Project Report

Project 1: HR Analytics – Predicting Employee Attrition

Objective:
Analyse employee data to understand patterns of attrition and build a dashboard for actionable insights.

Tools Used:
Python (Pandas, Seaborn, SHAP), Power BI

Steps Taken:

- Cleaned and explored employee attrition dataset using Pandas.
- Conducted EDA and visualized key metrics (Overtime, Department, YearsAtCompany, etc.).
- Used SHAP values to identify top features affecting attrition.
- Exported a cleaned CSV and created a Power BI dashboard with charts:
    - Attrition by Department
    - Attrition by Overtime
    - Monthly Income vs Attrition
    - Years at Company vs Attrition
    - Gender-wise Attrition
    - Slicers for filtering (Department, Gender, etc.)

Outcome:
Identified that Overtime and YearsAtCompany strongly correlate with attrition. The dashboard helps HR identify likely exits.

Project 2: Retail Business Performance & Profitability Analysis

Objective:
Evaluate retail sales data to discover profit trends, analyse performance by product line and branch, and visualize key metrics.

Tools Used:
Python (Pandas, Seaborn), Power BI

Steps Taken:

- Cleaned Supermarket dataset using Pandas and exported for dashboard use.
- Analysed profit by product line, sales by branch, payment method usage, and monthly sales trends.
- Built Power BI dashboard with:
    - Profit by Product Line
    - Sales by Branch
    - Monthly Sales Trend
    - Payment Method Usage
    - Slicers for Branch, Product Line, Gender, Customer Type

Outcome:
Clear visibility into top-performing product lines and underperforming branches. Seasonal dips and preferred payment methods were also discovered.
