In [1]:

```
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
```

In [4]:

```
dfx = pd.read_csv('x_data.csv.txt')
dfy = pd.read_csv('y_data.csv.txt')
```

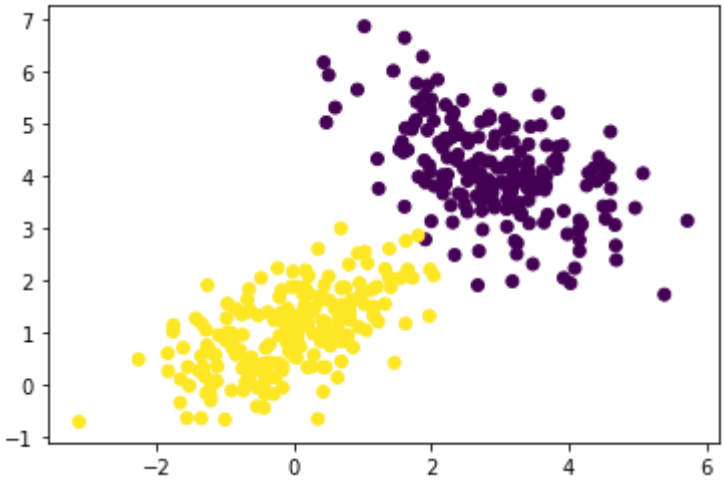
In [8]:

```
X = dfx.values
Y = dfy.values

X = X[:,1:]
Y = Y[:,1:].reshape((-1,))

print(X.shape)
print(Y.shape)
```

```
(399, 2)
(399,)
```

In [11]:

```
# Visualization
plt.scatter(X[:,0],X[:,1],c=Y)
plt.show()
```



In [17]:

```
def dist(x1,x2):
    return np.sqrt(sum((x1-x2)**2))

def KNN(X,Y,query_point,K=5):
    vals = []
    m = X.shape[0]

    for i in range(m):
        d = dist(query_point,X[i])
        vals.append((d,Y[i]))

    vals = sorted(vals)
    # Nearest/First K points
    vals = vals[:K]

    vals = np.array(vals)
    print("Vals: ",vals)
    new_vals = np.unique(vals[:,1],return_counts=True)
    print(new_vals)

    index = new_vals[1].argmax()
    pred = new_vals[0][index]

    return pred
```

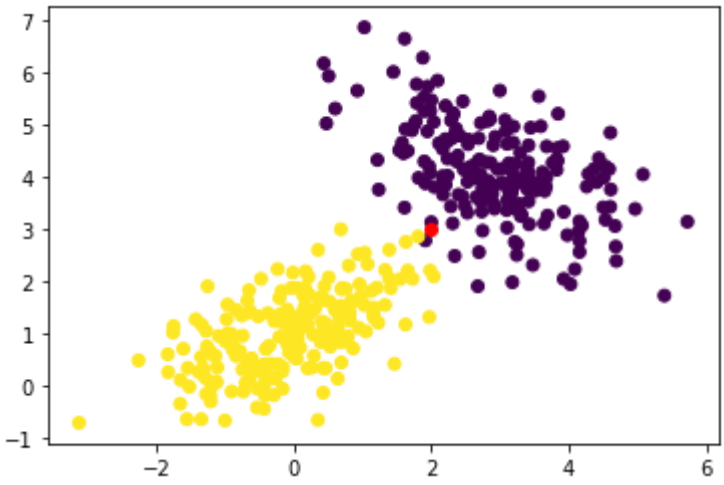
In [21]:

```
query = [2,3]
ans = KNN(X,Y,query)
print("Ans: ",ans)
```

```
Vals:  [[0.11937695 0.        ]
 [0.24392799 1.        ]
 [0.24435617 0.        ]
 [0.32750158 0.        ]
 [0.44941874 1.        ]]
(array([0., 1.]), array([3, 2], dtype=int64))
Ans:  0.0
```

In [22]:

```
# Visualization
plt.scatter(X[:,0],X[:,1],c=Y)
plt.scatter(query[0],query[1],color='red')
plt.show()
```



In [ ]: