

```
In [ ]: # Name : Shubham Sapkal
# Roll No. : 2012118
# subject: ML DL
# practical no. : 8
```

## Import Labraries

```
In [ ]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

## Loading Datasets

```
In [ ]: df = pd.read_csv("Social_Network_Ads.csv")
df.head()
```

```
Out[ ]:
```

	User ID	Gender	Age	EstimatedSalary	Purchased
0	15624510	Male	19	19000	0
1	15810944	Male	35	20000	0
2	15668575	Female	26	43000	0
3	15603246	Female	27	57000	0
4	15804002	Male	19	76000	0

```
In [ ]: X = df.iloc[:,[1,2,3]].values
y = df.iloc[:, -1].values
```

```
In [ ]: X
y
```

```
Out[ ]: array([0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1,
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        0, 1, 0, 0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 0, 1,
        1, 1, 0, 1], dtype=int64)
```

```
In [ ]: from sklearn.preprocessing import LabelEncoder
le = LabelEncoder()
X[:,0] = le.fit_transform(X[:,0])
```

In [ ]: X

Out[ ]: array([[1, 19, 19000],  
[1, 35, 20000],  
[0, 26, 43000],  
...,  
[0, 50, 20000],  
[1, 36, 33000],  
[0, 49, 36000]], dtype=object)

In [ ]: from sklearn.model\_selection import train\_test\_split  
X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size = 0.20, random\_state

In [ ]: from sklearn.preprocessing import StandardScaler  
sc = StandardScaler()  
X\_train = sc.fit\_transform(X\_train)  
X\_test = sc.transform(X\_test)

In [ ]: X\_train

```
Out[ ]: array([[ 1.02532046e+00,  1.92295008e+00,  2.14601566e+00],
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```

```
In [ ]: from sklearn.naive_bayes import GaussianNB
        classifier = GaussianNB()
        classifier.fit(X_train, y_train)
```

```
Out[ ]: GaussianNB()
```

```
In [ ]: y_pred = classifier.predict(X_test)
        y_pred
```

```
Out[ ]: array([0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 0, 1,
               0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0,
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               0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1], dtype=int64)
```

```
In [ ]: y_test
```

```
Out[ ]: array([0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 1,
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```

## Making the Confusion Matrix

```
In [ ]: from sklearn.metrics import confusion_matrix, accuracy_score
        ac = accuracy_score(y_test, y_pred)
        cm = confusion_matrix(y_test, y_pred)
        ac
```

```
Out[ ]: 0.925
```

```
In [ ]: cm
```

```
Out[ ]: array([[56,  2],
               [ 4, 18]], dtype=int64)
```

```
In [ ]:
```