

Date 04/03/2024

15.Aim: Write the python program to implement Decision Tree.

Program: from sklearn import datasets

from sklearn.model_selection import train_test_split

from sklearn.tree import DecisionTreeClassifier

from sklearn.metrics import accuracy_score

Function to get user input for dataset

def get_user_input():

print("Enter the number of samples:")

num_samples = int(input())

print("Enter the number of features:")

num_features = int(input())

X = []

y = []

print("Enter the values for the dataset (one sample per line):")

for i in range(num_samples):

sample = list(map(float, input().split()))

X.append(sample[:-1]) # Features

y.append(sample[-1]) # Target labels

return X, y

Main function

def main():

Get user input for dataset

X, y = get_user_input()

```

# Split the dataset into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)

# Initialize and train the decision tree classifier
clf = DecisionTreeClassifier()
clf.fit(X_train, y_train)

# Make predictions on the testing set
y_pred = clf.predict(X_test)

# Calculate accuracy
accuracy = accuracy_score(y_test, y_pred)
print("Accuracy:", accuracy)

if __name__ == "__main__":
    main()

```

Output:

```

> = RESTART: C:/Users/9550449358/OneDrive/Desktop/ai/15.decision tree
Enter the number of samples:
2
Enter the number of features:
2
Enter the values for the dataset (one sample per line):
78 98
45 56
Accuracy: 0.0
> 55
55
>

```

Result: The given program has been executed successfully

