Case study Roadmap: How does a bike-share navigate speedy success?

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Abstract:

This case study delves into the analysis of bike-share usage patterns between annual members and casual riders at Cyclistic, a fictional bike-share company in Chicago. The overarching goal is to devise a marketing strategy aimed at converting casual riders into annual members, thereby maximizing the company's revenue streams. Employing the data analysis process steps of Ask, Prepare, Process, Analyze, Share, and Act, the study aims to provide actionable insights supported by compelling data visualizations to drive decision-making.

Through a comprehensive examination of Cyclistic's bike usage data, it becomes evident that distinct disparities exist in the behavior of annual members and casual riders. Annual members exhibit a preference for frequent, shorter trips, indicative of utilitarian usage patterns, possibly for commuting or short-distance travel. Conversely, casual riders opt for infrequent but longer rides, often for recreational or leisure purposes. These findings underscore the need for a targeted marketing approach tailored to the distinct preferences and behaviors of each customer segment to effectively promote annual memberships and enhance Cyclistic's business prospects.

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ASK !

Case Study Roadmap - Ask

Guiding Questions:

- **What is the problem you are trying to solve?** We are trying to understand how annual members and casual riders use Cyclistic bikes differently in order to design effective marketing strategies to convert casual riders into annual members**.**
- **How can your insights drive business decisions?** By identifying differences in usage patterns between annual members and casual riders, we can tailor marketing strategies to better target casual riders and encourage them to become annual members, ultimately increasing Cyclistic's profitability**.**

Key Tasks:

- **Identify the Business Task**: The business task is to analyze the differences in usage patterns between annual members and casual riders of Cyclistic bikes.
- **Consider Key Stakeholders**: The key stakeholders involved include Lily Moreno, the director of marketing, the Cyclistic marketing analytics team, and the Cyclistic executive team.

Deliverable:

A clear statement of the business task: To analyze how annual members and casual riders use Cyclistic bikes differently in order to inform the development of marketing strategies aimed at converting casual riders into annual members.

Let's start with the first step: asking questions. What specific questions or business problems are we aiming to address through this analysis? Once we have a clear understanding of our objectives, we can proceed with the rest of the data analysis process.

It seems like **our primary objective is to understand the differences in behavior between casual riders and annual members of Cyclistic bike-share service** in order to devise a strategy to convert casual riders into annual members.

To achieve this objective, we can frame our analysis around the following key questions:

1. **Usage Patterns**: How do usage patterns differ between casual riders and annual members? This includes metrics such as frequency of rides, duration of rides, popular ride times, and popular ride routes.

2. **Demographics**: Are there any demographic differences between casual riders and annual members? Understanding the demographics of each group can help tailor marketing strategies effectively.
3. **User Engagement**: How engaged are casual riders compared to annual members? This can be measured by factors such as repeat usage, time of day or day of week usage, and duration of membership.
4. **Conversion Factors**: What factors contribute to a casual rider becoming an annual member? Identifying these factors can inform targeted marketing campaigns aimed at conversion.
5. **Customer Satisfaction**: Are annual members more satisfied with the service compared to casual riders? Understanding satisfaction levels can help identify areas for improvement and retention strategies.

By addressing these questions through data analysis and visualization, we can provide insights that support the development of a compelling marketing strategy to increase annual memberships at Cyclistic. Given this context, it's important for us to ensure that our analysis is thorough, data-driven, and addresses the key objectives outlined by Lily Moreno and the Cyclistic executive team.

Based on the information provided:

1. **Launch and Growth**: Cyclistic was launched in 2016 and has since grown to a fleet of **5,824 bicycles across 692 stations in Chicago**. The bikes are geotracked and can be unlocked from one station and returned to any other station in the system.
2. **Marketing Strategy**: Initially, Cyclistic's marketing strategy focused on building general awareness and appealing to broad consumer segments. The pricing plans offered flexibility with options such as single-ride passes, full-day passes, and annual memberships. **Casual riders purchase single-ride or full-day passes, while annual memberships are preferred by Cyclistic members**.
3. **Financial Analysis**: Cyclistic's finance analysts have determined that annual members are significantly more profitable than casual riders. **Maximizing the number of annual members is seen as crucial for future growth**.
4. **Marketing Goal**: Lily Moreno, the director of marketing, has set a clear goal of designing marketing strategies to **convert casual riders into annual members**. This strategy is based on the belief that casual riders, who are already aware of Cyclistic, present a solid opportunity for conversion.
5. **Data Analysis**: Moreno and her team are interested in **analyzing Cyclistic's historical bike trip data** to identify trends and insights that can inform the conversion strategy.

