

▼ DECISION_TREE_CLASSIFIER

▼ Step1 Import Data

```
import pandas as pd
df = pd.read_csv("mldata1 - Copy.csv")
df.head()
```

	age	height	weight	gender	likeness
0	27	170.688	76.0	Male	Biryani
1	41	165	70.0	Male	Biryani
2	29	171	80.0	Male	Biryani
3	27	173	102.0	Male	Biryani
4	29	164	67.0	Male	Biryani



▼ Step2 Making input and output variable

```
df["gender"] = df["gender"].replace("Male",1)
df["gender"] = df["gender"].replace("Female",0)
```

```
# selection of input and output variable
X = df[["weight","gender"]]
y = df["likeness"]
```

▼ Step3 Making Machine Learning Model

```
# Machine learning algorithm
from sklearn.tree import DecisionTreeClassifier
# Create and fit our model
model = DecisionTreeClassifier().fit(X,y)
# predict the result
model.predict([[43,0]])
```

```
⌘ /usr/local/lib/python3.10/dist-packages/sklearn/base.py:439: UserWarning: X does not have valid feature names
  warnings.warn(
  array(['Samosa'], dtype=object)
```

▼ Step4 Checking machine learning model performance

```
# How to measure the accuracy of model
# Split data into test and train(80/20)
from sklearn.model_selection import train_test_split
from sklearn.metrics import accuracy_score
X_train, X_test, y_train, y_test = train_test_split(X,y,test_size=0.2)
#Create a model
model = DecisionTreeClassifier().fit(X_train,y_train)
predicted values = model.predict(X_test)
```

```
predicted_values = model.predict(X_test)
predicted_values
```

```
array(['Biryani', 'Biryani', 'Biryani', 'Biryani', 'Biryani', 'Biryani',
       'Biryani', 'Pakora', 'Biryani', 'Biryani', 'Pakora', 'Biryani',
       'Biryani', 'Biryani', 'Biryani', 'Biryani', 'Biryani', 'Samosa',
       'Biryani', 'Biryani', 'Biryani', 'Pakora', 'Biryani', 'Biryani',
       'Biryani', 'Biryani', 'Biryani', 'Samosa', 'Biryani', 'Samosa',
       'Biryani', 'Biryani', 'Biryani', 'Biryani', 'Biryani', 'Pakora',
       'Biryani', 'Samosa', 'Biryani', 'Samosa', 'Biryani', 'Samosa',
       'Pakora', 'Biryani', 'Biryani', 'Biryani', 'Biryani', 'Biryani',
       'Pakora'], dtype=object)
```

```
#checking the score
```

```
score=accuracy_score(y_test,predicted_values)
score
```

```
0.5306122448979592
```

▼ Step5 Making Visualization

```
# Graph
from sklearn import tree
model = DecisionTreeClassifier().fit(X,y)
# Graphic evaluation/look into what happened
tree.export_graphviz(model,out_file= "foodie.dot",
feature_names=["age","gender"],
class_names=sorted(y.unique()),
label="all",rounded=True,filled=True)
```

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