SF Bay Area Bike

Data Analysis Report

Report By

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Introduction

In today's dynamic business landscape, the ability to harness and analyze data has become an indispensable tool for informed decision-making and sustainable growth. This data analysis report delves into the performance of **SF Bay Area Bike Share** over the past 3 years i.e. is from 2013 to 2015, aiming to provide a comprehensive understanding of its revenue trends, customer behavior, and key insights that can inform strategic actions.

As businesses navigate an increasingly competitive market, gaining insights into sales data has never been more critical. Accurate and timely analysis allows organizations to adapt to changing consumer preferences, optimize inventory management, enhance marketing strategies, and ultimately, drive profitability.

In this report, we employ a variety of analytical tools and techniques to dissect the performance data of **SF Bay Area Bike**. By exploring historical sales patterns, identifying seasonal trends, and examining the impact of external factors, we aim to uncover hidden opportunities and challenges that can guide the store's future endeavors.

Purpose Of Analysis

The primary objective of this data analysis report is to provide a comprehensive and insightful examination of the sales performance of SF Bay Area Bike during the specified time period. The analysis serves several key purposes:

1. **Performance Evaluation**: This analysis aims to assess the historical sales performance of SuperStore to gauge how well it has met its revenue targets and to identify any growth or contraction trends over time. By evaluating past performance, we can gain valuable insights into the store's financial health.

2. **Trend Identification**: The report will seek to identify and analyze sales trends within the data. By recognizing patterns in sales data, we can understand seasonal fluctuations, identify peak sales periods, and uncover any recurring buying behaviors exhibited by customers.

3. **Customer Behavior Analysis**: Understanding customer behavior is vital for a retail establishment. This analysis will delve into customer purchase patterns, demographics, and preferences to inform marketing strategies, inventory management, and customer engagement initiatives.

4. **Key Insights for Decision Making**: Our analysis will provide actionable insights that [Store Name] can use to make data-driven decisions. Whether it's optimizing product offerings, refining pricing strategies, or enhancing the customer experience, these insights aim to guide strategic actions that will ultimately improve sales.

# Insights

% Subscription Type Share

The basic analysis shows that out of all the combined trips recorded from 2013 to 2015, the maximum number of trips were made by the **Subscriber** category riders which is **84.6%.**
The remaining **15.4%** trips were made by **Customer** category.
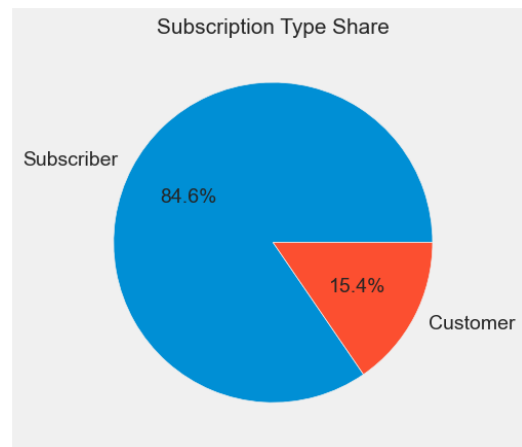

