INNOVATION PHASE
PRODUCT SALES ANALYSIS PROJECT

Date	**04-10-2023**
Team ID	**1289**
Project Name	**Product Sales Analysis**

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1. Project Introduction

The aim of this project to analyze sales data and extract insights about top selling products, peak sales periods, and customer preferences by using IBM Congons. The objective is to help businesses improve inventory management and marketing strategies by understanding sales trends and customer behaviour.

2. Problem Statement

The Problem Statement od Product Sales Analysis that 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.

3. Design and Innovation Strategies

3.1. Data Collection

Innovation: Comprehensive Data Gathering

- In data collection we used advance level web surfing techniques and gathered diverse dataset to get from the customer such as their preference and top selling products and peak sales periods.

- Factors like customer preference, top selling products and peak seals periods this analysis helps to improve prediction accuracy.

3.2. Data Pre-processing

Innovation: Natural Language Processing Technique

- Natural Language Processing techniques are used to pre-process data that are in the form of text like top selling products and peak seals periods and customer preference it provides valuable insights.

- Data preprocessing include cleaning, instance selection, normalization, one-hot encoding, data transformation, feature extraction and feature selection.

3.3. Model Selection and Training

Innovation: Ensemble Learning

- The Ensemble learning techniques includes the Gradient Boosting, Random Forest, decision Tree. These model helps in increasing the accuracy of the prediction.

- Some other model we used were Bayesian logistic regression and Support Vector Machine.

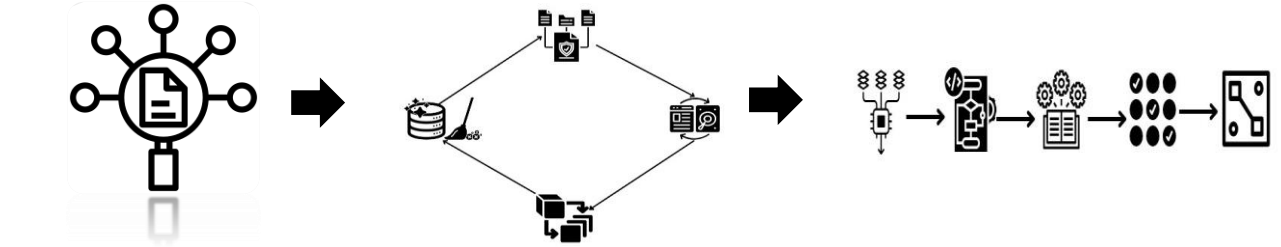
- By combining these model that incorporates the ensemble model with others which results in the better outcome.

3.4. Visualization

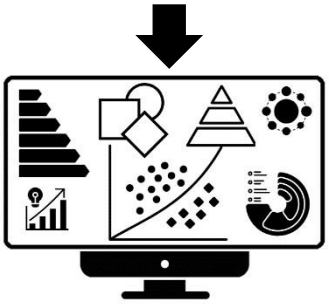
Innovation: IBM Cognos Platform

- Visualization is the process of showcasing the output from the predictive model in a predefined chart or graph.

- There are lots of visualization types like pie chart, scatter plot, bar chart, histogram, etc., in common line chart is mainly used for Top Selling Products and Peak Sales Periods and Customer Preference.



Data Gathering | Data Pre-Processing | ML-Models



Data Visualization

4. Conclusion

In conclusion, a structured approach to "Product Sales Analysis" using IBM Cognos involves setting clear analysis objectives, meticulous data collection, crafting effective data visualizations, and using actionable insights to drive strategic decisions across inventory management and marketing strategies. These actionable steps empower businesses to thrive in a competitive market environment and adapt to changing customer preferences and market dynamics.