Power BI Project Idea: Store Sales Dataset Analysis

1. Project Planning & Management

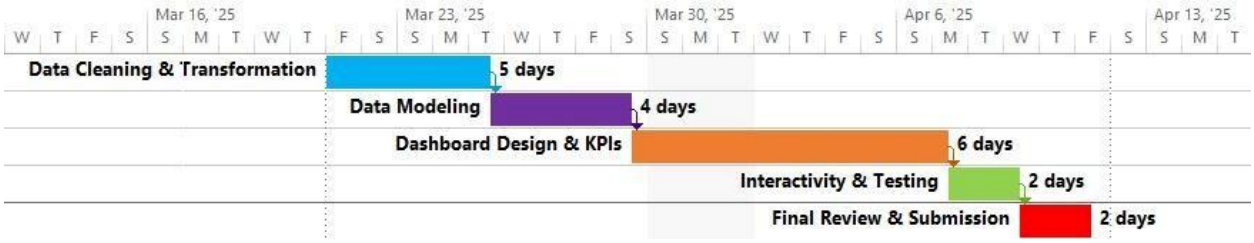
- **Project Proposal:**
    - **Objective:** Build an interactive Power BI dashboard to analyze store sales performance, identify trends, and improve decision-making.
    - **Scope:**
        - Region-wise sales performance.
        - Product category sales trends.
        - Time-based sales analysis (monthly, quarterly, yearly).
        - Ship mode analysis
        - Customer Type analysis
- **Project Plan:**
    - **Timeline:** Phase Duration maintains editable

Phase	Duration	Key Tasks
Data Cleaning & Transformation	2-5 days	Cleaning, handling missing values, ensuring consistency
Data Modeling	3-4 days	Defining relationships, calculations
Dashboard Design	5-6 days	Designing visual layout, defining KPIs
Interactivity & Testing	2 days	Adding slicers, drill-throughs, tooltips
Final Review & Submission	2 days	Reviewing, documentation, presentation

- **Milestones**
    - **Milestone 1:** Data Preparation Complete
    - **Milestone 2:** Dashboard Design Draft Complete
    - **Milestone 3:** Interactivity Features Implemented
    - **Milestone 4:** Final Dashboard Review and Submission

- **Resources:** Power BI, SQL (if needed for data cleaning), Excel, or a database like SQL Server.

- **Task Assignment & Roles:**
- Data Cleaning & Transformation: **Kholoud Gamal,Ahmed Mostafa**
- Data Modeling: **Radwa Ramda, Mohamed Mostafa**
- Dashboard Design & KPIs: **Malak Fathy, Fatma Alzahraa Mohamed**
- Interactivity & Testing : Shared responsibility
- Report Writing & Presentation :Shared responsibility



gantt chart showing required tasks & their duration

2. Method

- **Data Collection:** Data will be sourced from the provided **Orders.csv** dataset.
- **Data Cleaning:**
    - Handle missing values.
    - Ensure data consistency.
    - Remove duplicates.
- **Data Modeling:**
    - Establish relationships between tables.
    - Optimize performance with calculated measures using DAX.
- **Dashboard Design:**
    - Create visualizations using Power BI.
    - Implement filters, slicers, and interactive elements.

- **Testing & Validation:**
    - Check for errors in data presentation.
    - Ensure interactivity and user-friendliness.
    - Validate against business objectives.

3.Primary Dataset Structure (Orders.csv)

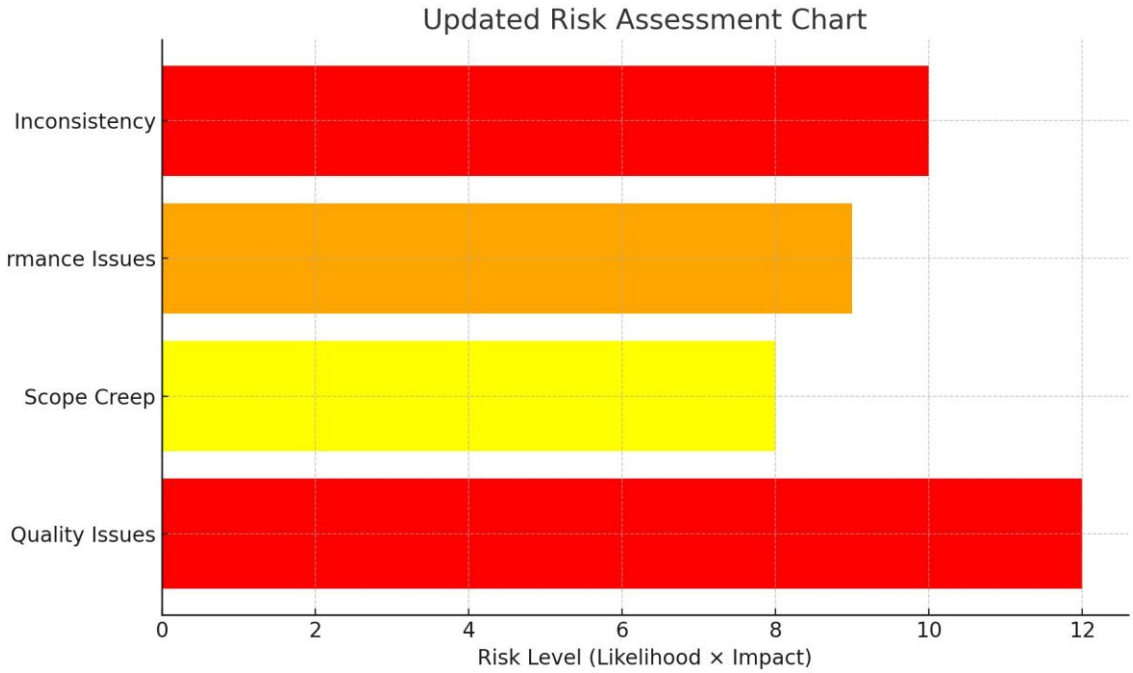
Column Name	Description
Row ID	Unique identifier for each order entry
Order ID	Unique order identifier
Order Date	Date when the order was placed
Ship Date	Date when the order was shipped
Ship Mode	Shipping method chosen for the order
Customer ID	Unique identifier for each customer
Customer Name	Full name of the customer
Segment	Customer category (e.g., Consumer, Corporate)
Country	Country where the order was placed
City	City where the order was placed

