

▼ MACHINE LEARNING

- ▼ Decision Tree Classifier

▼ Step-1 Import Data

```
import pandas as pd
df=pd.read_csv("mldata1.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

▼ Step-2 Making Input And Output Variables

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

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

▼ Step-3 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, but DecisionTreeClass
warnings.warn(
array(['Samosa'], dtype=object)
```

- ▼ Step-4 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
```

```
array(['Biryani', 'Pakora', 'Biryani', 'Biryani', 'Biryani', 'Biryani',  
      'Biryani', 'Biryani', 'Biryani', 'Biryani', 'Biryani', 'Biryani',
```

```
'Pakora', 'Biryani', 'Samosa', 'Biryani', 'Biryani', 'Samosa',  
'Biryani', 'Biryani', 'Biryani', 'Biryani', 'Biryani', 'Biryani',  
'Biryani', 'Biryani', 'Biryani', 'Samosa', 'Biryani', 'Biryani',  
'Samosa', 'Pakora', 'Biryani', 'Pakora', 'Biryani', 'Biryani',  
'Biryani', 'Pakora', 'Biryani', 'Biryani', 'Biryani', 'Samosa',  
'Samosa', 'Biryani', 'Biryani', 'Biryani', 'Biryani', 'Biryani',  
'Biryani'], dtype=object)
```

```
# checking the score  
score = accuracy_score(y_test, predicted_values)  
score
```

```
0.5714285714285714
```

▼ Step-5 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)
```