Experiment 4: Build a decision tree model for a given dataset

Theory:

1. **Decision Tree**

Decision tree learning uses a decision tree as a predictive model, which maps observations about an item to conclusions about the item's target value. Decision Trees (DTs) are a non-parametric supervised learning method used for classification and regression. The goal is to create a model that predicts the value of a target variable by learning simple decision rules inferred from the data features.

Implementation:

1. **sklearn.preprocessing.LabelEncoder**

Syntax:

class sklearn.preprocessing.**LabelEncoder()**¶

Encode target labels with value between 0 and n_classes-1.

2. **sklearn.tree.DecisionTreeClassifier**

Syntax:

class sklearn.tree.**DecisionTreeClassifier**(*criterion='entropy'*,) ¶

Trains decision tree classifier.

3. **sklearn.model_selection.cross_val_score**

Syntax:

sklearn.model_selection.**cross_val_score**(*estimator*, *X*, *y=None*, ***, *groups=None*, *scoring=None*, *cv=None*, *n_jobs=None*, *verbose=0*, *fit_params=None*, *pre_dispatch='2*n_jobs'*, *error_score=nan*)

Evaluate a score by cross-validation.

About Dataset:

(Describe your dataset)

Conclusion: In this way, we have studied and implemented the Decision Tree Algorithm for the classification task. We also performed the k-fold cross validation.