Airline Passenger Satisfaction Project

Project Name

Airline Passenger Satisfaction Project

Project Idea / Objectives

- Analyze airline passenger data to identify factors affecting satisfaction and dissatisfaction.
- Apply predictive models to forecast passenger satisfaction levels and travel experience.
- Build an interactive dashboard to visualize insights and provide actionable recommendations.

Team Members & Roles

- **Abdelrahman Atef** → Project Manager / Lead Data Scientist
- **Mohamed Ashraf** → Data Engineer (Collection & Preprocessing)
- **Hasnaa Hatem** → Database & Analytics Support
- **Abeer Osama** → Data Analyst (Exploratory Analysis)
- **Abdelrahman Mohamed** → Data Scientist (Forecasting & Modeling)
- **Mostafa Mahmoud** → BI Developer (Visualization, Insights & Presentation)

Work Plan (4 Weeks)

- **Week 1:** Data cleaning and building a preliminary data model.
- **Week 2:** Formulating and answering analysis questions.
- **Week 3:** Developing predictive models (Will a passenger be satisfied? What features most influence satisfaction?).
- **Week 4:** Designing a dashboard (Power BI/Tableau) and preparing the final report & presentation.

Roles & Tools

Project Manager / Lead Data Scientist

- Oversee project progress and coordination
- Lead predictive modeling tasks
- **Tools:** Excel, PowerPoint, SQL, Power BI, Python (scikit-learn, pandas)

Data Engineer (Collection & Preprocessing)

- Data collection, cleaning, preprocessing, feature engineering
- **Tools:** Python (pandas, numpy), SQL

Database & Analytics Support

- Database management and SQL queries for analysis
- **Tools:** SQL, Python (integration)

Data Analyst (Exploratory Analysis)

- Exploratory Data Analysis (EDA) and visualization of passenger patterns
- **Tools:** Python (pandas, matplotlib), Excel

Data Scientist (Forecasting & Modeling)

- Build predictive models (satisfaction classification & influencing factors)
- **Tools:** Python (scikit-learn, pandas, matplotlib)

BI Developer (Visualization, Insights & Presentation)

- Build dashboards and prepare final presentation/report
- **Tools:** Power BI / Tableau, PowerPoint

Key Analysis Questions

- Which passenger groups report the highest satisfaction?
- What are the main factors driving dissatisfaction (e.g., delays, service, comfort)?
- What percentage of passengers are dissatisfied with different service categories?
- Are there specific flight routes or times when satisfaction decreases?
- Are there specific routes or times with consistently lower satisfaction levels?

Key Forecasting Questions

- Will a passenger be satisfied with their flight experience?
- Which service attributes most influence satisfaction (e.g., cleanliness, food, WiFi)?
- What is the probability of dissatisfaction for different passenger segments?
- How will satisfaction rates change over the next quarter if current service trends continue?

Tools & Technologies

- **Python:** pandas, matplotlib, scikit-learn
- **SQL:** Data storage and queries
- **Excel:** KPIs and quick reports
- **Power BI / Tableau:** Interactive dashboards and final presentation

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Visual Identity

- Logo design and branding for the project: Google Drive link

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Poster Design

- Project poster summarizing objectives, analysis, and team members: Google Drive Link

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Complementary Products

- **Power BI Dashboard:** Airline
- **PowerPoint Presentation / Other Products: ?**

Project Files

You can find the full project files here:

- **Raw Dataset (Before Analysis):** Google Drive link
- **Final Excel Analysis File:** Excel

- Additional files to be added: **?**

KPIs (Key Performance Indicators)

- Model Accuracy (% of correct predictions): **?**
- Dashboard Engagement (Number of users accessing Power BI dashboard): **?**
- Passenger Satisfaction Rate (% of satisfied passengers in data): **?**
- Data Cleaning Efficiency (% of missing data handled properly): **?**

Instructor

ENG/Kareem Bakli

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