Q.1

- **Code file:** DecisionTree/DecesionTreeID3.py **(run with python 3)**

- Pass .csv files as train and test at line numbers : 114 , 115
- Have included sample test and train csv files : test_data.csv, train_data.csv
- Wrote using pandas instead of numpy arrays

- Code selects the attribute with maximum information gain and makes it root of the tree.(Line Numbers 95 & 96)
- The fit method takes the pandas dataframe and processes the sample features and labels (id3 method). It selects the best feature as the node. The values for children are corresponding to dominant label for the feature value samples.
- The predict method takes pandas dataframe and outputs the predicted labels

Results for the samples included:

Information Gain :

outlook : 0.41313246517073876
temperature : 0.054011001976550455
humidity : 0.08497056509056083
wind : 0.1613203669390046

Predictions :
['no' 'no' 'yes' 'yes' 'yes' 'yes' 'yes' 'no' 'no' 'yes' 'no' 'yes' 'yes'
 'yes']