ML ASSIGNMENT_1 REPORT

Q-1

There are many evaluation matrices to evaluate the classification problem.
Few of them are studied in the class like precision,recall,F-1,roc,auc curve.

There are few others like-Log-loss,Jaccard Index and Gini Coefficient. These evaluation metrics are explained in the my code file itself.

Q-2

As per the Assignment question order, I am writing the answer to all the questions.

1-Overall Accuracy-75%

Class Wise accuracy
Class 0 -67%
Class 1 -88%
Class 2 -72%
Class 3 -77%

2-Confusion matrices

actual \ predicted	0	1	2	3
0	33	8	4	4
1	1	32	3	0
2	3	2	29	6
3	2	3	3	27

3-Precision and Recall of all the class
Precision:
Class 0 -0.84
Class 1 -0.71
Class 2 -0.74
Class 3-0.72

Recall class wise:
Class 0-0.67
Class 1-0.88
Class 2-0.72
Class 3-0.77

Macro avg:
Macro avg_precision: 0.75
Macro avg_recall: 0.76

Weighted Avg:
Weighted avg Precision: 0.76
Weighted avg recall: 0.75

4-
F-Score
Class 0 :.75
Class 1 :.79
Class 2 :.73
Class 3 :.75

5- Type-1 and type-2 error
Class 0:
T-1- 5.40
T-2- 32.65
Class 1:
T-1- 10.48
T-2- 11.11
Class 2:
T-1- 8.33
T-2- 27.50
Class 3:
T-1- 8.0
T-2- 22.85

5- The values calculated by manually and Using sklearn library are the same. Because they use the same dataset. Comparison table is drawn in a code file.

6-Log loss and Gini coefficient can be used to check the accuracy of the given dataset.