Group 4

Project name Analysis of Supermarket Sales

Team members

- Ahmed Mohamed Karam
- Ahmed Nabil Mohamed
- Eman Gamal Mahmoud
- Moustafa Mohamed Bayoumi
- Mohamed Hussein Mohamed

Project Planning & Management

1. Project Proposal

Project Title: Analysis of Supermarket Sales
Objective: Analyze a supermarket sales dataset to extract meaningful insights, identify sales patterns across categories and regions, and provide forecasting insights. The findings will be visualized in a dashboard and presented in a final report.

1. What are the total sales per month?
2. How do sales vary by gender?
3. Which customer type purchases the most?
4. Which city or branch has the highest sales?
5. How do sales differ by product?
6. What are the top-selling products by quantity?
7. What are the most profitable products?
8. Which products have the highest customer ratings?
9. What are the most preferred payment methods among customers?
10. How does the cost of goods sold (COGS) compare to sales each month?
11. What are the peak times for sales?
12. What is the relationship between product ratings and profit/quantity sold?
13. What is the average amount customers spend per invoice?

Scope:

- Data cleaning and preprocessing
- Exploratory data analysis
- Determining analytical and forecasting questions
- Building a visualization dashboard for key findings

2. Project Plan

March 1 - March 8: Build Data Model, Data Cleaning, and Preprocessing

- **Tasks:**
  - Data preprocessing: Cleaning and structuring the dataset
  - Building a data model
- **Deliverables:**
  - Cleaned dataset ready for analysis
  - Data preprocessing notebook

### March 9 - March 15: Analysis Questions Phase

- **Tasks:**
  - Identify key data analysis questions relevant to the business
- **Deliverables:**
  - A set of analysis questions derived from the dataset

March 16 - March 24: Forecasting Questions Phase

- **Tasks:**
  - Define forecasting questions based on trends in the dataset
- **Deliverables:**
  - Visualization plots answering forecasting questions

March 25 - April 10: Visualization Dashboard and Final Presentation

- **Tasks:**
  - Build an interactive visualization dashboard
  - Prepare the final presentation summarizing key insights
- **Deliverables:**
  - Visualization dashboard
  - Final report and presentation
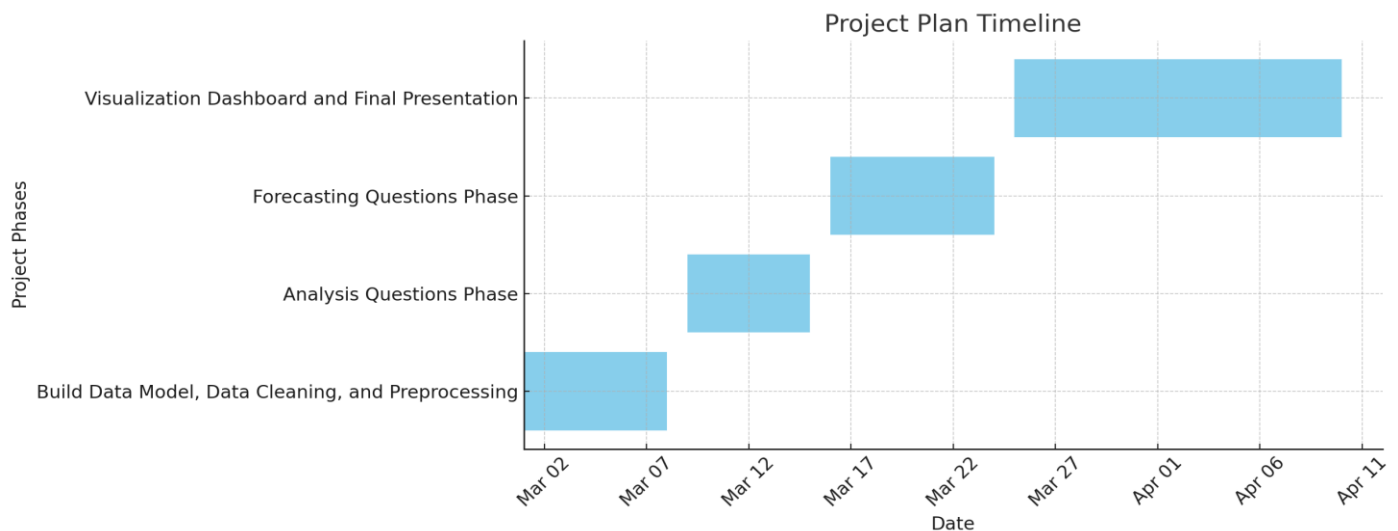
3. Task Assignment & Roles

- **Data Cleaning & Preprocessing:** [all the team members]
- **Data Analysis & Question Formulation:** [all the team members]
- **Forecasting Model Development:** [all the team members]
- **Dashboard Development & Presentation:** [all the team members]

4. Risk Assessment & Mitigation Plan

Risk	Impact	Mitigation Strategy
Data Quality Issues	High	Implement thorough data validation and cleaning steps.
Scope Creep	Medium	Clearly define project goals and stick to the timeline
Tool Limitations	Medium	Ensure familiarity with tools and seek alternatives if needed
Visualization Complexity	Medium	Keep dashboard design simple and user-friendly
Time Constraints	High	Stick to the planned timeline and allocate resources efficiently

5. KPIs (Key Performance Indicators)

- **Data Accuracy Rate:** Percentage of cleaned and structured data.
- **Number of Insights Derived:** Total business relevant insights identified.
- **Dashboard Usability:** Measured via feedback
- **Presentation Effectiveness:** Assessed based on clarity of findings.