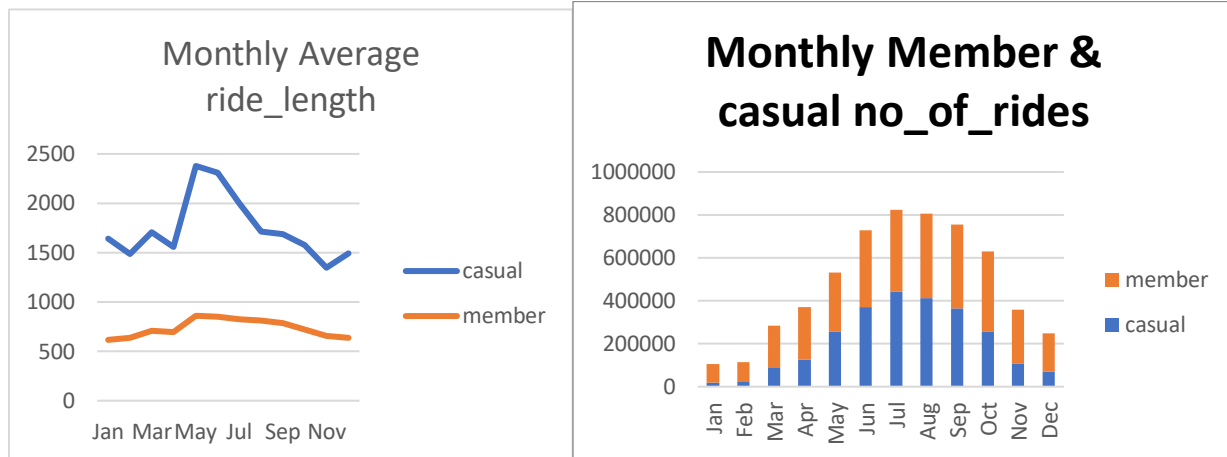
Share:

Exported all these summary reports into Excel for further analysis.
Pivoted in excel for visualization.





Case Study: Cyclistic bike-share analysis



ACT:

Recommendations based on Key findings:

- Offering monthly or quarterly memberships to casual riders instead of annual memberships.
- To encourage casual riders, provide discounted fares during the winter months.
- In comparison to weekends, give greater promotions over the weekdays to casual riders.
- Charge more for longer rides and encourage casual riders to become members.