Trips by Seasons Year Wise

In order to gain a deeper understanding of the trend of trips, we divided the trip dates into 4 seasons. The following bar chart displays the total number of trips divided into 4 seasons.
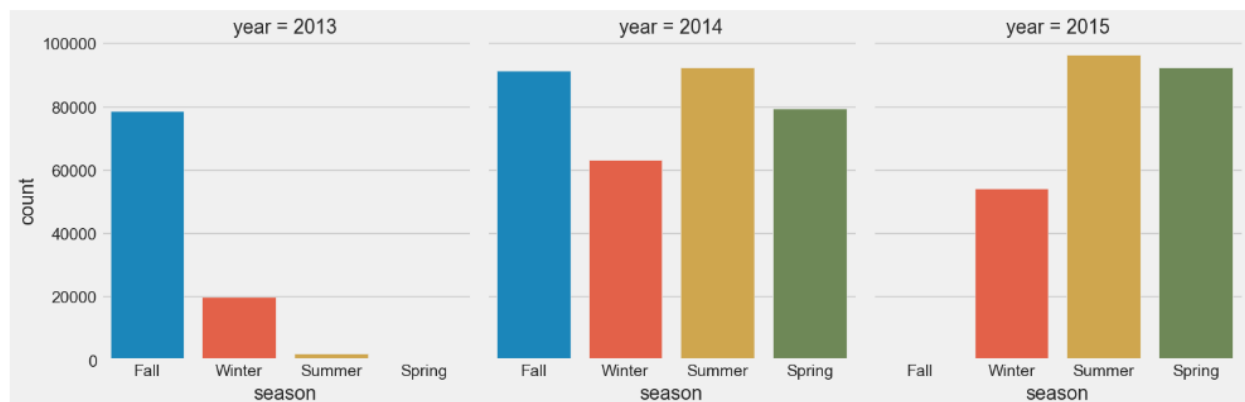
Upon analysis of the above chart, we can clearly see that the company has recorded the most number of trips in **Fall** & **Summer** seasons which is between 80,000 to 90,000 each year. For the year 2013 and 2015, we don't have the data for season **Spring & Fall** respectively so we don't see a bar for those seasons. In 2014, we saw approximately equal number of trips for **Fall** & **Summer** which is nearly 90,000. We see the least number of trips in the **Winter** season each year when customers prefer to travel by public transport or personal vehicle.

Changing Trend in Trips by Mean Temperature

By aggregating the trips by the mean temperature which were recorded on the dates, the line chart below shows the trend in the trips.
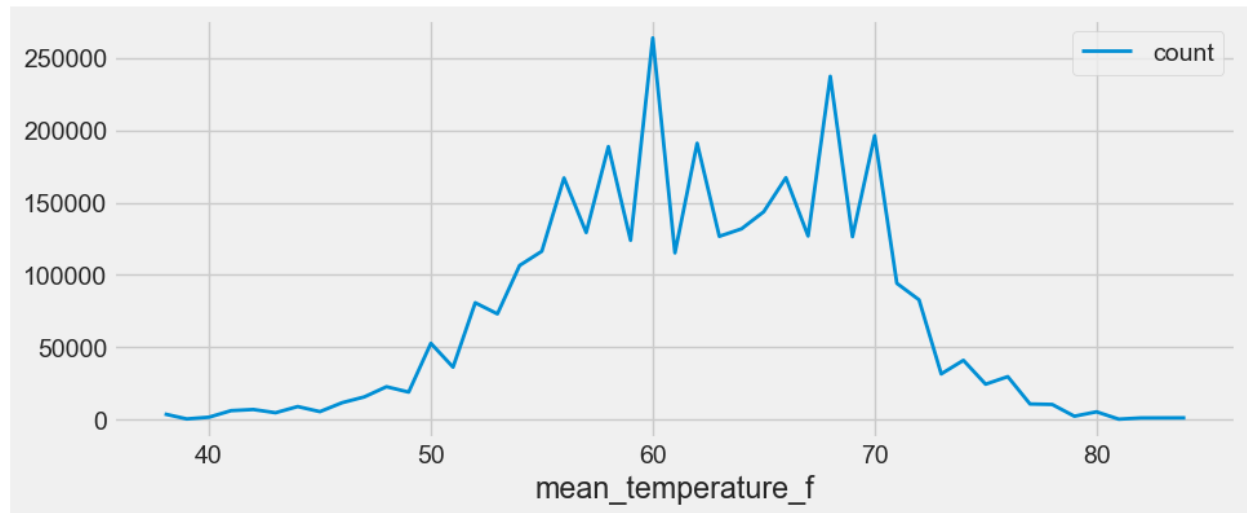
The chart above tells that the maximum number of trips were made on the days when the mean temperature was between 50 to 70 i.e on the days when the weather was moderately warm and comfortable. When we look at either end of the line chart, the number of trips decline due to either cold weather or on days with soaring temperatures.

