PROJECT TITLE - PRODUCT SALES ANALYSIS

INTRODUCTION:

- Designing a solution to predict future sales trends and customer behaviour using machine learning algorithm.

DATA COLLECTION

- Gathering historical sales and customer data including purchase history demographics and any relevant external factors.

DATA PREPROCESSING

- Cleaning the data by handling missing values, outliers, and encoding categorical variables and by creating features that capture relevant information, such as time based feature and customer segmentation.

MODEL SELECTION:

- Predicting, future sales trends and customer behaviour using neural networks.
- Neural networks are capable of capturing complex patterns and relationship in data, which makes them suitable for a wide range of predictive tasks.
- For sales prediction recurrent neural networks (RNNs) is used and then for customer behaviour feedforward, neural network (FNN) can be implemented.

MODEL TRANING:

- The data can be trained by splitting the data into training and testing sets.

- By using a portion of the data for training and another portion for validation and testing.

MODEL EVALUATION:

- Evaluating the model's performance using the appropriate metrics.
- Mean absolute error for sales prediction and accuracy, F1 score for customer behaviour classification.

INNOVATION:

- Consider incorporating advanced techniques like deep learning, natural language processing, or reinforcement learning if they are suitable for specific problem.

IMPLEMENTATION:

Deploy the models into your sales and marketing processes to make real-time predictions and analysis.

VISUALIZATION:

- Model analysis can be done by data visualization tool IBM cognos power BI and Excel enables business to develop into their historical sales data, Identify patterns, seasonality, and trends.
- These tools provide Interactive dashboards and visualisation that make it easier to analyse past performaces, understand sales cycle and uncover valuable insights.

USER INTERFACE:

- Create a user-friendly interface for stakeholders to interact with the predictions and gain insights.
- Interpretation; understand the insights gained from the models and use them to make informed business decisions.

STACKHOLDER COMMUNICATION:

- Keep stackholder informed about performance of the model and any changes or improvement made.
- This helps in maintaining alignment between the model and business objectives.