IT402 : Soft Computing
Lab Assignment 3

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heart dataset

1) Single preceptron

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Pridiction for n folds where n = 10

Predicted conclusion matrix  [[3, 7], [0, 20]]  Accuracy = 76.66666666666667

Predicted conclusion matrix  [[7, 7], [0, 16]]  Accuracy = 76.66666666666667

Predicted conclusion matrix  [[7, 8], [0, 15]]  Accuracy = 73.33333333333333

Predicted conclusion matrix  [[7, 5], [0, 18]]  Accuracy = 83.33333333333334

Predicted conclusion matrix  [[11, 4], [3, 12]]  Accuracy = 76.66666666666667

Predicted conclusion matrix  [[0, 13], [0, 17]]  Accuracy = 56.666666666666664

Predicted conclusion matrix  [[2, 15], [0, 13]]  Accuracy = 50.0

Predicted conclusion matrix  [[9, 2], [2, 17]]  Accuracy = 86.66666666666667

Predicted conclusion matrix  [[6, 6], [1, 17]]  Accuracy = 76.66666666666667

Predicted conclusion matrix  [[12, 6], [0, 12]]  Accuracy = 80.0

Mean Accuracy : 73.66666666666666

Average of all conclusion matrix  [[6.4, 7.3], [0.6, 15.7]]

Precision = 0.6826086956521739
Recall = 0.9631901840490796

 Graphical representation of confusion matrix
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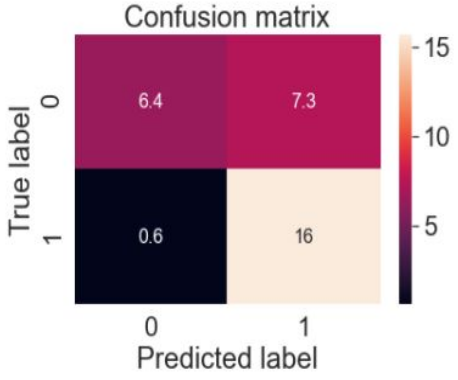
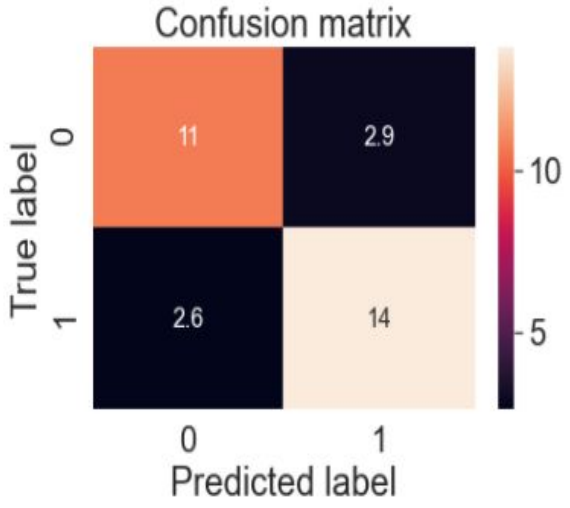


2)Backpropogation

```
Pridiction for n folds where n = 10

Predicted conclusion matrix  [[13, 4], [3, 10]]  Accuracy = 76.66666666666667

Predicted conclusion matrix  [[12, 3], [4, 11]]  Accuracy = 76.66666666666667

Predicted conclusion matrix  [[12, 2], [3, 13]]  Accuracy = 83.33333333333334

Predicted conclusion matrix  [[6, 5], [6, 13]]  Accuracy = 63.33333333333333

Predicted conclusion matrix  [[12, 4], [1, 13]]  Accuracy = 83.33333333333334

Predicted conclusion matrix  [[12, 3], [0, 15]]  Accuracy = 90.0

Predicted conclusion matrix  [[11, 1], [3, 15]]  Accuracy = 86.66666666666667

Predicted conclusion matrix  [[10, 0], [2, 18]]  Accuracy = 93.33333333333333

Predicted conclusion matrix  [[10, 3], [3, 14]]  Accuracy = 80.0

Predicted conclusion matrix  [[9, 4], [1, 16]]  Accuracy = 83.33333333333334

Mean Accuracy : 81.66666666666667
Precision = 0.8263473053892216
Recall = 0.8414634146341463
Average of all conclusion matrix  [[10.7, 2.9], [2.6, 13.8]]
```

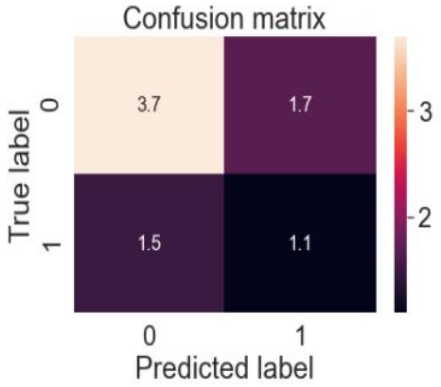
Graphical representation of confusion matrix



Heart_Dataset (dataset)

1)Single preceptron

```
Pridiction for n folds where n = 10

Predicted conclusion matrix  [[4, 2], [1, 1]]  Accuracy = 62.5

Predicted conclusion matrix  [[5, 3], [0, 0]]  Accuracy = 62.5

Predicted conclusion matrix  [[4, 1], [2, 1]]  Accuracy = 62.5

Predicted conclusion matrix  [[4, 1], [2, 1]]  Accuracy = 62.5

Predicted conclusion matrix  [[5, 1], [1, 1]]  Accuracy = 75.0

Predicted conclusion matrix  [[1, 4], [1, 2]]  Accuracy = 37.5

Predicted conclusion matrix  [[2, 1], [5, 0]]  Accuracy = 25.0

Predicted conclusion matrix  [[7, 0], [1, 0]]  Accuracy = 87.5

Predicted conclusion matrix  [[4, 0], [2, 2]]  Accuracy = 75.0

Predicted conclusion matrix  [[1, 4], [0, 3]]  Accuracy = 50.0

Mean Accuracy : 60.0

Average of all conclusion matrix  [[3.7, 1.7], [1.5, 1.1]]

Precision = 0.3928571428571429
Recall = 0.4230769230769231

 Graphical representation of confusion matrix
```



2)Backpropogation

```
Pridiction for n folds where n = 10

Predicted conclusion matrix  [[5, 0], [1, 2]]  Accuracy = 87.5

Predicted conclusion matrix  [[3, 1], [4, 0]]  Accuracy = 37.5

Predicted conclusion matrix  [[6, 1], [0, 1]]  Accuracy = 87.5

Predicted conclusion matrix  [[5, 0], [2, 1]]  Accuracy = 75.0

Predicted conclusion matrix  [[5, 1], [0, 2]]  Accuracy = 87.5

Predicted conclusion matrix  [[2, 2], [2, 2]]  Accuracy = 50.0

Predicted conclusion matrix  [[4, 2], [1, 1]]  Accuracy = 62.5

Predicted conclusion matrix  [[3, 3], [2, 0]]  Accuracy = 37.5

Predicted conclusion matrix  [[3, 3], [1, 1]]  Accuracy = 50.0

Predicted conclusion matrix  [[3, 2], [3, 0]]  Accuracy = 37.5

Mean Accuracy : 61.25
Precision = 0.4
Recall = 0.3846153846153846
Average of all conclusion matrix  [[3.9, 1.5], [1.6, 1.0]]
```

Graphical representation of confusion matrix