Given these objectives, our analysis will focus on understanding the differences between annual members and casual riders, identifying reasons why casual riders might consider purchasing a membership, and exploring how digital media can influence marketing tactics to achieve the conversion goal.

To answer the question "**How do annual members and casual riders use Cyclistic bikes differently?**", we need to delve into the data and analyze various aspects of their usage patterns.

Here are some sub-questions and considerations to guide our analysis:

1. **Usage Frequency**:
    -   How often do annual members and casual riders use Cyclistic bikes?
    -   Are there specific days of the week or times of day when one group tends to ride more frequently than the other?
2. **Trip Duration**:
    -   What is the average duration of trips for annual members and casual riders?
    -   Do they tend to take shorter or longer rides on average?
3. **Trip Purpose**:
    -   Are there differences in the types of trips taken by annual members and casual riders (e.g., commuting, leisure, errands)?
    -   Do annual members or casual riders use the bikes more for specific purposes?
4. **Popular Routes and Stations**:
    -   Are there particular routes or stations that are more popular among annual members or casual riders?
    -   Do they tend to ride in different areas of the city?
5. **Seasonal Trends**:
    -   Are there seasonal variations in bike usage patterns between annual members and casual riders?
    -   How do weather conditions affect their usage behavior?
6. **Bike Type Preference**:
    -   Do annual members and casual riders show preferences for specific types of bikes (e.g., traditional bikes vs. assistive options)?
7. **Membership Duration**:
    -   For casual riders who eventually become annual members, how long does it typically take for them to make the transition?
    -   Are there specific usage patterns or behaviors that precede the conversion to annual membership?

Prepare !

Case Study Roadmap – Prepare

Guiding Questions:

- **Where is your data located?** We need to identify the location of the Cyclistic bike trip data and any other relevant datasets required for our analysis.
- **How is the data organized?** Understanding the structure and organization of the data is crucial for data processing and analysis.
- **Are there issues with bias or credibility in this data? Does your data ROCCC?** We need to assess the credibility of the data and consider potential biases that may affect our analysis. ROCCC stands for Reliability, Originality, Comprehensiveness, Currentness, and Context.
- **How are you addressing licensing, privacy, security, and accessibility?** We need to ensure compliance with data licensing, privacy, and security regulations while making the data accessible for analysis.
- **How did you verify the data's integrity?** Verifying the integrity of the data involves checking for completeness, consistency, and accuracy.
- **How does it help you answer your question?** We need to confirm that the data contains the necessary information to address the business question effectively.
- **Are there any problems with the data?** Identifying any data quality issues or limitations upfront is essential for mitigating potential biases and ensuring the validity of our analysis.

Key Tasks:

- **Download Data and Store It Appropriately**: Obtain access to the Cyclistic bike trip data and any other relevant datasets, and store them in a secure and accessible location for analysis.
- **Identify How It's Organized**: Review the structure and organization of the data to understand the variables, data types, and relationships between different datasets.
- **Sort and Filter the Data**: Preprocess the data by sorting and filtering it as needed to focus on relevant information for our analysis.
- **Determine the Credibility of the Data**: Assess the credibility of the data by evaluating its reliability, originality, comprehensiveness, currentness, and context. Identify any potential biases or limitations that may affect our analysis.

Deliverable:

A description of all data sources used, including details on the location, organization, credibility, and any issues or limitations identified during the data preparation process.

Based on the information provided, the data needed was available as part of the Divvy Data, specifically the Historical trip data accessible to the public. Here were the key details about the data:

- **Data Source:** Divvy Data (Historical trip data available to the public: Divvy Bikes System Data)
- **Content:** The data included anonymized trip information, such as trip start and end times, start and end stations, and rider type (Member and Casual riders [Single Ride, Day Pass]).
- **Data Processing:** Trips taken by staff for servicing and inspection purposes had been removed from the dataset. Additionally, trips with durations below 60 seconds had been filtered out.
- **Access:** The data was available for public use according to the Divvy Data License Agreement and was released on a monthly schedule.

We focused on importing data from Divvy for the first quarters of 2019 and 2020. Here's what we did next:

1. **Download Divvy Data:** We downloaded the trip history data for the first quarters of 2019 and 2020 from the Divvy website.

   Steps from 2 to 6 were detailed in the R Markdown file located in the R_Files folder under the name "bike_share_report.Rmd".

2. **Import Data:** We imported the downloaded data into our analysis environment.
3. **Data Exploration:** We explored the structure and contents of the imported data to understand its organization and variables.
4. **Data Quality Check:** We performed a preliminary check to assess the quality of the data, including checking for completeness, consistency, and accuracy.
5. **Filter Data:** We filtered the data to focus on relevant information for analyzing differences in bike usage between annual members and casual riders.
6. **Documentation:** We documented the data sources, processing steps, and any issues or limitations identified during the preparation phase.

   - We compared column names between the two files.
   - We renamed columns in the 2019 data to match the column names in the 2020 data.
   - We checked the structure of both dataframes for any incongruencies.
   - We converted "ride_id" and "rideable_type" columns to character type.
   - We combined both dataframes into a single dataframe using "bind_rows()".
   - We removed unnecessary fields such as start and end latitude and longitude, birth year, gender, and trip duration.

- We kept the following columns (variables): ride_id, started_at, ended_at, start_station_id, start_station_name, end_station_id, end_station_name, and member_casual.

Based on the data we retained from the database, we could assess which questions could be addressed and which ones were out of scope. We went through each question from the list and determined whether it could be addressed with the data we kept.

1. **Usage Frequency**:

   Question: How often did annual members and casual riders use Cyclistic bikes?
   Solution: The usage frequency for each member type was calculated by counting the number of rides for annual members and casual riders. The "count()" function from the tidyverse package in R was used to accomplish this.

   For the question "**Were there specific usage patterns or behaviors that preceded the conversion to annual membership?**" In the future, we could potentially conduct an analysis to determine if there were identifiable usage patterns or behaviors displayed by users prior to transitioning from casual riders to annual members. This approach involves:

   - Identifying Users: Identifying users who initially started as casual riders and later upgraded to annual memberships.
   - Analyzing Usage Patterns: Examining the usage patterns and behaviors of these users during their time as casual riders. This includes factors like ride frequency, duration, preferred stations, and usage times.
   - Transition Point Identification: Pinpointing the moment when users made the transition from casual riders to annual members, typically based on the date they upgraded their membership.
   - Comparing Pre-Transition Behavior: Comparing the usage patterns and behaviors of users before and after transitioning to annual membership to identify any trends or behaviors preceding the conversion.

   However, to effectively conduct this analysis, we would need additional data attributes such as membership start dates and historical membership status changes, which may currently be unavailable in the dataset at hand.

2. **Trip Duration**:

   Question: **What was the average duration of trips for annual members and casual riders?**
   Solution: The average trip duration for each member type was calculated by subtracting the start time from the end time for each ride. The " difftime()" function was used to calculate the trip duration in minutes, and then the "group_by()" and "summarise()" functions were used to find the average duration for each member type.

Question: **Did they tend to take shorter or longer rides on average?**
Solution: The data was analyzed to compare the average trip durations between annual members and casual riders. The following approach was used:

- Data Filtering: The dataset was separated into two groups based on member type: annual members and casual riders.
- Average Trip Duration Calculation: The average trip duration for each group was calculated.
- Comparison of Average Trip Durations: The average trip durations between annual members and casual riders were compared.

3. **Trip Purpose**:

Questions: **Were there differences in the types of trips taken by annual members and casual riders? Did annual members or casual riders use the bikes more for specific purposes?**
Cannot be Solved: Determining trip purposes typically requires additional data such as trip descriptions or user surveys, which may not have been available in the dataset retained.

4. **Popular Routes and Stations**:

Question: **Are there particular routes or stations that are more popular among annual members or casual riders?**
Solution: We can identify popular start and end stations for each member type by counting the occurrences of each station.

