

In [1]:

```
from sklearn.datasets import make_classification
import matplotlib.pyplot as plt
from sklearn.linear_model import LogisticRegression
from sklearn.model_selection import train_test_split
from sklearn.metrics import confusion_matrix
import pandas as pd
```

In [2]:

```
# Generate and dataset for Logistic Regression
x,y = make_classification(
    n_samples=100,
    n_features=1,
    n_classes=2,
    n_clusters_per_class=1,
    flip_y=0.03,
    n_informative=1,
    n_redundant=0,
    n_repeated=0
)
print(x)
```

```
[[ 1.11343261]
 [-0.43200642]
 [-2.28411114]
 [ 0.76701004]
 [-2.38065212]
 [ 1.20430703]
 [ 0.78615695]
 [ 0.90489822]
 [-1.05467816]
 [-0.93048   ]
 [ 0.13658307]
 [ 1.28681406]
 [ 0.85229291]
 [-1.03619923]
 [ 1.32132842]
 [ 1.08954273]
 [ 0.82799711]
 [-1.4028059  ]
 [ 1.35675851]
 [-2.10347388]
 [ 1.11764777]
 [-1.92118283]
 [ 0.70107465]
 [ 0.66732065]
 [ 1.21053014]
 [-1.65500623]
 [ 1.19620336]
 [ 1.09103759]
 [-0.80384519]
 [ 1.00006568]
 [ 0.65525432]
 [ 1.01635218]
 [-1.98807746]
 [-1.72181938]
 [ 1.12801073]
 [-1.93608457]
 [ 1.26718869]
 [ 0.95609369]
 [-2.93724053]
 [ 0.93692559]
 [-0.91869495]
 [-1.03036268]
 [-1.49999277]
 [ 0.78338499]
 [-0.43097165]
 [ 0.87676104]
```

```
[ 1.08013297]
[-1.59064251]
[ 1.02935549]
[-1.90343681]
[ 1.19244277]
[-1.22186639]
[-0.78254932]
[-0.68642297]
[ 1.09297065]
[ 1.10398734]
[-0.90101926]
[-0.32557296]
[-0.58954955]
[-1.32458145]
[-1.04012918]
[-2.23119414]
[ 1.07970287]
[ 1.07502859]
[ 1.0220102 ]
[-1.13384234]
[ 0.93721745]
[-1.32908046]
[ 0.91549928]
[-0.67009172]
[ 1.07117601]
[ 1.00919549]
[-1.98520101]
[ 1.26921215]
[-3.02441104]
[ 0.76323898]
[ 0.83399331]
[-1.0823292 ]
[ 0.25338349]
[-0.27680326]
[-0.62140678]
[ 0.659639 ]
[ 0.78049465]
[ 0.95382893]
[-1.14030706]
[ 0.87920263]
[ 1.3391158 ]
[-0.29709614]
[-1.51877036]
[-0.12832654]
[ 1.15096603]
[ 1.07651376]
[-1.31443452]
[ 0.97409157]
[ 0.54239325]
[ 1.23072139]
[-0.9265511 ]
[-1.85122628]
[ 0.88998984]
[ 1.09558983]]
```

In [3]:

```
# Create a scatter plot
plt.scatter(x, y, c=y, cmap='rainbow')
plt.title('Scatter Plot of Logistic Regression')
plt.show()
```



In [4]:

```
# Split the dataset into training and test dataset
x_train, x_test, y_train, y_test = train_test_split(x, y, random_state=1)# splitting the data
```

In [5]:

```
y_test.shape
```

Out[5]:

(25,)

In [6]:

```
# Create a Logistic Regression Object, perform Logistic Regression
log_reg = LogisticRegression()
log_reg.fit(x_train, y_train)
```

Out[6]:

LogisticRegression()

In [7]:

```
# Show to Coefficient and Intercept  
print(log_reg.coef_)  
print(log_reg.intercept_)
```

```
[[2.59685138]]  
[-0.58761801]
```

In [10]:

```
# Perform prediction using the test dataset  
y_pred = log_reg.predict(x_test)  
print(y_pred)
```

```
[0 0 0 1 1 0 1 1 0 0 0 1 0 0 0 0 1 0 1 0 0 1 0 1 0]
```

In [9]:

```
# Show the Confusion Matrix  
confusion_matrix(y_test, y_pred)
```

Out[9]:

```
array([[16,  2],  
       [ 0,  7]], dtype=int64)
```