Description

Conducted an analysis on an airline passenger satisfaction dataset to pinpoint the primary factors behind a recent decline in customer satisfaction. Developed a comprehensive Power BI dashboard to present findings and proposed a data-driven strategy aimed at boosting overall satisfaction. The insights from this project enabled the airline to implement essential changes, leading to improved customer satisfaction and a better travel experience for passengers

Project Overview

The airline industry is fiercely competitive, and customer satisfaction is a crucial determinant of an airline's success. Recently, the leadership team of an airline noticed a decline in passenger satisfaction ratings and sought data-driven recommendations to enhance overall satisfaction.

This project aimed to analyze an extensive dataset of airline passenger satisfaction scores to identify the key factors contributing to the decline and provide actionable strategies to improve satisfaction levels. The dataset included feedback from over 120,100 passengers, covering various aspects of their experience such as cleanliness, comfort, service, and overall satisfaction, along with details about each passenger's flight and type of travel. The analysis involved calculating several key performance indicators, including the total number of passengers, average arrival and departure delays, and satisfaction and dissatisfaction rates. This comprehensive analysis aimed to uncover the primary reasons behind the recent drop in satisfaction rates.

Key Performance Indicators (KPIs)

KPIs are measurable values that organizations use to track and evaluate their progress towards achieving specific business objectives. They are used to measure performance over time and allow organizations to make data-driven decisions based on actual results. KPIs are specific to the objectives of an organization or department and can be qualitative or quantitative. They are important metrics that help organizations identify areas for improvement, set targets for future performance, and track their success in meeting their goals.

KPIs Calculated:

- Total Passengers: The total number of passengers included in the dataset.

- Percentage Male Passengers: The percentage of male passengers included in the dataset.

- Percentage Female Passengers: The percentage of female passengers included in the dataset.

- Percentage First-time Customers: The percentage of passengers who are flying with the airline for the first time.

- Percentage Returning Customers: The percentage of passengers who have flown with the airline before.

- Percentage First-time Male Customers: The percentage of male passengers who are flying with the airline for the first time.

- Percentage First-time Female Customers: The percentage of female passengers who are flying with the airline for the first time.

- Percentage Returning Male Customers: The percentage of male passengers who have flown with the airline before.

- Percentage Returning Female Customers: The percentage of female passengers who have flown with the airline before.

- Average Arrival Delay: The average amount of time that flights are delayed upon arrival, calculated in minutes.

- Average Departure Delay: The average amount of time that flights are delayed upon departure, calculated in minutes.

- Average Flight Distance: The average distance travelled by flights, calculated in miles.

- Total Business Travel Customers: The total number of passengers who are travelling for business purposes.

- Total Personal Travel Customers: The total number of passengers who are travelling for personal reasons.

- Total Satisfied Customers: The total number of passengers who reported being satisfied with their flight experience.

- Total Dissatisfied Customers: The total number of passengers who reported being neutral or dissatisfied with their flight experience.

- Satisfaction Rate: The percentage of passengers who reported being satisfied with their flight experience, calculated as the ratio of Total Satisfied Customers to Total Passengers

  Satisfaction Rate = (Total Satisfied Customers / Total Passengers) x 100%

- Dissatisfaction Rate: The percentage of passengers who reported being neutral or dissatisfied with their flight experience, calculated as the ratio of Total Dissatisfied Customers to Total Passengers.

  Dissatisfaction Rate = (Total Dissatisfied Customers / Total Passengers) x 100%

Data Collection

The dataset was taken from the Data Playground of **Maven Analytics** as a CSV file and it contains Airline Satisfaction Scores for 129,880 passengers spread across 24 fields. Each record represents one passenger and each record contains details about passenger demographics, flight distance and delays, travel class and purpose, and ratings for factors like cleanliness, comfort, and service, as well as overall satisfaction with the airline.