Question : **Do they tend to ride in different areas of the city?**
Solution: With the data we've collected, which includes information on start and end stations, we can indeed analyze whether annual members and casual riders tend to ride in different areas of the city. Here's how we can approach it:

- Calculate Station Density: Group the data by member type (annual members or casual riders). Count the occurrences of start stations for each group.
- Compare Density Maps: Plot density maps or visualizations for start stations of both annual members and casual riders. Overlay these maps to compare the distribution of start stations between the two groups.

While the analysis might not be as detailed as it would be with additional geographical data (such as neighborhood boundaries or population density maps), we can still gain valuable insights into whether there are distinct spatial patterns of ridership between annual members and casual riders based on the start station data available in the dataset you've kept. We can still conduct an exploratory analysis to determine if there are

noticeable differences in the areas where annual members and casual riders tend to ride within the city.

5. Seasonal Trends:

    Questions: **Are there seasonal variations in bike usage patterns between annual members and casual riders? How do weather conditions affect their usage behavior?**
    Cannot be Solved: Analyzing seasonal trends typically requires date information beyond just the quarter (e.g., month, day), which may not be available in the dataset we've kept.

6. Bike Type Preference:

    Question: **Do annual members and casual riders show preferences for specific types of bikes (e.g., traditional bikes vs. assistive options)?**
    Cannot be Solved: The dataset we've kept does not include information on different bike types, so determining bike type preferences is not possible with the current data.

7. Membership Duration:

    Questions: **For casual riders who eventually become annual members, how long does it typically take for them to make the transition? Are there specific usage patterns or behaviors that precede the conversion to annual membership?**
    Cannot be Solved: Tracking membership transitions and duration typically requires historical membership data.

We can effectively address questions related to usage frequency, trip duration, and popular stations with the dataset we've kept. However, questions regarding trip purpose, seasonal trends, bike type preference, and membership duration may be out of scope with the current dataset.

Process !

For the Process phase, we ensured that our data was clean and ready for analysis. We proceeded with the data processing tasks to ensure our data was clean and prepared for analysis. Steps from the cleaning process are outlined in the R Markdown file located in the R_Files folder under the name "bike_share_report.Rmd." Here's a summary of the steps we took:

1. **Fix Label Inconsistencies**: We consolidated labels in the "member_casual" column to ensure consistency, crucial for standardizing the data and avoiding discrepancies during analysis.
2. **Add Additional Columns for Aggregatio**n: Additional columns for date, month, day, year, and day of the week were added to facilitate aggregation and analysis based on temporal factors.
3. **Add Calculated Field for Ride Length**: Ride length was calculated based on the start and end times of the trips, providing valuable information for analyzing trip durations, essential for understanding user behavior.
4. **Remove Rides with Negative Trip Durations**: Rides with negative trip durations or originating from the HQ QR station were removed to ensure data integrity and eliminate erroneous records that may affect the analysis results.

Now that the data has been processed, we can verify if we can address the business questions outlined in the case study. Let's recall each question:

1. **Usage Frequency**:

   - **Question**: How often did annual members and casual riders use Cyclistic bikes? We calculated the usage frequency for annual members and casual riders by counting the number of rides for each member type.

2. **Trip Duration**:

   - **Question**: What was the average duration of trips for annual members and casual riders? We calculated the average trip duration ("ride length") for each member.

   - **Question**: Did they tend to take shorter or longer rides on average? We compared the average trip durations between annual members and casual riders to determine if they tend to take shorter or longer rides on average.

3. **Popular Routes and Stations**:

   - **Question**: Were there particular routes or stations that were more popular among annual members or casual riders? We identified popular start and end stations for each member type by counting the occurrences of each station.

   - **Question**: Did they tend to ride in different areas of the city? We analyzed whether annual members and casual riders tended to ride in different areas of the city by comparing the density of rides originating from each station between the two groups.

Based on these preparations, we are well-equipped to proceed with the Analysis phase. We have cleaned and transformed the data, ensuring its integrity and readiness for analysis.

Analyze !

Case Study Roadmap - Analyze

Guiding questions:

- **How should you organize your data to perform analysis on it?**: We'll organize the data in a structured format that allows for easy analysis. This may involve aggregating the data, creating summary statistics, and organizing it into logical groupings.
- **Has your data been properly formatted?**: We'll ensure that the data is in the appropriate format for analysis, including checking for consistency in variable types and ensuring that missing values are handled appropriately.
- **What surprises did you discover in the data?**: We'll explore the data to identify any unexpected patterns or outliers that may require further investigation.
- **What trends or relationships did you find in the data?**: We'll analyze the data to uncover trends, correlations, and relationships between different variables that may provide insights into user behavior and preferences.
- **How will these insights help answer your business questions?**: We'll consider how the insights gained from the analysis can be used to address the business questions and inform decision-making.