Top 10 Start Stations & End Stations

According to the trip table in the database, we were able to analyze the top 10 starting stations and stop 10 ending stations.

start_station_name	count
San Francisco Caltrain (Townsend at 4th)	49092
San Francisco Caltrain 2 (330 Townsend)	33742
Harry Bridges Plaza (Ferry Building)	32934
Embarcadero at Sansome	27713
Temporary Transbay Terminal (Howard at Beale)	26089
2nd at Townsend	25837
Steuart at Market	24838
Market at Sansome	24172
Townsend at 7th	23724
Market at 10th	20272

end_station_name	count
San Francisco Caltrain (Townsend at 4th)	63179
San Francisco Caltrain 2 (330 Townsend)	35117
Harry Bridges Plaza (Ferry Building)	33193
Embarcadero at Sansome	30796
2nd at Townsend	28529
Market at Sansome	28033
Townsend at 7th	26637
Steuart at Market	25025
Temporary Transbay Terminal (Howard at Beale)	23080
Market at 4th	19915

In the above two tables, we can see the top 10 starting stations and top 10 ending stations. The company should focus on these places as they will need regular maintenance.

Changing Trend in Trips by Mean Temperature

We were able to generate a line chart to visualize the trend in the number of trips in 24 hours.
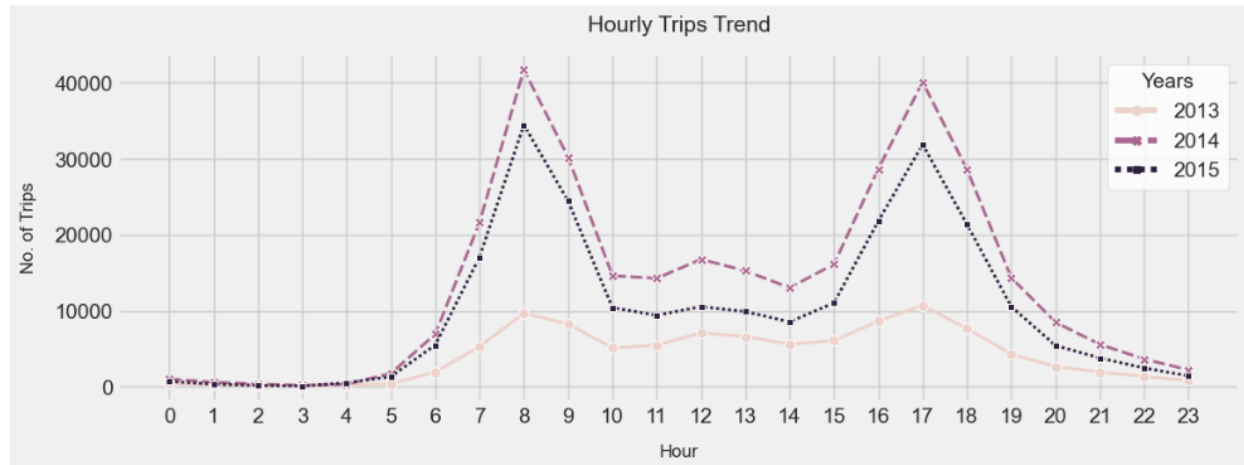
Upon analyzing the above line chart, we can observe that each year, we see a high number of trips between **6:00 to 10:00** which is probably due to the number of people using bikes to go to either their workplaces or used by students who are going to academic institutions.

Between hours **10:00 to 15:00**, the company has recorded moderate to good amount of trips which are during the regular working hours.

Similar to the spike we saw between **6:00 to 10:00**, we see the second spike in the trips between **15:00 to 19:00** i.e during the evening when people are leaving their respective workplaces.

We see the least number of trips during early morning hours i.e from **0:00 to 4:00** in the late night i.e between **20:00 to 23:00.**

Recommendations

1. While the company already has a high number of subscribers riding the bikes, it would be good to maintain that high number by occasionally lowering the subscription price.

2. Scheduled maintenance of bikes which have been used quite a lot of times and also for the rest of the bikes would be good to increase the life of the bikes which will ultimately reduce the expenditure of purchasing new bikes.

3. For the starting and ending stations which have less number of bike riders we can reduce the amount charged for the ride to increase the number of riders.

4. During the harsh weather conditions, the company can provide protective gears to the riders in an affordable range in order to maintain the decent number of riders in winters and summers.

5. The company can ask users to record their trips and maintain a health record of the riders and occasionally award the riders with the maximum distance they rode in a specific period of time. This will encourage more people to ride bikes and increase the customer base.