Insights & Recommendations

1. In-flight Wi-Fi services, advanced satellite technology and partnering with tech firms for cutting-edge technologies. Implementing tiered pricing, gathering passenger feedback, and marketing the service effectively will enhance accessibility and satisfaction. Consistent coverage across all routes will build a reliable reputation and boost passenger loyalty.

2. Optimize online booking by analysing website data and refining the user interface and experience. Provide personalized recommendations and options to enhance convenience and tailor the booking process to each customer's needs.

3. Gate Location should be convenient and accessible allowing for smooth boarding. Additionally, improve communication by providing clear and timely gate information, and use technology such as mobile apps and digital displays to optimize the boarding process.

4. Improve the cleanliness of flights by increasing the frequency of cleaning and sanitising to ensure aircraft are thoroughly cleaned between flights. Also, train cleaning staff on the proper use of cleaning products, safety protocols, and best practices to improve overall customer satisfaction.

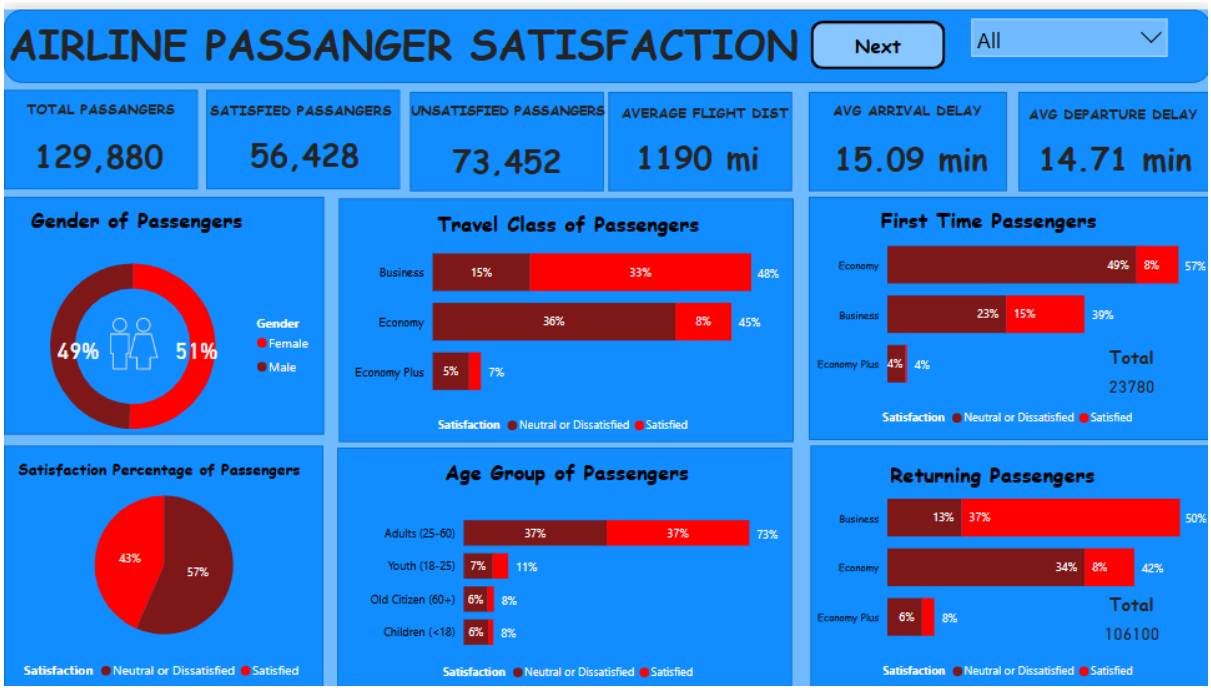
5. Providing more entertainment options, comfortable seating, and healthy food choices can improve satisfaction levels for in-flight entertainment. Additionally, offering flexible ticketing options, such as free cancellations or changes, can help alleviate the stress of travel planning and make the overall experience more pleasant.

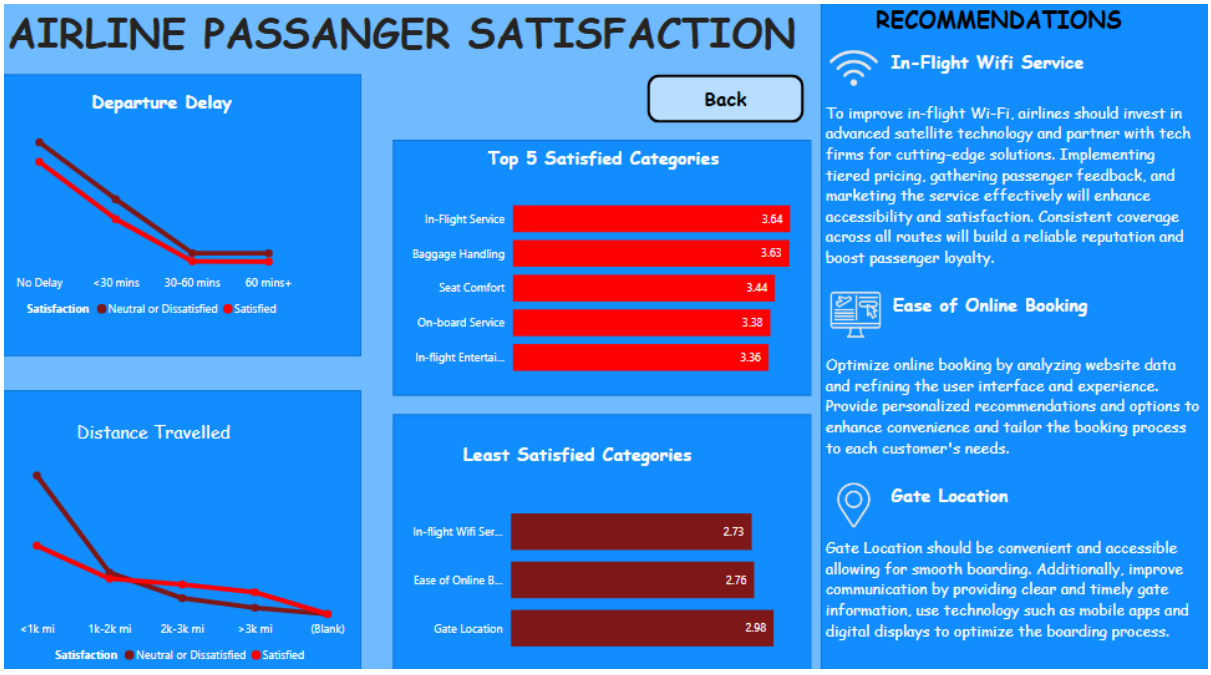
6. Providing more legroom, better-quality seats, and offering complimentary snacks and beverages can improve customer satisfaction levels for the economy and economy plus passengers. Airlines can also consider offering premium amenities, such as priority boarding or in-flight Wi-Fi, for an additional fee to customers willing to pay for an enhanced experience.

7. The airline should consider providing extra assistance to older passengers. Additionally, airlines can consider offering discounted fares to senior citizens to show their appreciation for this valuable customer segment.

Presentation

To effectively communicate the findings and recommendations to the airline's leadership team, a Power BI dashboard report was designed. The report featured visualizations of key performance indicators and average ratings of the airline's services, offering a clear overview of the analysis, key findings, and the recommended strategy.





Conclusion

In conclusion, the analysis of airline passenger satisfaction data highlights several crucial areas for improvement to boost overall satisfaction rates. Key areas include enhancing cleanliness, minimizing departure and arrival delays, providing more personalized service, increasing comfort, and addressing the needs of dissatisfied segments such as personal travel type customers, economy class passengers, first-time flyers, senior citizens, and short-distance travellers. Implementing the recommended data-driven strategies will enable the airline to raise satisfaction rates and improve the overall customer experience. The Power BI dashboard report offers a detailed overview of the

key performance indicators and insights from the analysis, empowering the airline's leadership team to make informed decisions and take necessary actions to enhance passenger satisfaction.