Key tasks:

- **Aggregate your data so it's useful and accessible**: We'll aggregate the data as needed to facilitate analysis and make it more accessible for interpretation.
- **Organize and format your data**: We'll ensure that the data is organized in a clear and understandable format, with appropriate labels and categories.
- **Perform calculations**: We'll calculate summary statistics, averages, and other relevant metrics to analyze the data.
- **Identify trends and relationships**: We'll use data visualization techniques and statistical analysis to identify trends, patterns, and relationships in the data.

Deliverable:

A summary of the analysis, including key insights, trends, and relationships uncovered during the analysis phase.

To answer the question "**How often do annual members and casual riders use Cyclistic bikes?**"
Based on the analysis, we found the following usage frequency for Cyclistic bikes:

- Casual riders: 67,877 rides
- Annual members: 720,312 rides

This indicates that annual members use Cyclistic bikes significantly more frequently than casual riders. It's essential to consider this difference in usage frequency when designing marketing strategies to target these two user segments effectively. By understanding that annual members utilize Cyclistic bikes significantly more often than casual riders, the marketing team can tailor their efforts to address the distinct needs and behaviors of each user segment.

"It's essential to acknowledge the disparity in usage frequency between annual members and casual riders, as this insight can inform targeted marketing initiatives aimed at maximizing user engagement and retention. For instance, while annual members demonstrate a higher level of commitment and usage, marketing efforts could focus on reinforcing the value proposition of annual memberships, such as cost-effectiveness and convenience for frequent riders. On the other hand, strategies for increasing casual rider engagement may involve promoting short-term passes or special promotions to encourage more frequent usage among this segment. By aligning marketing strategies with the distinct behaviors and preferences of each user segment, Cyclistic can optimize its efforts to attract and retain both annual members and casual riders."

To answer the question "**What is the average duration of trips for annual members and casual riders?**" and "**Do they tend to take shorter or longer rides on average?**" we calculated the average trip duration for each member type, adding descriptive statistics and further analysis on "ride length" is a great idea to provide more comprehensive insights into trip durations for annual members and casual riders.

Table 1. Duration Statistics by User Type.

USER TYPE	MINIMUM DURATION (MINS)	MAXIMUM DURATION (MINS)	MEAN DURATION (MINS)	MEDIAN DURATION (MINS)
CASUAL	0.033	177,200.4	89.55	23.22
MEMBER	0.017	101,607.1	13.25	8.47

Table 2. *Average Trip Durations by User Type and Weekday.*

AVERAGE DURATION (MINS)	USER TYPE	WEEKDAY	NUMBER OF RIDES
84.4	Casual	Sun	18,652
79.2		Mon	5,591
76.0		Tue	7,311
74.7		Wed	7,690
141.3		Thu	7,147
102.0		Fri	8,013
82.5		Sat	13,473
16.2	Member	Sun	60,197
13.7		Mon	110,430
12.8		Tue	127,974
11.9		Wed	121,902
11.8		Thu	125,228
13.3		Fri	115,168
16.2		Sat	59,413

The analysis of trip durations for casual riders and annual members (see *Table 1* and *Table 2*) revealed several key insights:

1. **Usage Patterns:** Casual riders exhibit longer trip durations compared to annual members, with an average duration of approximately 89.55 minutes for casual riders and 13.25 minutes for annual members. This indicates that casual riders tend to use Cyclistic bikes for leisurely activities or extended outings, while annual members prefer shorter, more frequent trips for commuting or errands.
2. **Weekday Usage Patterns:** Analyzing the average trip durations by day of the week reveals potential variations in usage patterns (see *Table 2*). For example, casual riders may exhibit longer trip durations on weekends, indicating leisure-oriented rides, while annual

members may maintain more consistent trip durations throughout the week, reflecting commuting or regular usage patterns.

3. **Weekend Peaks:** There is a noticeable increase in the number of rides on Saturdays and Sundays for casual riders and for annual members, there is a noticeable decrease. This suggests higher demand for bike-share services during weekends for casual riders, potentially driven by recreational activities or leisurely outings.

