In [1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

In [2]:
```
from sklearn.linear_model import LogisticRegression
```

In [3]:
```
df=pd.read_csv("bmi.csv").dropna()
df
```

	Gender	Height	Weight	Index
0	Male	174	96	4
1	Male	189	87	2
2	Female	185	110	4
3	Female	195	104	3
4	Male	149	61	3
...	...	...	...	...
495	Female	150	153	5
496	Female	184	121	4
497	Female	141	136	5
498	Male	150	95	5
499	Male	173	131	5

500 rows × 4 columns

In [4]:
```
df.dropna(inplace=True)
```

In [5]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 500 entries, 0 to 499
Data columns (total 4 columns):
 #   Column  Non-Null Count  Dtype 
---  ------  --------------  ----- 
 0   Gender  500 non-null    object
 1   Height  500 non-null    int64 
 2   Weight  500 non-null    int64 
 3   Index   500 non-null    int64 
dtypes: int64(3), object(1)
memory usage: 19.5+ KB
```

In [6]:
```
feature_matrix = df[['Height','Weight','Index']]
target_vector = df['Gender']
```

In [7]:
```
feature_matrix.shape
```

Out[7]:
```
(500, 3)
```

In [8]:
```
target_vector.shape
```

Out[8]:
```
(500,)
```

In [9]:
```
from sklearn.preprocessing import StandardScaler
```

In [10]:
```
fs = StandardScaler().fit_transform(feature_matrix)
```

In [11]:
```
logr = LogisticRegression()
logr.fit(fs,target_vector)
```

Out[11]:
```
LogisticRegression()
```

In [12]:
```
feature_matrix.shape
```

Out[12]:
```
(500, 3)
```

In [13]:
```
target_vector.shape
```

Out[13]:
```
(500,)
```

In [14]:
```
from sklearn.preprocessing import StandardScaler
```

In [15]:
```
fs = StandardScaler().fit_transform(feature_matrix)
```

In [16]:
```
logr = LogisticRegression()
logr.fit(fs,target_vector)
```

Out[16]:
```
LogisticRegression()
```

In [18]:
```
observation=df[['Height','Weight','Index']]
```

In [19]:
```
prediction = logr.predict(observation)
prediction
```

```
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Male', 'Female', 'Female', 'Female', 'Female',
       'Female', 'Female', 'Female'], dtype=object)
```

In [20]:
```
logr.classes_
```

Out[20]:
```
array(['Female', 'Male'], dtype=object)
```

In [21]:
```
logr.predict_proba(observation)[0][1]
```

Out[21]:
```
0.013560340101419254
```