**1. Project Planning & Management**

**Project Proposal**

**Overview**

This project aims to analyze UK railway travel data to uncover insights into ticket sales, travel patterns, delays, and pricing. The goal is to provide actionable insights to improve train travel efficiency through data-driven dashboards and visualizations.

**Objectives**

* Identify trends in ticket sales and most traveled routes.
* Analyze reasons for train delays and their impact on passengers.
* Provide a structured pricing analysis based on ticket type and class.
* Develop an interactive dashboard for stakeholders to explore insights.

**Scope**

* Data collection and preprocessing of railway transaction data.
* Exploratory data analysis (EDA) to identify key patterns.
* Data modeling to structure the dataset for further insights.
* Visualizations to highlight trends in travel, pricing, and delays.
* Dashboard development for easy exploration of insights.

**2. Project Plan (Timeline & Milestones)**

| **Phase** | **Tasks** | **Team Members** | **Duration** |
| --- | --- | --- | --- |
| Data Preprocessing | Clean, format, and handle missing values | Yasmin Mustafa | 10/02/2025 |
| Data Analysis | Identify key insights from ticket sales, delays, and pricing | Yasmin Mustafa | 10/02/205 |
| Data Modeling | Develop structured models for analysis | Shaimaa Hesham | 15/02/2025 |
| Visualization Design | Create graphs and charts for data insights | Shaimaa & Reem | 20/02/2025 |
| Dashboard Development | Build an interactive dashboard for presentation | Ahmed Soliman | 25/02/2025 |

**3. Task Assignment & Roles**

* Yasmin Mustafa – Data Preprocessing & Analysis (cleaned and prepared the data for analysis).
* Shaimaa Hesham – Data Modeling (structured data for analysis and pattern detection).
* Shaimaa Hesham & Reem Osama – Data Visualizations (created insightful charts and graphs).
* Ahmed Soliman – Dashboard Development (designed and built the final dashboard for data presentation).

**4. Risk Assessment & Mitigation Plan**

| **Risk** | **Potential Impact** | **Mitigation Strategy** |
| --- | --- | --- |
| Data inconsistency | Could lead to incorrect insights | Clean and validate data before analysis |
| Complex delay reasons | Hard to categorize and analyze | Standardize delay reasons into categories |
| Visualization clarity | Difficult for users to interpret results | Design user-friendly and intuitive dashboards |
| Time constraints | Project delays due to complexity | Stick to timeline and prioritize tasks |
| Data limitations | Missing or incomplete data | Use data imputation techniques where possible |

**5. Key Performance Indicators (KPIs)**

* Average train delay times – Measure overall efficiency.
* Most sold ticket types and classes – Identify pricing trends.
* Most frequently visited cities – Understand passenger movement patterns.
* Dashboard usability metrics – User engagement with visualizations.