END3971 Artificial Intelligence & Expert Systems

Assignment #2

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1 Logistic Regression

1.1 Package

Scikit-learn package has been chosen. It features classification, regression, clustering algorithms. This library is used for solving machine learning problems. Thus, our models were created with "LogisticRegression" function. We used "train_test_split" function to split data into random training and test subsets. 70% of splitted datas have been used for training. The reason why we set random_state to 0 is to keep the random data stable each running and not change the outputs.

1.2 Logistic Regression Function

lr1 = LogisticRegression(solver = "sag", max_iter = 5)

lr2 = LogisticRegression(max_iter = 1000, solver = 'newton-cg')

lr3 = LogisticRegression(solver = "sag", max_iter = 500)

lr4 = LogisticRegression(max_iter = 5, solver = 'newton-cg')

lr1.fit(x_train,y_train)

lr2.fit(x_train,y_train)

lr3.fit(x_train,y_train)

lr4.fit(x_train,y_train)

Following this, "solver" has been chosen as Parameter 1 and "max_iter" has been chosen as Parameter 2. Then, to pick two different values for these parameters:
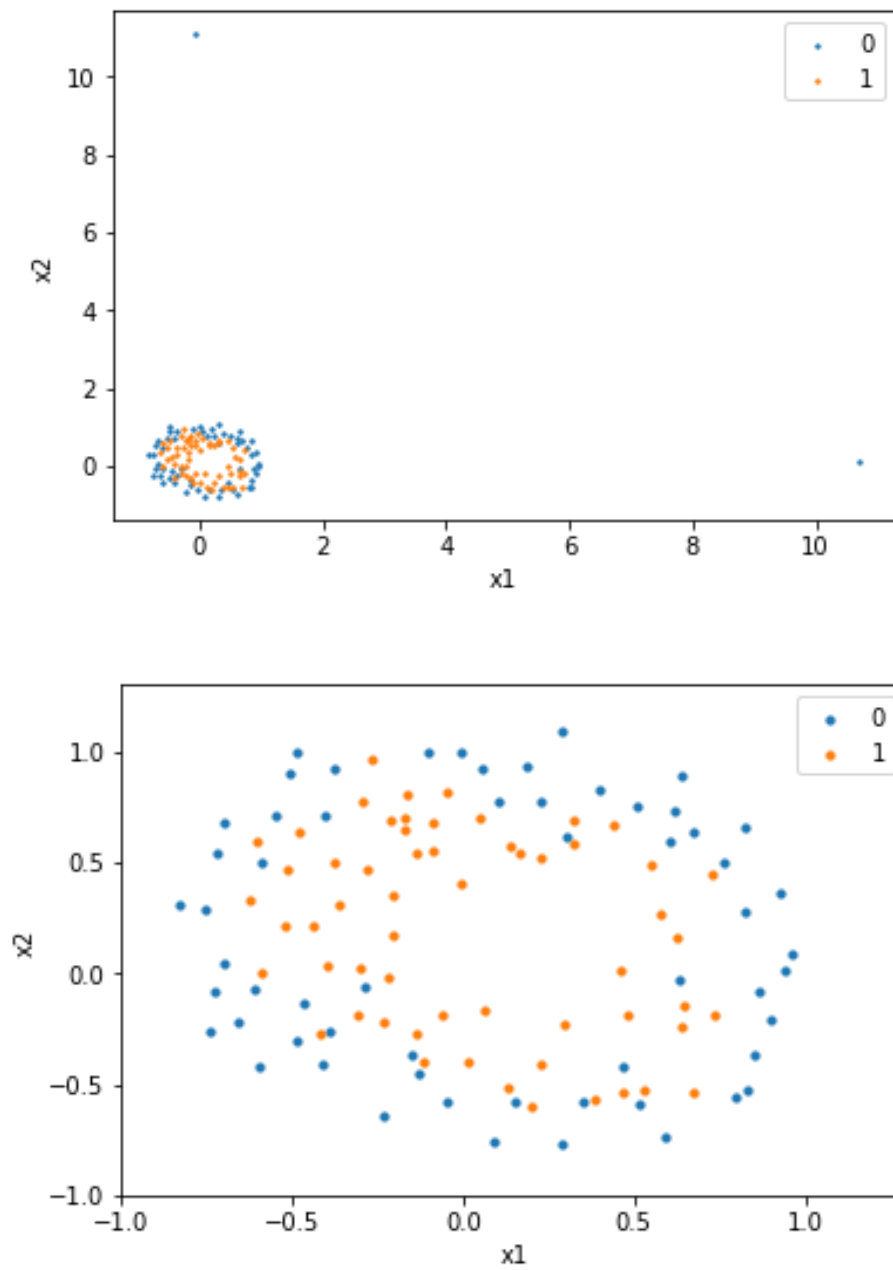
"solver = **sag**" has been chosen as *Parameter 1.1*

"solver = **newton-cg**" has been chosen as *Parameter 1.2*

"max_iter = **5"** has been chosen as *Parameter 2.1*

"max_iter = **1000"** has been chosen as *Parameter 2.2*

1.3 Visualize the Data

1.4 Accuracy

Accuracy	Parameter 2.1	Parameter 2.2
Parameter 1.1	0.4583333333333333	0.4583333333333333
Parameter 1.2	0.4791666666666667	0.4791666666666667