**Business Requirements Document (BRD)**

**Young vs. Senior Traveler Analysis**

**1. Business Objective**

To determine if younger and older airline passengers have different satisfaction levels, inflight service expectations, and travel class preferences — including food and drink quality.

**2. Problem Statement**

Do different age groups (Young, Middle-aged, and Senior) have different expectations and satisfaction levels regarding services like Wi-Fi, seat comfort, cleanliness, food and drink, and travel class?

**Goal:** Segment customers by age groups and evaluate satisfaction, preferences.

**3. Dataset Source**

* **Dataset:** airline\_passenger\_satisfaction.csv
* **Source:** Kaggle
* **Record Count:** 103,904 (post-cleaning)
* **Database:** MySQL (Database name: Travel, Table name: final\_passenger\_data)
* **Columns Selected**:
  + age
  + class
  + inflight\_wifi\_service
  + seat\_comfort
  + cleanliness
  + food\_and\_drink
  + satisfaction

**4. Data cleaning**

|  |  |  |
| --- | --- | --- |
| **Issue** | **Action Taken** | **Code Used** |
| Missing Values (Numerical) | Filled with column mean | df[numeric\_cols] = df[numeric\_cols].fillna(df[numeric\_cols].mean()) |
| Missing Values (Categorical) | Filled with mode | df[col] = df[col].fillna(df[col].mode()[0]) |
| Duplicate Rows | Dropped | df = df.drop\_duplicates() |
| Age Grouping | Converted raw age to categories | See Age Segmentation below |

**Age Group Segmentation**

|  |  |
| --- | --- |
| **Age Range** | **Label** |
| 0–30 | Young |
| 31–60 | Middle-aged |
| 61+ | Senior |

**5. Data Analyzing**

|  |  |  |
| --- | --- | --- |
| **Analysis Type** | **Description** | **Output** |
| Satisfaction Comparison | Count of satisfied/dissatisfied passengers by age group | Countplot |
| Inflight Service Rating | Avg. rating of Wi-Fi, Seat Comfort, Cleanliness, **Food & Drink** by age group | Bar Chart + Mean Table |
| Class Preference | Distribution of Economy/Business class preference by age | Countplot |
| Summary Report | Exported grouped data to CSV | age\_group\_summary.csv |

**6. Insights**

* **Satisfaction**: Middle-aged passengers were most satisfied overall.
* **Wi-Fi**: Young passengers gave lower Wi-Fi ratings, expecting more speed.
* **Seat Comfort & Cleanliness**: Seniors appreciated cleanliness the most.
* **Food & Drink**:
  + Young travelers rated it lower (expecting better or trendier options).
  + Seniors rated it higher — more satisfied with traditional options.
* **Class Preference**: Seniors preferred Business Class; younger travelers preferred Economy.

**7. Deliverables**

|  |  |
| --- | --- |
| **File** | **Description** |
| age\_group\_summary.csv | Summary of satisfaction + inflight services including food and drink |
| Python Code | Full analysis pipeline |
| Graphs | Visual breakdowns for satisfaction, service rating, and class preference |

**8. Conclusion**

This project confirms that expectations and satisfaction levels vary significantly across age groups, especially regarding:

* Technology (Wi-Fi)
* Personal comfort (Seat & Cleanliness)
* Onboard experience (Food & Drink)

Airlines can now:

* Improve menu offerings by age preference
* Focus on personalized comfort and in-flight services
* Design loyalty programs for different traveler types

