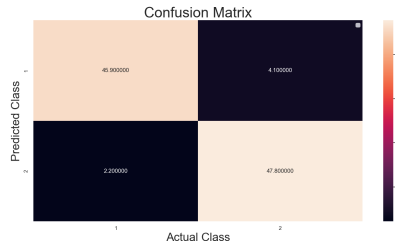
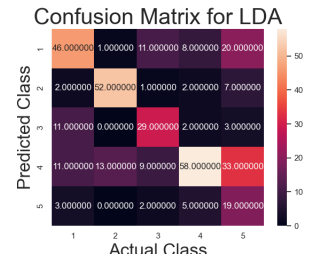
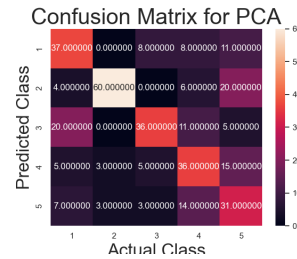
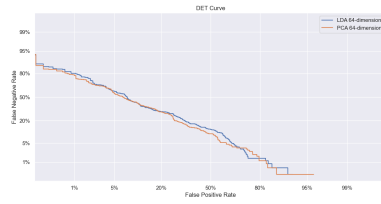
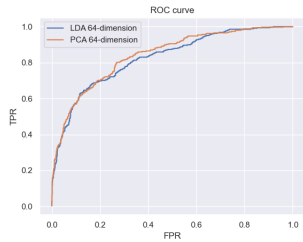


1 K-Nearest Neighbours

1.1 Image data:-



1.1.1 PCA,LDA:-

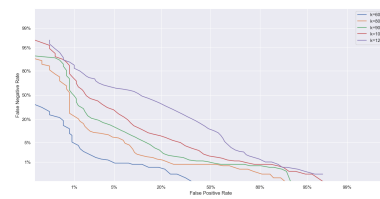
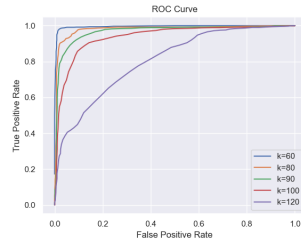
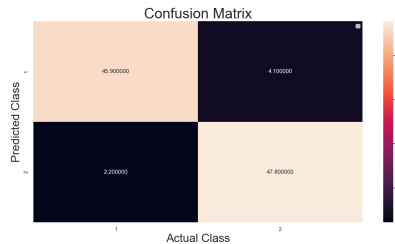


1.1.2 PCA and LDA comparison:-

dimension d	Accuracy with PCA	Accuracy with LDA
d = 8	51.3	47.8
d = 16	54	55
d = 64	57.9	58.6

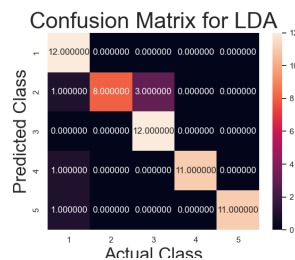
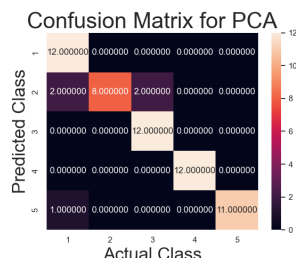
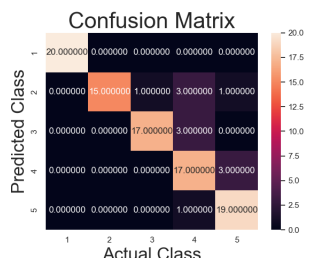
1.2 synthetic data:-

Accuracy is close to 100 for k in between 10 to 50,Confusion matrix is drawn for k=90.

