


Project Title: Product sales Analysis

Phase1: Problem Definition and Design Thinking

Problem Definition:

 The 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 behavior. This project includes defining analysis objectives, collecting sales data, designing relevant visualizations in IBM Cognos, and deriving actionable insights.

Objectives:

Sales Performance Evaluation:

Assess how well each product is performing in terms of revenue, units sold, and profitability. Identify your top-selling products and underperforming ones.

Market Segmentation:

Analyze which customer segments are buying which products. This helps in tailoring marketing and sales strategies to different target groups.

Price Optimization:

Analyze the impact of pricing strategies on sales volume and revenue. Identify opportunities to adjust prices for maximum profitability.

Seasonal Trends:

Identify seasonal patterns in product sales to plan inventory, marketing campaigns, and staffing accordingly.

Competitor Analysis:

Compare your product sales with competitors to understand your market share and identify areas where you can outperform or improve.

Customer Behavior:

Analyze customer behavior related to product purchases, such as frequency, average order value, and repeat purchases, to refine marketing efforts and enhance customer loyalty.

Product Life Cycle Analysis:

Determine which products are in their growth, maturity, or decline stages. This insight helps in product development and marketing strategy adjustments.

Design Thinking:

Design thinking can be a valuable approach for analyzing product sales and identifying opportunities for improvement. It involves a human-centered and iterative process that focuses on understanding customer needs, generating ideas, and testing solutions. Here's how you can apply design thinking to product sales analysis:

Empathize:

- Start by empathizing with your customers. Conduct customer interviews, surveys, and gather feedback to understand their pain points, preferences, and behaviors related to your product.
- Create customer personas to represent different segments of your target audience.

Define:

- Clearly define the problem or challenge you want to address with your sales analysis. For example, it could be declining sales, low customer retention, or difficulty entering new markets.
- Develop a specific problem statement that frames the issue in a human-centered way.

Ideate:

- Organize brainstorming sessions with your team to generate a wide range of ideas for improving product sales. Encourage creative thinking and avoid judgment during this phase.
- Use techniques like mind mapping, brainstorming, or "how might we" questions to stimulate idea generation.

Prototype:

- Create prototypes of potential solutions based on the ideas generated. These can be low-fidelity representations such as sketches, wireframes, or mockups.
- Prototype not only the product or service itself but also any processes, marketing strategies, or sales channels you plan to implement.

Test:

- ✓ Test your prototypes with a small group of customers or stakeholders. Gather feedback and data to evaluate how well the solutions address the defined problem.
- ✓ Iterate on your prototypes based on the feedback received. This may involve refining or completely redesigning your solutions.

Design Procedure:

1. Define Analysis Objectives:

Start by clearly defining the specific objectives of your analysis. What are you trying to achieve with this project? For example:

- ✓ Identify top-selling products.
- ✓ Determine peak sales periods (e.g., monthly, quarterly, or seasonally).
- ✓ Understand customer preferences and buying patterns.
- ✓ Improve inventory management and marketing strategies.

2. Collect Sales Data:

Gather relevant sales data from your organization's databases or sources. Ensure the data is clean, accurate, and up-to-date. The data you collect should include:

- ✓ Sales transactions (date, product, quantity, price, customer).
- ✓ Product information (name, category, description).
- ✓ Customer data (demographics, location, purchase history).

3. Data Preparation:

Clean and preprocess the data as needed. This may involve dealing with missing values, data normalization, and structuring the data for analysis. Ensure that data quality is high.

4. IBM Cognos Setup:

Set up IBM Cognos or ensure that it's already installed in your organization. Ensure that you have access to relevant data sources.

5. Design Data Models:

Define the data models in IBM Cognos that will be used for analysis. Create relationships between tables, define calculated fields, and ensure data is organized for efficient querying.

6. Create Relevant Visualizations:

Use IBM Cognos' reporting and visualization capabilities to create meaningful dashboards and reports. Some key visualizations to consider include:

- Bar charts to display top-selling products.
- Line charts to visualize sales trends over time.
- Pie charts to show product category distribution.
- Heatmaps to identify peak sales periods.
- Customer segmentation analysis to understand preferences.

7. Derive Actionable Insights:

Analyze the visualizations and data to extract actionable insights. This might include:

- Identifying which products generate the most revenue.
- Discovering which months or seasons have the highest sales.
- Segmenting customers based on buying behavior.
- Noting any correlation between marketing efforts and sales spikes.

8. Share Insights:

Communicate your findings with relevant stakeholders, such as marketing teams, inventory managers, and executives. Create reports or presentations to present your insights effectively.

9. Iterate and Optimize:

Continuously monitor sales data and adjust your analysis as needed. This may involve updating visualizations, refining data models, or incorporating new data sources.

10. Implement Changes:

Work with the appropriate teams to implement changes based on your insights. This could involve adjusting marketing strategies, optimizing inventory levels, or tailoring product offerings.

11. Evaluate Impact:

After implementing changes, evaluate their impact on sales and other relevant metrics. This will help you measure the success of your analysis and make further refinements if necessary.

12. Documentation:

Document your analysis process, data sources, and insights for future reference and to maintain a record of your work.

By following these steps, you can effectively use IBM Cognos to analyze sales data and derive valuable insights to improve inventory management and marketing strategies.