**实验 二支持向量机**

1. **实验代码**

**import** numpy **as** np  
**import** xlrd  
**from** sklearn **import** svm  
**from** sklearn.model\_selection **import** train\_test\_split  
**from** sklearn.metrics **import** classification\_report  
**def** open\_excel(file):  
  
 **try**:  
 data = xlrd.open\_workbook(file)  
 **return** data  
 **except** Exception **as** e:  
 print(str(e))  
**def** split\_feature(row):  
  
 app = []  
 **for** i **in** range(16):  
 app = app + [row[i]]  
 **return** app  
**def** loadDataSet(path, training\_sample, colnameindex=0, by\_name=**u'sheet1'**):  
  
 dataMat = []  
 labelMat = []  
 filename = path + training\_sample  
 data = open\_excel(filename)  
 table = data.sheet\_by\_name(by\_name)  
 nrows = table.nrows  
 **for** rownum **in** range(1, nrows):  
 row = table.row\_values(rownum)  
 **if** row:  
 app =split\_feature(row)  
 dataMat.append(app)  
 labelMat.append(float(row[16]))  
 **return** dataMat, labelMat  
**def** main():  
 path = **"D:\\"** training\_sample = **'featuredata.xls'** trainingSet, trainingLabels = loadDataSet(path, training\_sample)  
 x = np.array(trainingSet)  
 y = np.array(trainingLabels)  
  
 train\_data, test\_data, train\_label, test\_label = train\_test\_split(x, y, random\_state=1, test\_size=0.3)  
  
 clf = svm.SVC(C=0.8, kernel=**'rbf'**, gamma=1, decision\_function\_shape=**'ovr'**)  
 clf.fit(train\_data, train\_label.ravel())  
 hat\_test\_label = clf.predict(test\_data)  
 print(classification\_report(test\_label, hat\_test\_label))  
  
main()

1. **运行结果**