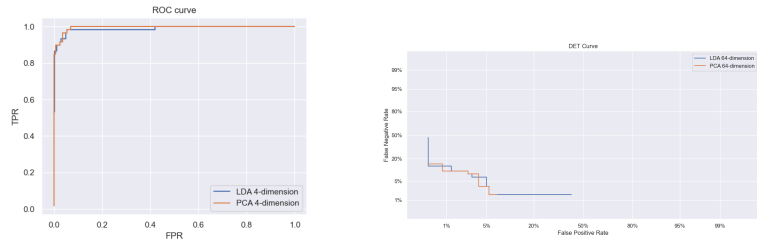


Without PCA and LDA: 93.7%,for k=80

1.3 Handwritten data:-



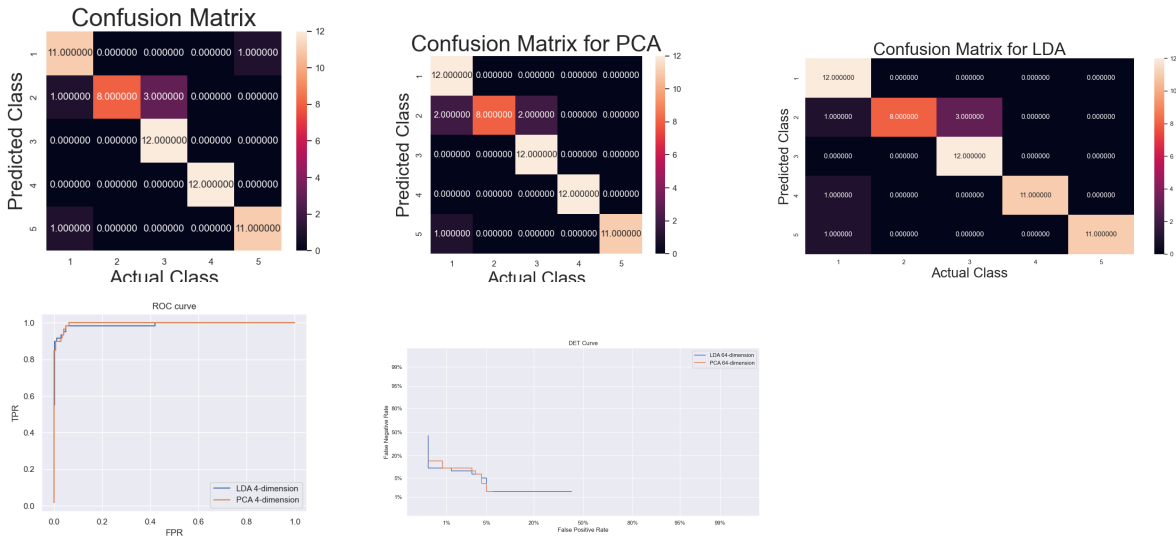
Confusion matrices for cases without pca,lda ,with pca,with lda.



1.3.1 PCA and LDA comparison:-

dimension d	Accuracy with PCA	Accuracy with LDA
d = 4	87	85
d = 8	88.3	87
d = 10	89	88.5

1.4 Spoken digit data:-

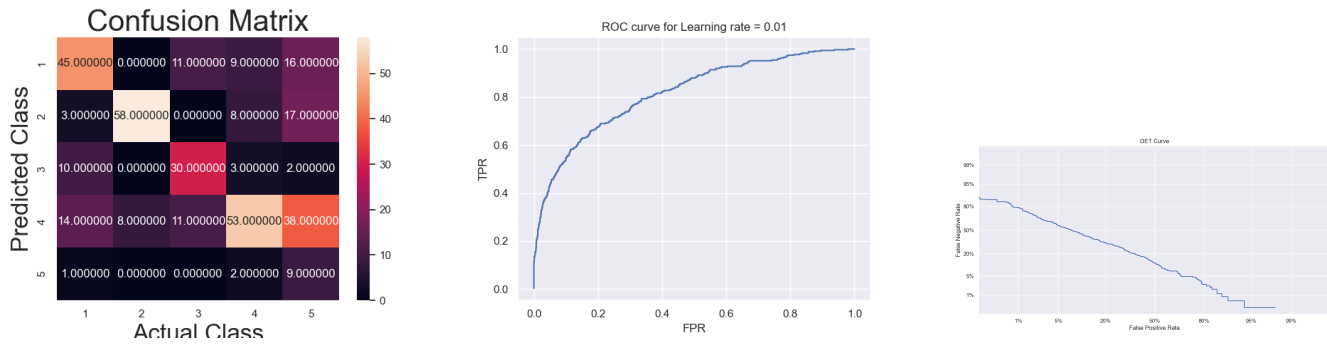


1.4.1 PCA and LDA comparison:-

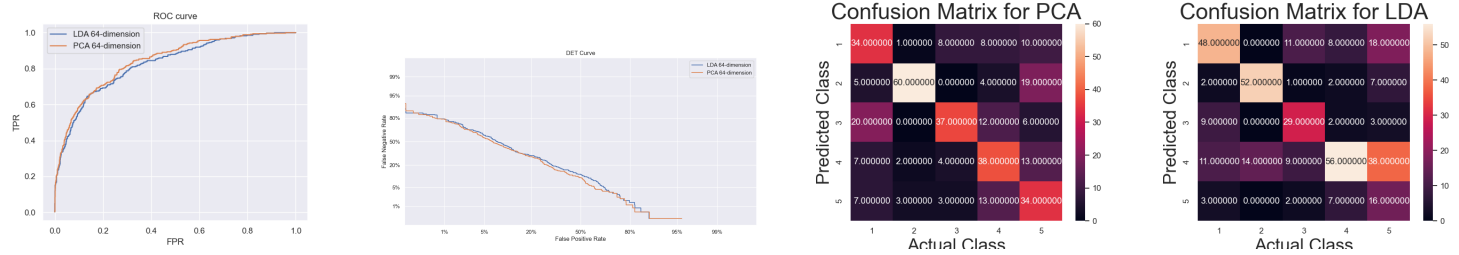
dimension d	Accuracy with PCA	Accuracy with LDA
d = 8	86	83
d = 16	91	87
d = 64	91.6	90

2 Logistic Regression

2.1 Image data:-



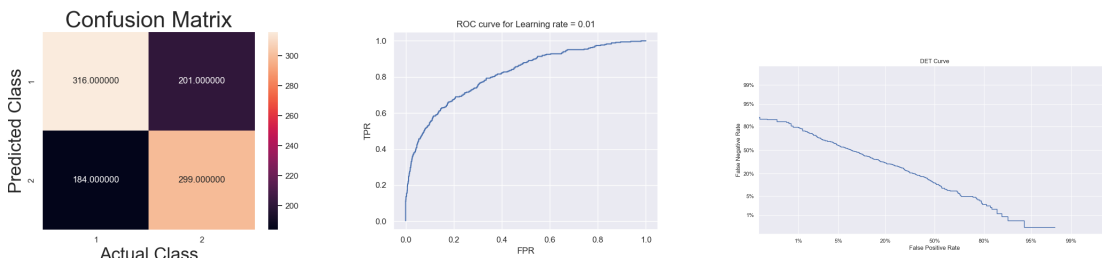
2.1.1 PCA,LDA:-



2.1.2 PCA and LDA comparison:-

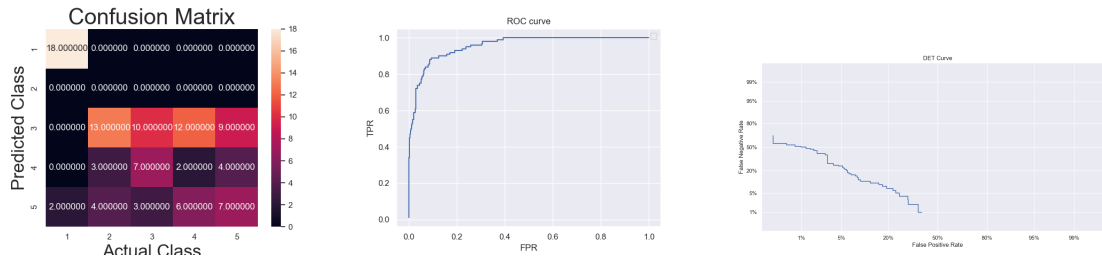
dimension d	Accuracy with PCA	Accuracy with LDA
d = 8	47.3	36.8
d = 16	56.1	48.7
d = 64	59.3	58.1

2.2 Synthetic data:-

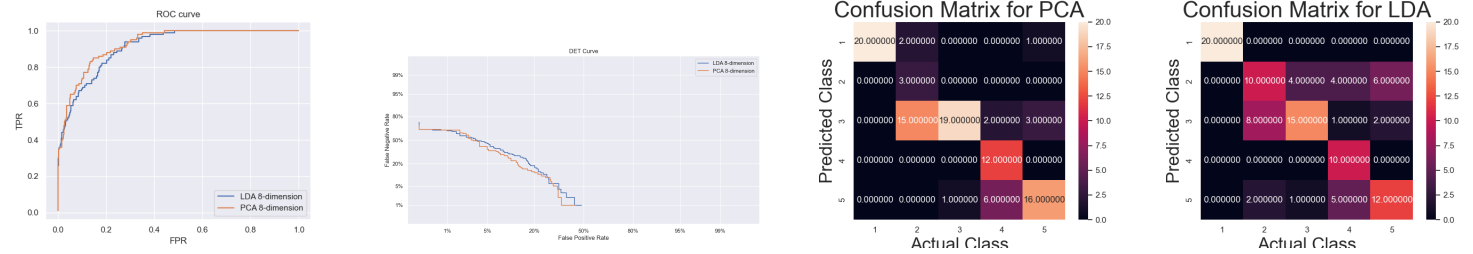


For synthetic data pca and lda is useless as the dimension given itself is very small(dimension given=2).

