

▼ 1 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 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"]
```

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

#Checking the score
score=accuracy_score(y_test, predicted_values)
score

0.7142857142857143
```

▼ Step-5 Mking 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="a
```

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