

UK Train Rides Analysis

This project analyzes UK Train Rides sales, passenger behavior, revenue performance, and operational delays using a modern data-driven approach. The solution integrates **data preparation, business intelligence analytics, predictive modeling, and interactive dashboard development**, providing stakeholders with real-time insights for more informed decision-making.

The workflow includes:

1. Data Cleaning & Modeling

All datasets were ingested into Power BI, cleaned, validated, and standardized using Power Query.

A star-schema data model was designed with fact and dimension tables supporting efficient relationships and DAX calculations.

2. Exploratory and Descriptive Analytics

Key performance indicators (KPIs) were generated, including:

- Total Revenue
- On-Time Percentage
- Refund Rate
- Delay Percentage
- Average Ticket Price
- Monthly Revenue Trend
- Purchase Behavior (Online vs Station)
- Route-Level Performance

DAX measures were created for advanced calculations such as rolling averages, cancellations, and forecasting.

3. Predictive Forecasting

A Power BI forecasting model estimates:

- Next month's expected revenue
- Growth % compared to current month
- 30-day revenue projection

This helps stakeholders prepare for demand, adjust pricing, and plan resources.

4. Dashboard Development

The final Power BI dashboard contains:

Dashboard Sections

- 1. Overview**
 - Revenue + Refund Trend
 - Route Performance
 - Journey Status Distribution
 - Geographic Station Performance
- 2. Trends & Insights**
 - Revenue Over Time
 - Payment Method Patterns
 - Online vs Station Purchases
 - Journey Status by Station
- 3. Deep Analysis**
 - Decomposition Tree (Revenue Drivers)
 - Delay Reason Tree Map
- 4. Sales Forecast**
 - Revenue Predictions
 - Growth Estimates

5. Final Delivery Package

The final submission includes:

- Clean dataset
- Full DAX library
- Power BI dashboard file (.pbix)
- Documentation and analysis report
- Wireframes & charts design
- Deployment URL
- Project source code folder zipped

This solution supports Sales, Operations, Finance, Marketing, and Station Managers by providing a single integrated tool for better decision-making.