# Decision Tree

**Instructions:**

Please share your answers filled in-line in the word document. Submit code separately wherever applicable.

Please ensure you update all the details:

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_ Batch ID:** \_\_\_\_\_\_\_\_\_\_\_

**Topic: Decision Tree**

**Guidelines:**

**1. An assignment submission is considered complete only when the correct and executable code(s) and documentation explaining the method and results are submitted. Failing to submit either of those will be considered an invalid submission and not a correct submission.**

**2. Ensure that you submit your assignments correctly and in full. Resubmission is not allowed.**

**3. Post the submission you can evaluate your work by referring to the keys provided. (will be available only post the submission).**

**Hints:**

1. **Business Problem**
   1. **What is the business objective?**
   2. **Are there any constraints?**
2. **Work on each feature of the dataset to create a data dictionary as displayed in the below image:**



**2.1 Make a table as shown above and provide information about the features such as its data type and its relevance to the model building. And if not relevant, provide reasons and a description of the feature.**

1. **Data Pre-processing**

**3.1 Data Cleaning, Feature Engineering, etc.**

1. **Exploratory Data Analysis (EDA):**
   1. **Summary.**
   2. **Univariate analysis.**
   3. **Bivariate analysis.**
2. **Model Building**
   1. **Build the model on the cleaned data.**
   2. **Perform Decision Tree on the given dataset.**
   3. **Train and Test the data and perform cross-validation techniques, compare accuracies, and precision, and recall and explain them.**
   4. **Briefly explain the model output in the documentation.**
3. **Write about the benefits/impact of the solution - in what way does the business (client) benefit from the solution provided?**

**Problem Statements:**

1. A cloth manufacturing company is interested to know about the different attributes contributing to high sales. Build a decision tree & random forest model with Sales as the target variable (first convert it into categorical variable).

