Data Analysis Project

Data Analyst: Sowjanya

Client/Sponsor: XYZ Retail Company

Purpose:

The purpose of this project is to analyze XYZ Retail Company's customer purchasing patterns to identify trends and provide actionable insights for improving product offerings, customer retention, and revenue growth. The goal is to understand which products drive sales, what customer segments are most profitable, and how to optimize marketing and inventory strategies.

Scope / Major Project Activities:

Activity	Description
Data Collection	Gather customer purchasing history, product details, and demographic information from XYZ Retail's database. Ensure data quality by removing duplicates and handling missing values.
Exploratory Data Analysis (EDA)	Perform EDA to understand key trends, identify outliers, and uncover any hidden patterns within the data. Use visualizations to explore relationships between variables like sales, customer segments, and product categories.
Customer Segmentation	Use clustering techniques (e.g., K-Means) to segment customers based on purchasing behavior and demographics, helping identify high-value customers and specific customer needs.
Product Performance Analysis	Analyze sales performance of different products and categories to determine which products are most popular, profitable, and which should be restocked or promoted.
Reporting and Insights	Create a comprehensive report and interactive dashboard

	highlighting key findings, actionable insights, and recommendations for increasing revenue and customer retention.
Predictive Analysis	Develop a predictive model to forecast future sales trends, customer lifetime value, and product demand. This helps in creating data-driven marketing and inventory strategies.

This project does not include:

- *Analysis of external or historical data before 2021.*
- *Implementation of changes based on the findings, such as new marketing campaigns or inventory adjustments.*
- *In-depth financial or operational cost analysis.*

Deliverables:

A specific list of things that your project will deliver.

Deliverable	Description/ Details
Cleaned Dataset	A cleaned and structured dataset ready for analysis.
Exploratory Data Analysis Report	A report highlighting key trends, correlations, and visualized insights from the data.
Customer Segmentation Report	Detailed segmentation of customers, highlighting key groups and actionable insights for targeted marketing.
Predictive Model	A machine learning model predicting sales trends, demand, and customer lifetime value.
Final Report and Dashboard	A comprehensive report summarizing the findings with an interactive dashboard for real-time data exploration.

Schedule Overview / Major Milestones:

The expected schedule for the project. This can be defined by milestones (e.g. "all data is cleaned and processed"), periods of time ("Week 1 / Week 2"), or other ways based on the needs of the project.

Milestone	Expected Completion Date	Description/Details
Data Collection Completed	Week 1	Data is collected, cleaned, and validated for analysis.
Exploratory Data Analysis (EDA) Completed	Week 2	EDA is performed, with key insights identified and visualized.
Customer Segmentation Completed	Week 3	Customers are segmented into meaningful groups based on behavior and demographics.
Predictive Model Developed	Week 4	A machine learning model predicting sales trends is built and evaluated.
Final Report and Dashboard Delivered	Week 5	All findings are compiled into a report, and an interactive dashboard is created for future exploration.

*Estimated date for completion:

End of Week 5, if all data and resources are available and no major delays occur.

This plan outlines a clear, structured approach for delivering actionable insights to help XYZ Retail improve its customer retention, product offerings, and revenue growth strategies.