```
In [1]: import numpy as np
        import pandas as pd
        df=pd.read_csv('Social_Network_Ads.csv')
        df
```

Out[1]:

	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
...	...	...	...	...	...
395	15691863	Female	46	41000	1
396	15706071	Male	51	23000	1
397	15654296	Female	50	20000	1
398	15755018	Male	36	33000	0
399	15594041	Female	49	36000	1

400 rows × 5 columns

```
In [2]: df.head()
```

Out[2]:

	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 [3]: features=df.iloc[:,[2,3]].values
        label=df.iloc[:,4].values
        features
```

```
Out[3]: array([[     19,   19000],
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```
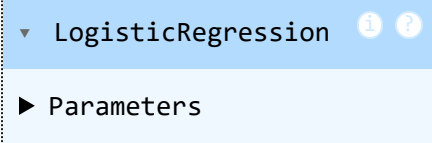
In [4]: `label`

Out[4]:
```
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       1, 1, 0, 1])
```

In [5]:
```python
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
```

In [ ]:
```python
for i in range(1,401):
    x_train,x_test,y_train,y_test=train_test_split(features,label,test_size=0.2, ra
    model=LogisticRegression()
    model.fit(x_train,y_train)
    train_score=model.score(x_train,y_train)
    test_score=model.score(x_test,y_test)
    if test_score>train_score:
        print("Test {} Train{} Random State {}".format(test_score,train_score,i))
```

In [11]:
```python
x_train,x_test,y_train,y_test=train_test_split(features,label,test_size=0.2, random
finalModel=LogisticRegression()
finalModel.fit(x_train,y_train)
```

Out[11]:
```
▼ LogisticRegression  ⓘ ⓘ

▶ Parameters
```

In [12]:
```python
print(finalModel.score(x_train,y_train))
print(finalModel.score(x_test,y_test))
```

```
0.8375
0.8875
```

In [13]:
```python
from sklearn.metrics import classification_report
print(classification_report(label,finalModel.predict(features)))
```

```
              precision    recall  f1-score   support

           0       0.85      0.93      0.89       257
           1       0.85      0.70      0.77       143

    accuracy                           0.85       400
   macro avg       0.85      0.81      0.83       400
weighted avg       0.85      0.85      0.84       400
```

In [ ]: