**CYCLISTIC USER ENGAGEMENT ANALYTICS REPORT**

**Business Task**

The Business task is to design marketing strategies that aims at converting casual riders into annual riders. Looking into the factors that compels casual members to buy a membership subscription alongside how digital media can be employed as a strategy in achieving that.

The casual riders are single ride passes alongside full-day passes. While annual riders are those that have been converted into full membership.

**Key factors to consider**

1. How do annual members and casual riders use Cyclistic bikes differently?

2. Why would casual riders buy Cyclistic annual memberships?

3. How can Cyclistic use digital media to influence casual riders to become members?

**Key Stakeholders**

* **Lily Moreno**: The director of marketing and your manager. Moreno is responsible for the development of campaigns and initiatives to promote the bike-share program. These may include email, social media, and other channels.
* **Cyclistic marketing analytics team:** A team of data analysts who are responsible for collecting, analyzing, and reporting data that helps guide Cyclistic marketing strategy. You joined this team six months ago and have been busy learning about Cyclistic’s mission and business goals — as well as how you, as a junior data analyst, can help Cyclistic achieve them.
* **Cyclistic executive team**: The notoriously detail-oriented executive team will decide whether to approve the recommended marketing program.

PREPARE

The dataset is stored using an HTML format and the link to the website is <https://divvy-tripdata.s3.amazonaws.com/index.html>

The file format is saved in ZIP codes and arranged according to day and year. The dataset for four consecutive years 2020 to 2023 were used for the analysis.

# Index of bucket "divvy-tripdata"

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Data Cleaning Process

Tool used: R studio and Microsoft Excel

The dataset was load into R studio for data cleaning process to be properly carried out. R programming was firstly used in order to be sure of certain properties of the dataset, the number of fields and records and to carry out some data cleaning processes before exporting the file as CSV back to Microsoft excel for further cleaning and analysis

Packages including ‘tidyverse’, ‘lubridate’, ‘dplyr’, ‘tidyr’, ‘janitor’ was used in the data cleaning process. The ‘separate()’ function was also used to separate the date format, thereby putting the time into one column.

August <- read.csv("C:\\Users\\HP\\Downloads\\my coursera portfolio\\202008-divvy-tripdata.csv")

View(August%>%)

Modified\_August <- August %>%

select(started\_at, ended\_at,member\_casual) %>%

separate(ended\_at, c("end\_date", "end\_time"), " ") %>%

separate(started\_at, c("start\_date", "start\_time")," ")

View(Modified\_August)

Modified\_August$day\_of\_week <- strftime((Modified\_August$start\_date), "%A")

From the cleaning carried out on R, the datasets reveals there are no duplicates and Null fields are left, because after through examination, the fields that are null are majorly from customers that are not willing to drop their personal information alongside others and this does not have a direct effect on the main dataset that are needed for analysis, the dataset for each month are then exported to MS excel.

On Microsoft excel, another column was introduced in order to show the ride\_length alongside another column that was meant for showing which specific day of the week is allotted to each row of data using numbers ranging from 1-7, arranged in weekday ranging from Sunday to Saturday.

Another column was created for weekday, this helps to reveal information about weekdays clients visits the place in order to use the facility.

The dataset were later summarized into another table in the excel sheet for final analysis and for creation of visualization and these are in the following format; ‘Year, Month, average ride length, mode of the weekday, membership count, membership’ . These dataset were grouped based on the respective year. Four consecutive years were focused on 2020 – 2023.

ANALAYSIS

The analysis for the dataset were carried out using

Count functions in Microsoft excel to have a detailed and precise figure of the total number of casual and members for further analysis and description. This was carried out for different months and later compiled into a year.

Average Function =AVG() function was used to know the mean ride length for the ride lengths over the period of a month and then extended to a year

Mode Function; This was used to reveal the mode of weekday the users from each category usually use the bikes. This helps in uncovering patterns when it comes to weekdays that the company has a number of engagement compared to the other days.

The results from this analysis were then transferred moved to pivot table for further analysis and in preparation for visualization.

FINDINGS

Furthermore, from the summarized dataset, a descriptive analysis was carried out on the dataset for each year separated by either being a full member or a casual member and here are the reports from the descriptive analysis.

**2020 Dataset Descriptive Analysis**

**Average Ride length between 2020 - 2023**

|  |  |  |
| --- | --- | --- |
| YEAR | (All) |  |
|  |  |  |
| **Average Ride Length per Year** | **Column Labels** |  |
| **Row Labels** | **Casual** | **member** |
| Jan | 1:14:38 | 0:35:07 |
| Feb | 1:21:48 | 0:37:59 |
| Mar | 1:08:57 | 0:36:16 |
| Apr | 2:54:43 | 1:05:27 |
| May | 2:30:04 | 1:00:55 |
| Jun | 2:25:27 | 1:00:35 |
| Jul | 4:41:47 | 2:56:48 |
| Aug | 1:12:19 | 0:40:15 |
| Sep | 1:34:06 | 0:41:53 |
| Oct | 1:21:16 | 0:37:56 |
| Nov | 1:02:37 | 0:34:02 |
| Dec | 0:58:44 | 0:33:09 |

A summary of the average ride length in the four years shows that the single-ride passes, full-day passes also known as casual members spends more time on the usage of the bikes in bikeshare more than the casual members. The table above shows that the highest average ride length is 4 hours, 41 minures and 47 seconds compared to that of annual membership owners which is just at 2 hours 56 minutes and 48 seconds.

**Average Ride length per weekday**

|  |  |  |
| --- | --- | --- |
| YEAR | (All) |  |
|  |  |  |
| **Average Ride Length per weekday** | **Column Labels** |  |
| **Row Labels** | **Casual** | **member** |
| 7 | 11:58:58 | 6:24:07 |
| 6 | 2:41:39 | 0:59:28 |
| 3 | 2:07:04 | 0:58:48 |
| 5 | 1:48:16 | 0:47:36 |
| 1 | 1:41:51 | 0:40:33 |
| 4 | 1:11:03 | 0:45:04 |
| 2 | 0:57:35 | 0:24:46 |

This summary table reveals the average of ride length in comparison with the weekdays. This helps in knowing the day with the highest engagement with respect to how long the users used the bikes and which day exactly

**Summary of membership count**

|  |  |  |
| --- | --- | --- |
| YEAR | (All) |  |
|  |  |  |
| **Membership per month** | **Column Labels** |  |
| **Row Labels** | **Casual** | **member** |
| Feb | 74563 | 281833 |
| Jan | 76645 | 314260 |
| Dec | 144712 | 416207 |
| Mar | 236110 | 535098 |
| Nov | 295800 | 661629 |
| Apr | 497959 | 721886 |
| Oct | 596534 | 948176 |
| May | 858421 | 1113171 |
| Sep | 876005 | 1082389 |
| Jun | 995676 | 1365740 |
| Aug | 1061255 | 1151389 |
| Jul | 1448765 | 1476263 |
|  |  |  |

The summary of membership count reveals the total number of each category of users that used the bikes from the company over the months in a period of four years. The total count of casual members shows a total of 7162445 while that of full members is at 10068041 revealing a difference of 2905596. Which is quite significant.

VISUALIZATION

**Chart 1 (**Membership per month)

This chart shows the membership per month, it reveals the number of members engaging Cyclistic over the months alongside showing which month has the highest engagement over the years as well for instance in the year 2020 August had the highest engagement with casual members amounting to 289660 and members number at 332700 in total. While in 2021 the casual number is 442056 in July while members are at 392257 in September, but looking at the month of August as well the difference wasn’t so much. While in 2022 the casual number was at 406055 for the month of July as well alongside the members at 427008 slated as the highest number for the month of August and finally for the last year 2023 the month of July has the highest engagement so far compared to others with casual number at 331358 and member at 436292.

* This reveals patterns of months with the highest engagement over the years with focus on the month of August and July while the chart shows that January, February and December have been at the minimum side of engagement over the years.

**Chart 2 (**Average Ride Length per weekday)

This is a bar chart showing the averages of ride length over the weekdays. The weekdays ranges from day 1 to day 7 representing Sunday to Saturday respectively. From year 2020 to 2022, weekday 7 (Saturday) has been the highest weekday Cyclistic experience engagement where the ride length lasted for a longer period of time for both the casual users and the members. However the chart revealed that in the year 2023 weekday 3 which symbolizes Tuesday has the highest average ride length, followed by Weekday 7.

* This clearly shows that an event that happened on weekday 3 must have prompted that, thereby displacing weekday 7. It possibly could have been a public holiday that could possibly have sponsored that variation.
* Recommendation; if a physical campaign is to be carried out by the marketing department it can be carried out on a Saturday and can focus largely on the casual users considering the ride length, a discount can be given to them and they can also be promised more if they can subscribe to being a member user of Cyclistic bikes.

**Chart 3 (**Yearly percentage membership count)

This is a Doughnut chart relating a comparison between the casual count and the members count in percentages for each year. This helps to know the percentagae of each category in the total number of users that engagaed Cyclistic over the years.

* This will help in having an idea of the thread of membership count over the years and help in preparing a forecast for the coming years. This will also help the marketing department to know the total number of users per year and if there are plans that focus towards a category, it will be easy to have a grasp of the number to make planning for.

**Chart 4 (**Average Ride length per weekday)

The clustered bar chart shows the different weekdays that users engagae Cyclistic bikes, the 7th weekday stays on top of the chart for three consecutive years with a very high ride length, this will be a very good point to generate more revenue by Cyclistic if they were to be a member.

**Chart 5 (**Weekday mode comparison)

The thermometer chart reveals the count of users during the highest weekdays. From 2020 to 2022 the highest weekday has been the 7th day which is Saturday and for 2023 the highest weekday is 3rd day which is Tuesday. It is quite important for the marketing team to take note of the event that happened on such day that encouraged such a massive turnout of users.

* The thermometer chart reveals that the member retention strength of Cyclistic is quite okay, however the goal of every business is firstly to increase customers and in this context, increase the number of membership subscribers, increasing customer loyalty and to increase the stickiness ratio of users over the months and this is quite encouraging. For the first three years, the chart shows that during those weekdays the difference between the percentage of members to casual isn’t much, this is an indicator that the high turnout has a connection with whatever happened on 7th weekday, possible because it being weekend. While for 2023 the gap was quite much as the difference between the members and casual was around 36% which is a good reason to look into what happened on such day and why there is a large disparity in numbers, this will help to know what to focus on during adverts.

**Recommendation**; This reveals a healthy customer loyalty check, the members especially members should be made ambassadors and be encourage to advocate for Cyclistic.

For the weekdays with highest engagement where the ride length are exceedingly high, it is a good point and time to organize and advertising strategy, give reasons why they should subscribe to being a member and this should be done with mouth watering offers.

CONCLUSION

The analysis shows that Cyclistic is growing at an encouraging rate with respect to customer base. The report over the years shows that the number of members has always been quite more than that of casual users which is a good indicator for sustainable growth.

However, for expansion and increase in the growth level, it is expedient to pay attention to certain factors that can enhance and encourage an explosive level of advancement in Cyclistic bike share company and its pertinent that how each user type uses the company is being looked into intently. The analysis shows that in numbers, the count of those that subscribed to paid mentorship are more than the other users but when the ride length of each user is being reviewed over the years, the casual users have the highest length of usage hours of the bikes from cyclistic and this reveals that investing enough resources into winning them over to becoming paid members wont be a waste.

Furthermore, Casual members can be made to buy the annual membership subscription based on the number of options and advantages that is being presented to them. The analysis reveals that they spend more time using the bikes from Cyclistic, the company should make plans to put discounted services in place that can win their heart over. Increase the effectiveness of their services as well.

Lastly, the usage of digital media can also be used in winning the casual members over, a mobile app can be created for each user, this is quite more intimate to the user than websites. The user gets to access the app from time to time to make request, check out for new development from the end of the company. Through this medium, ads can be introduced using compelling copy in order to generate leads.

Digital media can also be used to know the users preferences using cookies to track their activities on the website and also to get a questionnaire across to the users asking them reasons why they are yet to subscribe for membership. A number of them will definitely give a sincere reply.