```python
In [1]: import pandas as pd
        import numpy as np
        import matplotlib.pyplot as plt
        import seaborn as sns
        from sklearn.linear_model import LogisticRegression
        from sklearn.model_selection import train_test_split
```

```python
In [2]: df=pd.read_csv(r"C6_bmi.csv")
        df
```

Out[2]:

	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

```python
In [3]: df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 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: 15.8+ KB
```

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

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

Out[5]:

	Height	Weight	Index
count	500.000000	500.000000	500.000000
mean	169.944000	106.000000	3.748000
std	16.375261	32.382607	1.355053
min	140.000000	50.000000	0.000000
25%	156.000000	80.000000	3.000000
50%	170.500000	106.000000	4.000000
75%	184.000000	136.000000	5.000000
max	199.000000	160.000000	5.000000

In [6]: `df.columns`

Out[6]: `Index(['Gender', 'Height', 'Weight', 'Index'], dtype='object')`

In [7]:
```python
x=df[['Height', 'Weight', 'Index']]
y=df['Gender']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.3)
lr=LogisticRegression()
lr.fit(x_train,y_train)
```

Out[7]: `LogisticRegression()`

In [8]: `lr.predict(x_test)`

Out[8]:
```
array(['Male', 'Male', 'Male', 'Female', 'Male', 'Female', 'Female',
       'Female', 'Male', 'Male', 'Female', 'Male', 'Male', 'Female',
       'Female', 'Male', 'Female', 'Male', 'Female', 'Female', 'Male',
       'Female', 'Female', 'Female', 'Male', 'Female', 'Female', 'Male',
       'Female', 'Male', 'Male', 'Male', 'Female', 'Male', 'Female',
       'Male', 'Male', 'Male', 'Female', 'Female', 'Male', 'Female',
       'Male', 'Female', 'Female', 'Female', 'Male', 'Male', 'Male',
       'Male', 'Female', 'Female', 'Female', 'Female', 'Male', 'Male',
       'Female', 'Male', 'Female', 'Male', 'Female', 'Female', 'Female',
       'Male', 'Male', 'Female', 'Female', 'Male', 'Female', 'Female',
       'Female', 'Male', 'Male', 'Male', 'Male', 'Male', 'Male', 'Female',
       'Male', 'Female', 'Female', 'Male', 'Male', 'Male', 'Male',
       'Female', 'Female', 'Male', 'Female', 'Female', 'Female', 'Female',
       'Male', 'Female', 'Male', 'Male', 'Female', 'Male', 'Male', 'Male',
       'Male', 'Male', 'Male', 'Female', 'Female', 'Female', 'Female',
       'Male', 'Female', 'Female', 'Female', 'Female', 'Male', 'Female',
       'Male', 'Male', 'Female', 'Male', 'Male', 'Female', 'Female',
       'Male', 'Male', 'Female', 'Male', 'Female', 'Male', 'Male',
       'Female', 'Female', 'Male', 'Male', 'Male', 'Female', 'Male',
       'Female', 'Female', 'Male', 'Female', 'Male', 'Male', 'Male',
       'Male', 'Male', 'Female', 'Female', 'Female', 'Female', 'Female',
       'Male'], dtype=object)
```

In [9]:
```python
lr.score(x_test,y_test)
```

Out[9]: 0.4866666666666667

In [10]:
```python
from sklearn.preprocessing import StandardScaler
fs=StandardScaler().fit_transform(x)
logr=LogisticRegression()
logr.fit(fs,y)
```

Out[10]: LogisticRegression()

In [12]:
```python
o=[[6,7,8]]
prediction=logr.predict(o)
print(prediction)
```

['Male']

In [13]:
```python
logr.classes_
```

Out[13]: array(['Female', 'Male'], dtype=object)

In [14]:
```python
logr.predict_proba(o)[0][0]
```

Out[14]: 0.35369339759195684

In [15]:
```python
logr.predict_proba(o)[0][1]
```

Out[15]: 0.6463066024080432

In [ ]: