**Problem Statement for Product Sales Analysis Project**

*\*This project is created for the Data Analytics with IBM Cognos course by Naan Mudhalvan in collaboration with IBM.*

## DAC\_Phase1

**Given Problem Definition:** This project involves using IBM Cognos to analyze sales data and extract insights about top selling products, peak sales periods, and customer preferences. The objective is to help businesses improve inventory management and marketing strategies by understanding sales trends and customer behaviour. This project includes defining analysis objectives, collecting sales data, designing relevant visualizations in IBM Cognos, and deriving actionable insights.

**Steps to solve the problem:**

1. **Define Analysis Objectives:** Begin by clearly defining the specific objectives of your analysis. What are the key questions you want to answer? For example, you might want to know which products sell the most, when sales peak during the year, and what types of customers buy these products.
2. **Data Collection:** Collect comprehensive sales data from various sources. This data should include information about products, sales transactions, customer demographics, and time stamps. Ensure data quality and consistency by cleaning and organizing the dataset.
3. **Data Preparation:** Pre-process the data to make it suitable for analysis. This may involve data cleansing, transforming data into a structured format, and handling missing values.
4. **IBM Cognos Setup:** Set up IBM Cognos, configuring it to connect to your data sources. Create data models and import the cleaned data into Cognos for analysis.
5. **Design Relevant Visualizations:** Design meaningful and informative visualizations in IBM Cognos. Create dashboards and reports that can help you visualize trends and patterns. For example, you can create line charts to track sales over time, bar charts to show top-selling products, and pie charts to analyze customer demographics.
6. **Data Analysis:** Utilize the analytical capabilities of IBM Cognos to perform exploratory data analysis (EDA) and statistical tests. Identify correlations, trends, and patterns in the data. For instance, you can use regression analysis to determine which factors influence sales the most.
7. **Derive Actionable Insights:** Translate the patterns and trends you've identified into actionable insights. For example, you might discover that certain products sell better during specific seasons, allowing you to optimize inventory management. Or, you may find that a particular customer segment is highly profitable, leading to targeted marketing strategies.
8. **Recommendations and Implementation:** Based on the insights derived, formulate recommendations for businesses to improve inventory management and marketing strategies. These recommendations could include adjusting inventory levels, launching targeted marketing campaigns, or offering personalized promotions.
9. **Monitoring and Iteration:** Implement the recommendations and continuously monitor their impact. Use IBM Cognos to track changes in sales and customer behavior over time. Adjust your strategies as needed based on ongoing analysis and feedback.
10. **Documentation and Reporting:** Document the entire analysis process, including data sources, methodologies, and results. Create reports and presentations to communicate findings to stakeholders and decision-makers.

By following these steps, you can effectively leverage IBM Cognos to analyze sales data and provide valuable insights to help businesses enhance their inventory management and marketing strategies.