**Team name**

**FalconX**

**Walmart (retail stores analytics )**

**Team members :**

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**Group code:**

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**Introduction**

Walmart, one of the world’s largest retail corporations, operates numerous stores across various regions. Accurate sales forecasting is crucial for maintaining optimal inventory levels, ensuring customer satisfaction, and maximizing profits. The task of predicting sales becomes especially challenging during holiday seasons especially in the 5 markdowns, where sales spikes and patterns differ from regular weeks. This project seeks to leverage historical sales data to forecast future sales trends, helping Walmart make informed business decisions.

**Objective**

The objective of this project is to analyse Walmart's historical sales data and create accurate relations that highlight the impact of holidays and other variables on sales performance. The project will involve cleaning the dataset, identifying key insights, and developing a Power BI dashboard that visualizes sales trends, allowing Walmart’s management to make data-driven decisions regarding inventory management, promotions, and resource allocation.

**Purpose**

* **Inventory Management:** To assist Walmart in maintaining optimal inventory levels, particularly during holiday seasons, by predicting peak sales periods.
* **Model the effects of markdowns on holiday weeks**
* **Provide recommended actions based on the insights drawn, with prioritization placed on largest business impact**
* **Sales Prediction:** To forecast future sales based on historical data, identifying seasonal and holiday trends that influence performance.

**Analysis Steps**

**Phase 1: Data Cleaning and Preprocessing**

**Phase 2: Determining Analysis Questions**

**Phase 3: Dashboard Development**

**Phase 4: Final Report and Presentation**

**Phase 1: Data Cleaning and Preprocessing**

* **Task:** Clean and preprocess the provided dataset to ensure data quality and consistency for analysis.
* **Activities:**
  + Review and handle any missing or inconsistent data.
  + Normalize data formats (e.g., dates, store names, product categories).
  + Handle outliers that may distort sales trends.
  + Prepare the dataset for analysis, making sure it’s ready for Power BI visualization.
* **Tools:** Power BI.
* **Deliverable:** Cleaned and preprocessed dataset.

**Phase 2: Determining Analysis Questions**

* **Task:** Develop a set of insightful questions that can guide the analysis and help Walmart decision-makers.
* **Activities:**
  + Identify key variables that may impact sales performance (e.g., holiday weeks, product categories, regional stores).
  + Formulate specific questions to address business concerns, such as:
    - How do sales vary during holiday vs. non-holiday weeks?
    - Which departments experience the highest sales peaks during holidays?
    - Are there any regional differences in sales performance during peak periods?
    - What are the long-term sales trends and seasonal patterns?
  + Create a framework for analysis, ensuring all questions are answerable through the dataset.
* **Tools:** Power BI for visualization and question framing.
* **Deliverable:** A list of analysis questions to explore.

**Phase 3: Dashboard Development**

* **Task:** Create a Power BI dashboard to visualize and answer the analysis questions.
* **Activities:**
  + Build data visualizations that reflect key insights from the analysis, such as:
    - Line graphs showing weekly sales trends, highlighting holiday periods.
    - Bar charts comparing department sales across different periods.
    - Maps or heatmaps showing regional sales performance.
    - Visualizations comparing regular vs. holiday sales.
  + Ensure the dashboard is user-friendly, interactive, and provides clear insights for decision-makers.
* **Tools:** Power BI for dashboard creation.
* **Deliverable:** A fully interactive and informative Power BI dashboard.

**Phase 4: Final Report and Presentation**

* **Task:** Summarize the findings and prepare a professional presentation.
* **Activities:**
  + Compile all the insights from the analysis, answering the formulated questions.
  + Present key findings regarding how holiday weeks and product categories influence sales.
  + Provide recommendations on how Walmart can use this information to optimize inventory, pricing, and promotions.
  + Prepare a visual presentation showcasing the dashboard and key insights.
* **Tools:** PowerPoint (for presentation), Power BI (for dashboard and data visualization).
* **Deliverable:** Final project report and presentation.