Project Documentation: Product Sales Analysis

Objective:

The objective of this project is to conduct a comprehensive analysis of REC corp LTD.'s product sales data spanning over a decade. The analysis aims to uncover insights that can guide inventory management and inform marketing strategies for the company.

Design Thinking Process

Empathize:
Understanding the business goals and challenges faced by REC corp LTD. in managing product sales.

Define:
Defining the specific objectives of the analysis, including identifying top-selling products, analyzing sales trends, and understanding customer preferences.

Ideate:
Brainstorming and selecting appropriate analytical techniques and tools for the project.

Prototype:
Preparing the dataset, performing data cleaning, and selecting visualization tools for insights generation.

Test:
Verifying the accuracy of visualizations and derived insights.

Development Phases

Data Collection:
Obtained a dataset containing sales data for four products (P1, P2, P3, P4) over a period of ten years.

Data Preparation:
Loaded the dataset into a Python environment.
Checked for data types, missing values, and performed necessary data cleaning.

Data Analysis and Visualization:
Utilized Python with Pandas, Matplotlib, and Seaborn libraries for data analysis and visualization.
Analyzed sales trends, identified top-selling products, and visualized customer preferences.

IBM Cognos Integration (Optional):

Integrated IBM Cognos for creating interactive dashboards and reports.
Utilized Cognos for generating visualizations, allowing for easy sharing and exploration of insights.

Analysis Objectives

Identify Top-Selling Products:
Derived insights to determine which product consistently recorded the highest sales.

Analyze Sales Trends:
Visualized monthly sales trends to identify seasonal patterns and peak sales periods.

Customer Preferences:
Analyzed total sales and revenue to identify customer preferences for specific products.

Data Collection Process

Obtained a CSV file containing sales data, including total unit sales and revenue for each of the four products, recorded over ten years.

Data Visualization using IBM Cognos
Integrated IBM Cognos for creating interactive dashboards and reports.
Designed visualizations to represent sales trends, customer preferences, and other relevant metrics

Derived Actionable Insights

Product P2 Dominance:
Product P2 consistently outperformed other products in terms of sales, indicating it is the most popular among customers.

Holiday Season Sales Boost:
Identified a seasonal pattern with higher sales observed in the months of November and December. This suggests the holiday season significantly impacts sales..

Marketing and Inventory Strategies:
REC corp LTD. can capitalize on the holiday season trend by implementing targeted marketing campaigns and ensuring sufficient inventory during peak periods.

How Insights Guide Inventory Management and Marketing Strategies

Inventory Management:

Prioritize stocking and promoting Product P2, as it is the highest-selling product.

Plan inventory levels to meet increased demand during the holiday season, especially in November and December.

Marketing Strategies:

Focus marketing efforts on highlighting the benefits and features of Product P2 to maximize sales.

Submission

GitHub Repository Link
https://github.com/Sathish90254/DAC_Phase1.git
https://github.com/Sathish90254/DAC_Phase2.git
https://github.com/Sathish90254/DAC-Phase3.git
https://github.com/Sathish90254/-DAC_Phase4.git

Replicating the Analysis and Generating Visualizations using IBM Cognos

Clone the GitHub repository to your local machine.
Install the required Python libraries by running pip install -r requirements.txt.
Open the Jupyter notebook product_sales_analysis.ipynb and execute each cell to replicate the analysis.
For IBM Cognos, refer to the provided Cognos documentation for instructions on loading and visualizing data.

Example Outputs

Link to Example Visualizations and Insights https://github.com/Sathish90254/-DAC_Phase4.git

This documentation provides a comprehensive overview of the product sales analysis project, outlining its objectives, design process, development phases, analysis insights, and submission instructions. The GitHub repository contains the code, data files, and example outputs for reference.