EX NO: 03

DATE:

MULTI-CLASS-CLASSIFICATION

AIM:

To write a python program to implement the multi class classification algorithm .

EQUIPMENTS REQUIRED:

1. Hardware – PCs
2. Anaconda – Python 3.7 Installation / Moodle-Code Runner / Google Colab

RELATED THEORITICAL CONCEPT:

In multi-class classification, the neural network has the same number of output nodes as the number of classes. Each output node belongs to some class and outputs a score for that class. Class is a category for example Predicting animal class from an animal image is an example of multi-class classification, where each animal can belong to only one category.

ALGORITHM:

1. Import the necessary modules
2. Frame the dataset using make_blobs
3. Assign the counter value using the Counter function
4. Using a for loop, plot the points using scatter function

PROGRAM:

```
/*
Program to implement the multi class classifier.
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*/
from numpy import where
from collections import Counter
from sklearn.datasets import make_blobs
from matplotlib import pyplot
X,y=make_blobs(n_samples=1000,centers=3,random_state=1)
print(X.shape,y.shape)
counter=Counter(y)
print(counter)
for i in range(10):
    print(X[i],y[i])
for label,_ in counter.items():
    row_ix=where(y==label)[0]
    pyplot.scatter(X[row_ix,0],X[row_ix,1],label=str(label))
pyplot.legend()
pyplot.show()
```
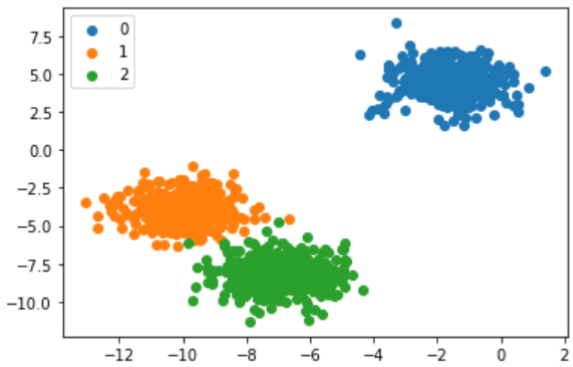

OUTPUT:

```
(1000, 2) (1000,)
Counter({0: 334, 1: 333, 2: 333})
[-3.05837272  4.48825769] 0
[-8.60973869 -3.72714879] 1
[1.37129721 5.23107449] 0
[-9.33917563 -2.9544469 ] 1
[-8.63895561 -8.05263469] 2
[-8.48974309 -9.05667083] 2
[-7.51235546 -7.96464519] 2
[-7.51320529 -7.46053919] 2
[-0.61947075  3.48804983] 0
[-10.91115591  -4.5772537 ] 1
```



RESULT:

Thus the python program to implement the multi class classification was implemented successfully.