4. **Weekday Trends:** On weekdays, the number of rides tends to be lower compared to weekends, particularly for casual riders. This could indicate that weekdays are more commonly associated with commuting or work-related travel, resulting in fewer leisure rides during these days for casual riders but more rides for annual riders.

5. **Member Consistency:** Annual members maintain relatively consistent ride numbers throughout the week, with slight fluctuations. This consistency may reflect regular commuting patterns or predictable usage behaviors among annual members, contributing to the overall stability of the bike-share system.

6. **Behavioral Differences:** The significant disparity in trip durations between casual riders and annual members suggests distinct usage behaviors and preferences among these two user segments. Understanding these differences is crucial for tailoring marketing strategies and service offerings to meet the needs of each group effectively.

7. **Data Quality Check:** Extreme values in trip durations, such as unusually long or short durations, may indicate potential data quality issues or errors. Further investigation of these outliers is necessary to ensure data accuracy for reliable analysis and decision-making.

8. **Marketing Strategies:** The information on trip durations can inform the development of targeted marketing strategies aimed at attracting and retaining both casual riders and annual members. Promotional campaigns or pricing incentives can be tailored to appeal to the usage patterns and preferences of each user segment.

To answer the questions "**Are there particular routes or stations that are more popular among annual members or casual riders?**" and "**Do they tend to ride in different areas of the city?**" we began by aggregating the data to count the occurrences of start and end stations for each user type. Then, we determined the most popular stations for both annual members and casual riders. Here's a summary of the findings:

Top Start and End Stations:

- For annual members, the top start station is Canal St & Adams St, and the top end station is also Canal St & Adams St.
- For casual riders, the top start station is Streeter Dr & Grand Ave, and the top end station is also Streeter Dr & Grand Ave.

These insights suggest that there are specific stations that are particularly popular among both annual members and casual riders. Additionally, the analysis provides information on the areas where riders tend to frequent the most. These findings can be valuable for Cyclistic in

various ways, such as optimizing station placement, managing bike availability, and targeting marketing efforts to specific areas or stations to attract more riders.

Based on the analysis, several insights can be drawn:

1. **Station Popularity:** Canal St & Adams St emerges as the top start and end station for annual members, suggesting that this location may be a central hub for commuting or accessing key destinations for these users. Conversely, casual riders favor starting and ending their trips at Streeter Dr & Grand Ave, indicating a preference for recreational or leisurely rides along the lakefront.
2. **Usage Patterns:** The most used stations for both user types align with their respective needs and preferences. Annual members may prioritize convenience and efficiency, reflected in their frequent use of stations located near business districts or transportation hubs. In contrast, casual riders gravitate towards scenic or tourist attractions, as seen in their preference for stations near Lake Michigan and popular landmarks like Millennium Park and Shedd Aquarium.
3. **Diversity in Station Preferences:** While some stations are favored by both user types (e.g., Michigan Ave & Washington St), there are notable differences in station preferences between annual members and casual riders. Understanding these distinctions can inform station management strategies, including bike redistribution efforts and targeted promotions tailored to each user segment.
4. **Potential Marketing Opportunities:** Recognizing the distinct preferences of annual members and casual riders presents opportunities for targeted marketing initiatives. For instance, Cyclistic could promote annual memberships by highlighting the convenience of stations frequented by commuters or offer leisure-focused promotions to encourage casual riders to explore popular tourist destinations.

Share !

Case Study Roadmap – Share

Guiding Questions:

- Were you able to answer the question of how annual members and casual riders use Cyclistic bikes differently? Yes, we were able to answer this question by analyzing the usage frequency, trip duration, popular routes, and stations for annual members and casual riders.
- What story does your data tell? The data reveals that annual members and casual riders exhibit distinct patterns in their usage of Cyclistic bikes. Annual members tend to use the bikes more frequently, with shorter average trip durations, while casual riders use them less frequently but take longer trips on average.
- How do your findings relate to your original question? Our findings directly address the original question by providing insights into the differences in bike usage behavior between annual members and casual riders. These insights can inform marketing strategies aimed at targeting each user segment effectively.
- Who is your audience? What is the best way to communicate with them? Our audience is the executive team at Cyclistic, who are detail-oriented and focused on data-driven decision-making. The best way to communicate with them is through a professional presentation that combines clear visuals with concise explanations.
- Can data visualization help you share your findings? Yes, data visualization is instrumental in sharing our findings effectively. Visualizations such as bar charts, pie charts, and maps can convey complex information in a digestible format, making it easier for the audience to understand and interpret.
- Is your presentation accessible to your audience? Yes, our presentation is designed to be accessible to all members of the executive team. We have ensured that our visualizations are clear and easy to read, and we have provided alternative formats or accommodations for any team members with accessibility needs.

Key Tasks:

- Determine the best way to share your findings.
- Create effective data visualizations.
- Present your findings.
- Ensure your work is accessible.

Deliverable:

Supporting visualizations and key findings

See the presentation: Understanding Cyclistic Bike Usage.ppt or Understanding Cyclistic Bike Usage.pdf

Case Study Presentation: Understanding Cyclistic Bike Usage

Key Findings:

- **Usage Frequency**:

  1. Annual members: 720,312 rides
  2. Casual riders: 67,877 rides

     Insight: Annual members use Cyclistic bikes significantly more frequently than casual riders.

- **Trip Duration**:

  1. Casual riders: Average duration of approximately 89.55 minutes
  2. Annual members: Average duration of approximately 13.25 minutes

     Insight: Casual riders tend to take longer trips compared to annual members.

- **Popular Routes and Stations**:

  1. Top start and end stations for annual members: Canal St & Adams St
  2. Top start and end stations for casual riders: Streeter Dr & Grand Ave

     Insight: Distinct preferences in station usage are observed between annual members and casual riders.

Story of the Data:

The data paints a clear picture of how annual members and casual riders differ in their utilization of Cyclistic bikes. Annual members exhibit higher frequency usage with shorter trip durations, indicating a preference for quick, efficient rides, possibly for commuting or short trips. In contrast, casual riders opt for less frequent but longer rides, often for leisurely exploration or recreational activities.

Relation to the Original Question:

Our findings directly address the question of how annual members and casual riders use Cyclistic bikes differently. By analyzing usage patterns, trip durations, and station preferences, we gain insights essential for tailoring marketing strategies to target each user segment effectively.

Audience and Communication:

Our audience, the Cyclistic executive team, values data-driven decision-making. Therefore, we present our findings through a professional presentation supplemented with clear and concise visualizations to facilitate understanding and interpretation.

Data Visualization:

Utilizing bar charts and tables, we present complex information in an easily digestible format, ensuring that our audience can grasp the insights effortlessly.

Act !

Case Study Roadmap - Act

Guiding questions:

- **What is your final conclusion based on your analysis?** Our final conclusion is that there are significant differences in bike usage behavior between annual members and casual riders. Annual members tend to use the bikes more frequently for shorter trips, while casual riders use them less frequently but take longer trips on average.
- **How could your team and business apply your insights?** The insights gained from our analysis can inform targeted marketing strategies aimed at converting casual riders into annual members. By tailoring promotional offers and messaging to each user segment based on their usage patterns, Cyclistic can increase membership conversions and enhance overall profitability.
- **What next steps would you or your stakeholders take based on your findings?** The next steps would involve implementing marketing campaigns that specifically target casual riders, highlighting the benefits of annual membership and addressing any barriers to conversion. Additionally, ongoing data analysis and monitoring would be essential to track the effectiveness of these strategies and make adjustments as needed.
- **Is there additional data you could use to expand on your findings?** Yes, additional data on customer demographics, user feedback, and competitor analysis could provide further insights into the preferences and behaviors of Cyclistic's target audience. Incorporating this data into future analyses could help refine marketing strategies and drive continued growth and success for the business.

Top three recommendations based on the analysis:

1. Develop targeted marketing campaigns tailored to the specific needs and preferences of casual riders, emphasizing the benefits of annual membership and offering incentives for conversion.
2. Implement customer feedback mechanisms to gather insights into user satisfaction, preferences, and barriers to membership conversion, allowing for more personalized and effective marketing strategies.
3. Continuously monitor and analyze key performance metrics, such as membership conversion rates and ridership patterns, to evaluate the effectiveness of marketing efforts and make data-driven adjustments as needed to optimize results.