

Problems and background

The objective of this project is to analyze and improve airline customer satisfaction by identifying key factors contributing to passenger contentment and dissatisfaction. This is a strategic initiative aimed at enhancing customer experiences and boosting airline reputation and profitability. The data indicates that out of 103,904 passengers, 45,025 are satisfied while 58,879 are neutral or dissatisfied. A significant insight is that loyal customers constitute 81.73% of the total passenger base, while 18.27% are disloyal. The analysis highlights variations in satisfaction levels across different flight lengths and age groups, which suggests targeted improvements could be made to better cater to different demographics and flight types.

Project scope

Analyze passenger satisfaction data to identify key factors impacting loyalty and dissatisfaction.

Deliverables

1. **Segment Analysis:** Study satisfaction across flight lengths, demographics (age, gender), travel types, and classes.
2. **Loyalty & Satisfaction:** Distinguish between loyal and disloyal, as well as satisfied and dissatisfied passengers.
3. **Service Quality:** Evaluate average ratings for services like cleanliness, baggage handling, in-flight amenities, etc.
4. **Insights & Recommendations:** Provide actionable insights and strategies to enhance passenger satisfaction.

Stakeholders

- **Internal Teams:** Marketing department, customer service team, and operations.
- **Leadership:** Senior management and strategic planning team.
- **External Partners:** Data analysis consultants and IT support for data handling and integration.

Methodology

Data Sources

1. Kaggle

Data Wrangling

- **Data Understanding:** Reviewing types and structures.
- **Data Cleaning:** Addressing missing or inconsistent data.
- **Data Merging and Joining:** Integrating data from multiple sources.
- **Data Manipulation:** Preparing data for analysis.

Data Analysis

- Exploring trends and patterns such as age-specific satisfaction and flight type influences.
- Investigating reasons behind loyalty and dissatisfaction levels.

Data Visualization

- Utilizing tools to build interactive dashboards for stakeholder presentations using Tableau

KPIs

- ❑ **Total Passengers:** 103,904
- ❑ **Satisfied Passengers:** 45,025
- ❑ **Dissatisfied Passengers:** 58,879
- ❑ **Customer Loyalty Breakdown:**

- **Loyal Customers: 81.73%**
 - **Disloyal Customers: 18.27%**
- **Satisfaction by Flight Type:**
- **Long Flights: 77.70% satisfied, 22.30% neutral or dissatisfied.**
 - **Medium Flights: 64.10% satisfied, 35.90% neutral or dissatisfied.**
 - **Short Flights: 33.51% satisfied, 66.49% neutral or dissatisfied.**
- **Age Group Distribution:**
- **Distribution of satisfied and dissatisfied passengers across age groups, such as:**
 - **Age 16-23: 5,173 satisfied, 3,655 neutral or dissatisfied.**
 - **Age 24-31: 7,834 satisfied, 6,153 neutral or dissatisfied.**
 - **Other age ranges shown with respective satisfaction levels.**

Business Concepts Used

- **Market Understanding:** Identifying customer needs and preferences through comprehensive data analysis to understand what drives satisfaction and dissatisfaction. This includes evaluating feedback on services like cleanliness, check-in process, and onboard services to pinpoint areas of improvement.
- **Customer Demographic Analysis:** Conducting a thorough analysis of satisfaction levels segmented by age groups to determine which age demographics are most satisfied or dissatisfied. This insight helps tailor services and promotions to meet the expectations of different age groups.
- **Customer Behaviour Patterns:** Monitoring and noting frequent complaints, common praises, and service gaps. This involves identifying trends such as dissatisfaction linked to flight delays or specific services that consistently meet or exceed expectations.
- **Customer Retention Strategies:** Enhancing loyalty programs and engagement strategies to ensure that loyal customers remain satisfied. This could include personalized offers, rewards for frequent flyers, and targeted communication to reinforce positive experiences.
- **New Customer Acquisition:** Leveraging the analysis insights to design promotional campaigns aimed at acquiring new customers. This involves using data on customer preferences and behavior to create targeted marketing strategies that attract first-time flyers or passengers dissatisfied with competitors.

Recommended Analysis:

- **Customer Satisfaction Distribution:**
- Out of 103,904 total passengers, 45,025 are satisfied, while 58,879 are neutral or dissatisfied. This indicates that there is a significant proportion of passengers who are not fully content with their experience, suggesting potential areas for service improvement.
- **Customer Loyalty Analysis:**
- A large proportion (81.73%) of passengers are loyal customers, while 18.27% are disloyal. This highlights the strength in customer retention but also suggests there are opportunities to convert disloyal customers to loyal ones by addressing their concerns.
- **Flight Type Analysis:**
- **Long Flights:** 77.70% of passengers are satisfied, while 22.30% are neutral or dissatisfied.
 - **Medium Flights:** 64.10% satisfaction rate and 35.90% neutral or dissatisfied.
 - **Short Flights:** 33.51% satisfaction rate and 66.49% neutral or dissatisfied.
 - This analysis indicates that satisfaction levels drop significantly for shorter flights, pointing to possible issues that may need targeted solutions, such as improvements in the services or amenities offered on these flights.
- **Age Group Satisfaction Analysis:**
- The distribution of satisfaction and dissatisfaction varies significantly across different age groups:

- For example, passengers aged 24-31 have high dissatisfaction numbers (7,834 satisfied vs. 6,153 neutral or dissatisfied).
- Age groups 40-47 and 48-55 show more balanced satisfaction and dissatisfaction numbers.
- This analysis can guide strategies for customizing services to meet the preferences of different age demographics.
- **Detailed Service Ratings:**
 - The dashboard provides average ratings for various services, such as:
 - **Cleanliness:** 3.7 (satisfied), 2.9 (neutral or dissatisfied)
 - **Baggage Handling:** 4.0 (satisfied), 3.4 (neutral or dissatisfied)
 - **Check-in Service:** 3.6 (satisfied), 3.0 (neutral or dissatisfied)
 - These service ratings reveal areas with lower scores, such as legroom and inflight WiFi service, which might need improvements to enhance overall passenger satisfaction.
- **Demographic Insights:**
 - By examining satisfaction and dissatisfaction across different age groups and travel types (business vs. personal), targeted strategies can be formulated to cater to specific customer needs, such as enhanced amenities for older travelers or faster check-in for business travelers
- **Loyalty Program Effectiveness:**
 - The significant proportion of loyal customers suggests that existing loyalty programs and strategies are somewhat effective. However, converting disloyal or neutral customers into loyal ones remains a challenge that can be addressed by analyzing service areas linked to dissatisfaction.

Actions to be taken:

- **Enhance Short-Flight Services:**
 - The significant dissatisfaction rate (66.49%) for short flights indicates the need for targeted improvements in services for these flights. Enhancements could include better onboard services, improved seating comfort, or expedited check-in and boarding processes to align with customer expectations for short-haul flights.
- **Tailor Services by Age Demographics:**
 - Certain age groups, such as 24-31, show higher dissatisfaction levels. Introducing services or amenities tailored to this demographic, such as better in-flight entertainment or more convenient travel options, could improve satisfaction for this segment.
- **Focus on Underperforming Service Areas:**
 - Services with lower satisfaction ratings, such as **Leg Room Service** (3.0 for neutral or dissatisfied), **Inflight WiFi Service** (3.2 for satisfied), and **Check-in Service** (3.0 for neutral or dissatisfied), need targeted enhancements. Improvements in these areas could lead to a noticeable increase in overall passenger satisfaction.
- **Strengthen Loyalty Programs:**
 - While 81.73% of passengers are loyal customers, there is room for improving the loyalty rate by addressing the concerns of the 18.27% disloyal passengers. Enhancing loyalty programs with personalized incentives, better rewards, and targeted communication could help convert neutral or dissatisfied passengers into loyal customers.
- **Improve Customer Experience for Business Travelers:**
 - Analyzing satisfaction based on the type of travel (business vs. personal) could reveal unique requirements for business travelers. Ensuring smooth processes, such as quick check-ins and better WiFi connectivity, can cater to business travelers needs and increase satisfaction among this group.
- **Optimize Services Across Different Flight Lengths:**
 - Long flights have the highest satisfaction rate (77.70%), but medium (64.10%) and short flights (33.51%) lag behind. By aligning service quality across all flight lengths, such as ensuring consistent onboard service standards and comfort, airlines can elevate passenger satisfaction across the board.
- **Targeted Marketing and Promotions:**
 - Use demographic insights to develop targeted marketing campaigns that appeal to specific age groups and preferences. For instance, younger passengers (16-31) may value promotions that include

entertainment packages or social media incentives, while older age groups might prefer enhanced comfort and convenience.

☐ **Training for Improved Staff Interaction:**

- The **People** aspect (staff interaction) is crucial for customer experience. Regular training programs focused on improving customer service interactions, problem resolution, and overall hospitality can ensure staff provide a consistent and positive experience to passengers.

☐ **Monitor and Adjust Strategy Continuously:**

- Implement a continuous feedback loop by collecting post-flight surveys and regularly analyzing data to adjust services and strategies promptly. This will help keep track of improvements and ensure long-term success in customer satisfaction enhancement.

Project owner

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