05_K_Nearest_neighbours

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```python
import pandas as pd
df = pd.read_csv("mldata1.csv")
df["gender"] = df["gender"].replace("Male",1)
df["gender"] = df["gender"].replace("Female",0)
df.head()
```

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

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

```python
# Machine learning algorithm
from sklearn.neighbors import KNeighborsClassifier
# Create and fit our model
model = KNeighborsClassifier(n_neighbors=9)
model.fit(X,y)
# predict the result
predicted =model.predict([[59,1]])  # 70 Weight, 1 Male
predicted
```

```
c:\Users\Saeed Ahmad\AppData\Local\Programs\Python\Python310\lib\site-
packages\sklearn\base.py:450: UserWarning: X does not have valid feature names,
but KNeighborsClassifier was fitted with feature names
  warnings.warn(
```

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

```python
# 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)
```

```python
#Create and fit a model
model = KNeighborsClassifier(n_neighbors=9).fit(X_train,y_train)
# predicting output
predicted_values = model.predict(X_test)
predicted_values
```

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

```python
[ ]: # checking score
     score = accuracy_score(y_test, predicted_values)
     score
```

```
[ ]: 0.7755102040816326
```

```
[ ]:
```