# Project Plan

## Project Description:

This project analyzes “Retail Stores Inventory and Demand” from 2022 to 2024 in terms of observing consumer behavior, pricing strategies and product availability across the year. It includes prices of various categories, offering insights into price trends, consumer behavior and an epidemic feature to simulate retail conditions during COVID-19 pandemic period enhancing the realism and practical value of the data.

## Objectives:

- Measure the effectiveness of epidemic in the retail prices of essential category over the 2022 - 2024.
- Evaluate the effectiveness of retailer pricing strategies.
- Determine the demand of consumers on categories
- Quantify the inventories ability to maintain product availability.

## Tools & Technologies:

- Python
- Power Bi
- Microsoft Word
- Canva

## Methodology:

- **Data collection:** collect raw data.
- **Cleaning:** handling data issues using Python.
- **Data transformation & Analysis:** apply statistical and analytical techniques to extract insights and calculate KPIs.
- **Visualization & Dashboarding:** use Power BI to build interactive dashboards.
- **Reporting:** summarize findings and create final documentation using Microsoft Word.
- **Presentation:** present recommendations using Canva.

## Group Members & Roles:

- **Fatmaelzahraa Ali: Project Manger** (Manages the project schedule, budget, risks, and resources. Coordinates communication between the team and stakeholders, and ensures the project meets its goals.)
- **Heba Mohamed: Business Analyst** (Defines the business problem, gathers requirements from stakeholders, translates business questions into analytical problems, and links the project's outcome to business value.)
- **Bola Ghandour: Data processor** (Clean and preprocess the data using python\ Build a data model using Power Query)
- **Mariam Khaled: Data processor** (Clean and preprocess the data using python\ Build a data model using Power Query)
- **Gerges Qadis: Data visualizer** (Build a visualization dashboard that visualizes the answers to all answered questions using Power BI)

## Milestones & Deadlines:

- Week 1: Data collection, Build Data Model, Data Cleaning and Preprocessing

  **Deliverables:**

  1. Collect raw data.
  2. Cleaned dataset ready for analysis.
  3. Data preprocessing notebook.

- Week 2: Analysis Questions Phase

  **Deliverables:**

  1. Set of analysis questions that can be answered using the dataset.

- Week 3: Forecasting Questions Phase

  **Deliverables:**

  1. Visualization plots answering forecasting questions.

- Week 4: Visualization Dashboard and Final Presentation

  **Deliverables:**

  1. Visualization dashboard.
  2. Final report and presentation.

## KPIs (Key Performance Indicators):

**1. Data Cleaning & Processing:** 100% of missing/duplicate data handled

**2. Analysis & Insights:** ≥ 90% of agreed business questions answered

**3. Visualization & Reporting:**

- Dashboard load time < 3s
- Dashboard usability ≥ 80% users navigate without help

**4. Final Documentation & Presentation**

- Final report completeness 100%
- Number of actionable recommendations ≥ 3

## Risk Management

### 1- High Impact Risks:

- **Inaccurate Inventory or Demand Data:**

  Mitigation: Conduct an Early Data Quality Audit; Implement Automated Validation Rules; Use verified Sales Data as a core reference point.

### 2- Medium Impact Risks:

- **Technical Failure in the Analytics Platform:**

  Mitigation: Utilize reliable Cloud Infrastructure; Maintain Daily Database Backups in a separate environment.

## Expected Outcomes

- Cleaned data.
- Creative and Clear Dashboard.
- Technical and Business report with clear insights.
- Present efficient recommendations.