Data Analyst Task Assignment

Task Title: Customer Purchase Behavior Analysis & Business Insights

Objective:

The primary goal of this task is to analyze customer purchase patterns and derive meaningful insights to enhance business strategies. The analysis should focus on customer segmentation, product performance, seasonal trends, and customer retention. The findings should be presented in a structured report along with relevant data visualizations.

Task Details:

1. Data Understanding & Preprocessing:

- Review and clean the dataset by handling missing values and outliers.
- Perform exploratory data analysis (EDA) to understand data distribution.
- Ensure data is structured appropriately for further analysis.

2. Customer Segmentation Analysis:

- Identify different customer groups based on purchasing habits.
- Use clustering techniques (e.g., K-Means, DBSCAN) or RFM (Recency, Frequency, Monetary) analysis.
- Provide insights into the most valuable customer groups.

3. Product Performance Analysis:

- Identify top-selling and least-selling products.
- Analyze trends in product categories and price ranges.
- Examine how different products perform across various customer segments.

4. Seasonal Trends & Sales Analysis:

- Identify peak sales periods (monthly, quarterly, or annually).
- Examine correlations between sales and external factors (e.g., holidays, promotions).
- Determine patterns in customer demand over time.

5. Customer Retention & Churn Analysis:

- Identify repeat customers versus one-time buyers.
- Analyze factors contributing to customer churn.
- Recommend strategies to improve customer retention rates.

6. Data Visualization & Reporting:

- Use Python (Pandas, NumPy, Matplotlib, Seaborn) or SQL for analysis.
- Generate meaningful visualizations (bar charts, heatmaps, trend lines, etc.).

- Prepare a structured report summarizing key insights.
- Provide business recommendations based on findings.

Task Requirements:

- Programming in **Python (Pandas, NumPy, Matplotlib, Seaborn, Scikit-learn)** or SQL.
- Data cleaning and preprocessing to ensure accuracy.
- Use of statistical methods and machine learning techniques where applicable.
- Data visualization and dashboard creation using **Power BI/Tableau** (optional).
- A final report (PDF or PPT) summarizing findings with actionable insights.

Team Assigned:

- **Shrikrishna Jadhavar(8805145120)**
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Deadline:

📌 **5th February 2025**