**Final Project Proposal: Supermarket Sales Data Analysis**

**Project Description**

Our project focuses on analyzing supermarket sales data to uncover key trends, customer purchasing behaviors, and revenue patterns. By leveraging data analytics, we aim to provide insights that can help supermarkets optimize their inventory, pricing, and marketing strategies. The analysis will cover various aspects such as sales trends over time, product category performance, and customer demographics.

**Group Members & Roles**

* **Abdallah Youssef** – Team Leader
* **Amr Salah El Deen** – Data Analyst
* **Mohammed Mabrouk** – Data Analyst
* **Habiba Sherif** – Visualization & Reporting

**Objectives**

* Identify sales patterns and trends across different product categories.
* Analyze customer purchasing behavior based on demographics and shopping frequency.
* Evaluate the impact of promotions and discounts on sales.
* Develop data-driven recommendations to optimize inventory and pricing strategies.
* Create interactive dashboards for visualizing key sales insights.

**Tools & Technologies**

* **Excel** – Data cleaning, preprocessing, and exploratory analysis.
* **Python** – Advanced data analysis using Pandas, NumPy, and visualization libraries.
* **SQL** – Querying and managing sales data from databases.
* **Power BI** – Creating interactive dashboards for insights visualization.

**Milestones & Deadlines**

1. **Data Collection & Cleaning** (3 days) – Gather and preprocess the supermarket sales dataset.
2. **Exploratory Data Analysis (EDA)** (2 days) – Identify patterns, trends, and key metrics.
3. **Advanced Data Analysis & Insights** (2 days) – Perform deeper analysis on sales, customers, and promotions.
4. **Visualization & Dashboard Creation** (3 days) – Develop Power BI dashboards for key findings.
5. **Final Report & Presentation** (6 days) – Compile insights and prepare the final presentation.

**Key Performance Indicators (KPIs)**

* **Sales Growth Rate** – Measure the increase or decrease in sales over a specific period.
* **Top-Selling Products** – Identify the best-performing products by sales volume and revenue.
* **Sales by Country –** Analyze supermarket sales performance across different countries to identify regional trends and variations**.**
* **Total Sales by year –** Identify total sales by year