Linear Classification. In-class Exercise 1 Solution

EL-GY 6143 Intro Machine Learning. Prof. Sundeep Rangan

Question

Complete the inclass exercise in demo_breast_cancer.ipynb:

In-Class Exercise

Based on the above plot, what would be a good "classifer" using the two features. That is, write a function that makes a prediction `yhat` of the class label `y`. Code up your classifier function. Measure the accuracy of the classifier on the data. What percentage error does your classifier get?

Solution

One possible solution is as follows:

```python
# A simple function with a linear decision rule
def predict(X):
    marg = X[:,1]
    size_unif = X[:,0]
    z = marg + 2/3*size_unif - 4
    yhat = (z > 0).astype(int)
    return yhat

# Test on the data
yhat = predict(X)
acc = np.mean(y == yhat)
print('Accuracy = %7.4f' % acc)
```

```
Accuracy =  0.9268
```