**DOCUMENTATION**

**Task-3: Build a decision tree classifier to predict whether a customer will purchase a product or service based on their demographic and behavioural data. Use a dataset such as the Bank Marketing dataset from the UCI Machine Learning Repository.**

**INTRODUCTION->**

The UCI Machine Learning Repository is a collection of databases, domain theories, and data generators widely used by the machine learning community for empirical studies of machine learning algorithms. It is hosted by the University of California, Irvine (UCI), and serves as a resource for researchers, educators, and students interested in machine learning and data mining.

**FUNCTIONS USED IN THIS TASK:**

Here's a concise one-line description of each function used in the program to build a decision tree classifier for predicting customer purchases based on the Bank Marketing dataset:

1. read.table: Reads a table of data from a file or a URL and loads it into a data frame.
2. str: Displays the internal structure of an R object, providing information about its type and content.
3. factor: Converts a vector into a factor, which is a categorical variable with ordered levels.
4. sum: Computes the sum of all the values in a numeric vector or matrix.
5. is.na: Checks for missing values (NA or NaN) in a vector, returning a logical vector indicating their presence.
6. createDataPartition: Splits a dataset into training and testing sets by creating an index vector for the training set.
7. rpart: Fits a decision tree model to the data using recursive partitioning, based on a specified formula and method.
8. rpart.plot: Visualizes a decision tree model, showing its structure and rules using a graphical plot.
9. predict: Generates predictions using a fitted model, based on new data, returning the predicted class or values.
10. confusionMatrix: Computes a confusion matrix and various performance metrics (accuracy, sensitivity, specificity, etc.) for evaluating the model's predictive accuracy.

