

## Optimize heart excel file.

1) Learning rate = 0.1, Iteration = 10000, Test size = 0.1, Accuracy = 83 %

### Calculate Accuracy

```
In [18]: 1 def Accuracy(Predict_target):
2         count_Accuracy = 0
3         for i in range(len(y_test)):
4             if(Predict_target[i] == y_test[i]):
5                 count_Accuracy +=1
6
7         return round((count_Accuracy/y_test.shape[0]) * 100 )
```

```
In [19]: 1 w = SVM(X_train,y_train,10000,.1)
2         predict_List = predict(X_test,w)
3         print("Accuracy :", Accuracy(predict_List) ,"%")
```

Accuracy : 83 %

2) Learning rate = 0.01, Iteration = 10000, Test size = 0.2, Accuracy = 75 %

### Calculate Accuracy

```
In [26]: 1 def Accuracy(Predict_target):
2         count_Accuracy = 0
3         for i in range(len(y_test)):
4             if(Predict_target[i] == y_test[i]):
5                 count_Accuracy +=1
6
7         return round((count_Accuracy/y_test.shape[0]) * 100 )
```

```
In [27]: 1 w = SVM(X_train,y_train,10000,.01)
2         predict_List = predict(X_test,w)
3         print("Accuracy :", Accuracy(predict_List) ,"%")
```

Accuracy : 75 %

3) Learning rate = 1 , Iteration = 13000 , Test size = 0.35 , Accuracy = 61 %

### Calculate Accuracy

```
In [42]: 1 def Accuracy(Predict_target):
2         count_Accuracy = 0
3         for i in range(len(y_test)):
4             if(Predict_target[i] == y_test[i]):
5                 count_Accuracy +=1
6
7         return round((count_Accuracy/y_test.shape[0]) * 100 )
```

```
In [43]: 1 w = SVM(X_train,y_train,13000,1)
2         predict_List = predict(X_test,w)
3         print("Accuracy :", Accuracy(predict_List) ,"%")
```

Accuracy : 61 %

4) Learning rate = 0.01, Iteration = 10000, Test size = 0.49, Accuracy = 58 %

### Calculate Accuracy

```
In [34]: 1 def Accuracy(Predict_target):
2         count_Accuracy = 0
3         for i in range(len(y_test)):
4             if(Predict_target[i] == y_test[i]):
5                 count_Accuracy +=1
6
7         return round((count_Accuracy/y_test.shape[0]) * 100 )
```

```
In [35]: 1 w = SVM(X_train,y_train,10000,.01)
2         predict_List = predict(X_test,w)
3         print("Accuracy :", Accuracy(predict_List) ,"%")
```

Accuracy : 58 %

**5) Learning rate = 0.001 , Iteration = 10000 , Test size = 0.9 , Accuracy = 55 %**

### Calculate Accuracy

```
In [82]: 1 def Accuracy(Predict_target):  
2         count_Accuracy = 0  
3         for i in range(len(y_test)):  
4             if(Predict_target[i] == y_test[i]):  
5                 count_Accuracy +=1  
6  
7         return round((count_Accuracy/y_test.shape[0]) * 100 )
```

```
In [83]: 1 w = SVM(X_train,y_train,10000,0.001)  
2         predict_List = predict(X_test,w)  
3         print("Accuracy :", Accuracy(predict_List) , "%")
```

Accuracy : 55 %