BRITISH AIRWAYS CUSTOMER EXPERIENCE ANALYSIS

Tableau-Based Data Analytics Project

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1. INTRODUCTION

In the airline industry, customer experience plays a crucial role in brand loyalty and long-term profitability. British Airways, being a global airline, receives a large volume of customer feedback across different services, seat classes, aircraft types, and routes.

This project aims to analyze customer review data of British Airways to understand:

- Overall customer satisfaction trends
- Key service factors influencing ratings
- Differences in customer expectations across seat types
- Relationship between satisfaction and recommendation behavior
- Operational insights related to aircraft performance

The final output of this project is an **interactive Tableau dashboard** designed to support business decision-making.

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2. OBJECTIVE OF THE PROJECT

The main objectives of this project are:

1. To analyze trends in customer satisfaction over time
2. To identify which service components have the strongest influence on overall rating
3. To understand how seat type affects customer expectations and perception
4. To study whether high satisfaction always leads to customer recommendations
5. To uncover aircraft-level operational insights impacting customer experience
6. To present insights clearly using Tableau dashboards

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3. DATASET DESCRIPTION

3.1 Datasets Used

Dataset 1: ba_reviews.csv
This dataset contains customer reviews and ratings for British Airways.

Each row represents **one customer's feedback**.

Key columns include:

- header – Review title (text)
- content – Detailed customer feedback
- date / date_flown – Review and travel dates
- place – Country of reviewer
- traveller_type – Type of traveler (Business, Leisure, etc.)
- seat_type – Economy, Business, First Class, etc.
- aircraft – Aircraft model
- route – Travel route
- rating – Overall customer rating
- recommended – Whether the customer recommends BA (Yes/No)
- trip_verified – Whether the trip was verified
- Service ratings:
    - seat_comfort
    - cabin_staff_service
    - food_beverages
    - entertainment
    - ground_service
    - value_for_money

Dataset 2: Countries.csv
This dataset provides standardized country information and was used to support geographical analysis.

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4. DATA UNDERSTANDING & INITIAL OBSERVATIONS

Before analysis, the dataset was carefully examined to understand its structure and meaning.

Key observations:

- One row corresponds to one customer review
- Overall rating is numerical, while recommendation is a binary indicator
- Same rating value can represent different satisfaction levels depending on seat type (expectation effect)
- Some service columns contain missing values because not all services are experienced by all customers
- Date columns allow trend analysis over time
- Place and route fields allow geographical insights
- Header and content columns can be used for future NLP analysis

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5. DATA CLEANING & PREPARATION

Data cleaning was performed to ensure accuracy and reliability.

Steps taken:

1. Missing values in service ratings were **retained as nulls**
    - These represent services not experienced, not data errors
2. Negative placeholder values were converted to nulls
3. Date fields were validated and formatted correctly
4. Boolean fields (recommended, trip_verified) were standardized
5. No rows were removed unnecessarily to avoid data loss

Data modeling was done **inside Tableau** using **relationships** instead of physical joins to prevent duplication and preserve granularity.

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6. DATA MODELING IN TABLEAU

- The primary dataset (ba_reviews) was connected to Countries.csv using a **logical relationship**
- Relationship key:
  `ba_reviews.place = Countries.Country`
- This approach allows flexible analysis while maintaining data integrity

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7. EXPLORATORY ANALYSIS & KEY FINDINGS

7.1 Overall Satisfaction Trend

A time-series analysis of average ratings revealed:

- Customer satisfaction shows a **gradual declining trend over the years**
- This decline forms the core business problem addressed by the dashboard

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7.2 Service Impact Analysis

Service ratings were analyzed to understand their contribution to overall satisfaction.

Findings:

- **Cabin Staff Service** has the highest average score, indicating consistent performance
- **Entertainment** shows the strongest influence on overall rating

- This means entertainment has higher impact on customer perception despite not having the highest average score

This distinction is critical for strategic investment decisions.

7.3 Seat Type & Expectation Effect

Analysis by seat type revealed:

- First Class customers have the highest average ratings
- Satisfaction levels vary based on expectations associated with seat class
- The same numerical rating does not carry the same meaning across different seat types

This confirms that customer satisfaction is strongly shaped by expectation alignment.

7.4 Rating vs Recommendation Behavior

A comparison of average rating and recommendation rate showed:

- Both satisfaction and recommendation levels are generally high
- Most customer segments cluster in the high-rating, high-recommendation zone
- This indicates strong overall customer experience but **limited differentiation across segments**

7.5 Aircraft-Level Operational Insights

Aircraft-wise analysis revealed:

- Some aircraft show lower overall ratings
- Lower satisfaction in these aircraft often aligns with lower entertainment scores
- This suggests targeted in-flight entertainment upgrades could improve customer experience on specific fleets

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8. DASHBOARD DESIGN & STRUCTURE

The final Tableau dashboard was structured into the following sections:

1. **Executive KPIs**
    - Average Rating
    - Recommendation Rate

    - Entertainment Rating
2. **Satisfaction Trend Over Time**
3. **Service Impact on Rating**
4. **Seat Type Expectation Analysis**
5. **Rating vs Recommendation Comparison**
6. **Aircraft Entertainment Performance**

Interactive filters were added for:

- Seat Type
- Traveller Type
- Aircraft
- Country
- Year

This allows stakeholders to explore insights dynamically.

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9. BUSINESS INSIGHTS & RECOMMENDATIONS

Key business takeaways:

- Although overall satisfaction is strong, the declining trend signals emerging experience gaps
- Cabin staff performance is consistently good and should be maintained
- Entertainment is a high-impact area and should be prioritized for improvement
- Expectation differences across seat types must be considered when interpreting ratings
- Aircraft-specific improvements can yield measurable satisfaction gains

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10. TOOLS & TECHNOLOGIES USED

- Tableau Public – Data visualization and dashboard creation
- Python (Pandas) – Initial data understanding
- CSV files – Data storage and preparation

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11. CONCLUSION

This project demonstrates how customer review data can be transformed into meaningful business insights using structured analysis and effective visualization. By focusing not just on scores but on drivers, expectations, and operational factors, the analysis provides actionable recommendations for improving customer experience at British Airways.