State	State/Province of the order location
Postal Code	Postal code of the customer location
Region	Geographic region (e.g., East, West)
Product ID	Unique identifier for each product
Category	Product category (e.g., Office Supplies, Furniture)
Sub-Category	More specific product classification
Product Name	Name of the product
Sales	Revenue generated from the order

4.Risk Assessment & Mitigation Plan:

Risk	Impact Level (1-10)	Solution
Data Inconsistency	10	Implement data validation techniques.
Performance Issues	9	Use efficient DAX queries and optimize the data model.
Scope Creep	8	Clearly define project scope and requirements.

Data Quality Issues	12	Ensure strict data cleaning and validation processes.



- **KPIs:**
    - Total Sales, Customer Retention Rate, Order Quantity Trends, Top-Selling Products, Top-Selling Locations ,Count of Orders.

5. System Analysis & Design

1. Problem Statement & Objectives

- **Problem Statement:** Retail businesses need insights into sales trends, customer behavior, and performance metrics for better decision-making.
- **Objectives:** Develop a **Power BI dashboard** to analyze store sales, identify trends, and improve business insights.

Use Case Diagram & Descriptions

- **Actors:** Store Managers, Business Analysts, Executives.
- **Interactions:** View reports, apply filters, analyze trends, export data.

Functional & Non-Functional Requirements

Mentioned by details in the RequirmentGathering Document

- **Functional:**
  - Load sales data from CSV/SQL.
  - Provide interactive dashboards.
  - Enable filtering by region, product, and time.
- **Non-Functional:**
  - Optimized for performance using DAX.
  - User-friendly interface.
  - Secure role-based access.

Software Architecture

- **Architecture Style:** Power BI Reporting Architecture
- **Components:**
  - Data Source (CSV, SQL Server)
  - Processing Layer (Power Query, DAX)
  - Visualization Layer (Power BI Reports)
  - Deployment Layer (Power BI Service)

2. Database Design & Data Modeling

ER Diagram (Entity-Relationship Diagram)

- **Fact Table:** Orders (Sales, Quantity, Discounts, Profit).
- **Dimension Tables:**
  - Customers (Customer ID, Name, Segment, Region).
  - Products (Product ID, Name, Category, Sub-Category).
  - Time (Order Date, Month, Quarter, Year).
  - Regions (Region, Country, City, State).

Logical & Physical Schema

- **Schema Type: Star Schema**
- **Tables:** Orders (Fact Table), Customers, Products, Time, Regions (Dimension Tables).
- **Optimization:** Denormalized for query performance in Power BI.

3. Data Flow & System Behavior

DFD (Data Flow Diagram)

- Sales data → Power BI Processing → Dashboard Visualization → User Interaction.

Sequence Diagram

1. User opens dashboard → 2. Applies filters → 3. Power BI fetches data → 4. Updated dashboard.

Activity Diagram

- User selects filters → Data updates → User views insights.

State Diagram

- Order: **Pending → Processing → Shipped → Delivered**.

Class Diagram

- Classes: Order, Customer, Product, Region.
- Methods: getTotalSales(), getTopSellingItems().

4. UI/UX Design & Prototyping

Wireframes & Mockups

- **Dashboard Layout:** KPIs, Charts, Filters.

UI/UX Guidelines

- **Colors:** Blue & Green.
- **Typography:** Readable sans-serif fonts.
- **Accessibility:** High contrast, tooltips.

5. System Deployment & Integration

Technology Stack

- **Backend:** SQL Server, Excel.
- **Frontend:** Power BI Desktop, Power BI Service.
- **Processing:** Power Query, DAX.
- **Hosting:** Power BI Service.

Deployment Diagram

- Data → Processing (Power Query) → Visualization (Power BI) → Hosting (Power BI Service) → User Access.

Component Diagram

- **Data Layer:** Orders.csv, SQL Server.
- **Processing Layer:** Power Query, DAX.
- **Visualization Layer:** Power BI Reports.
- **Deployment Layer:** Power BI Service.
- **User Layer:** Executives, Analysts, Store Managers.

6. Additional Deliverables

Testing & Validation

- **Unit Testing:** DAX formula validation.
- **Integration Testing:** Ensure smooth data pipeline.
- **UAT:** Verify dashboard meets requirements.

Deployment Strategy

- **Hosting:** Power BI Service.

- **Versioning:** Maintain report backups.
- **Scaling:** Power BI Premium for high user access.