2.3 Hand-written data:-



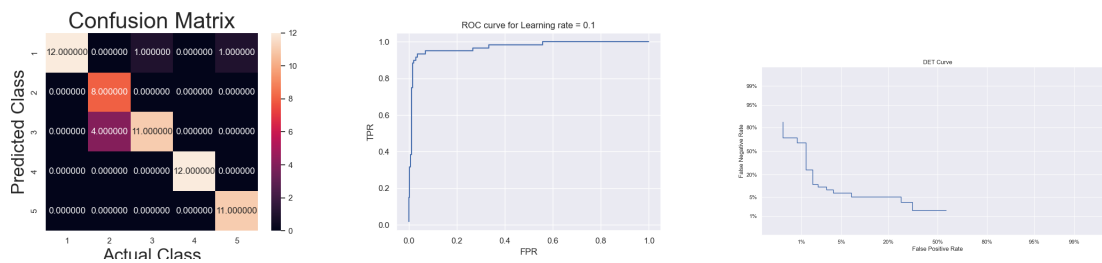
2.3.1 PCA,LDA:-



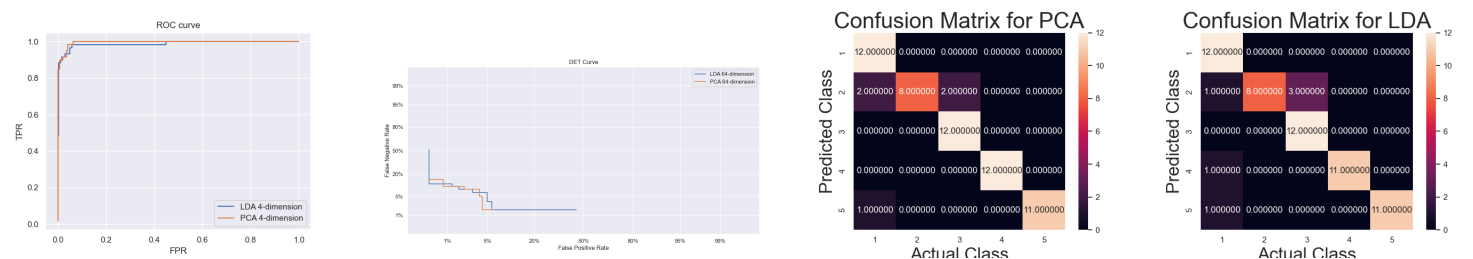
2.3.2 PCA and LDA comparison:-

dimension d	Accuracy with PCA	Accuracy with LDA
d = 4	66	47
d = 8	88.3	67
d = 10	69	65

2.4 Spoken-digit data:-



2.4.1 PCA,LDA:-

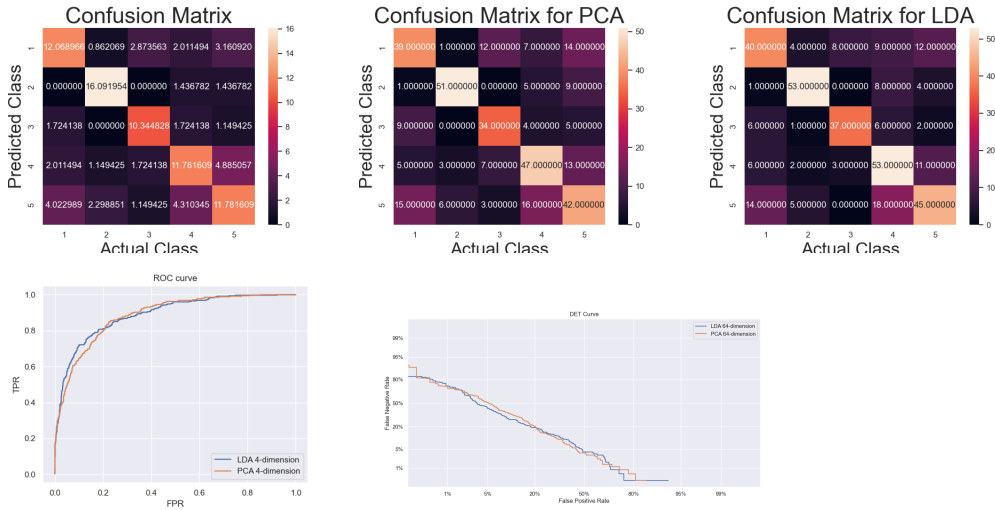


2.4.2 PCA and LDA comparison:-

dimension d	Accuracy with PCA	Accuracy with LDA
d = 8	70	51.3
d = 16	91.6	83
d = 64	90	93.3

3 SVM

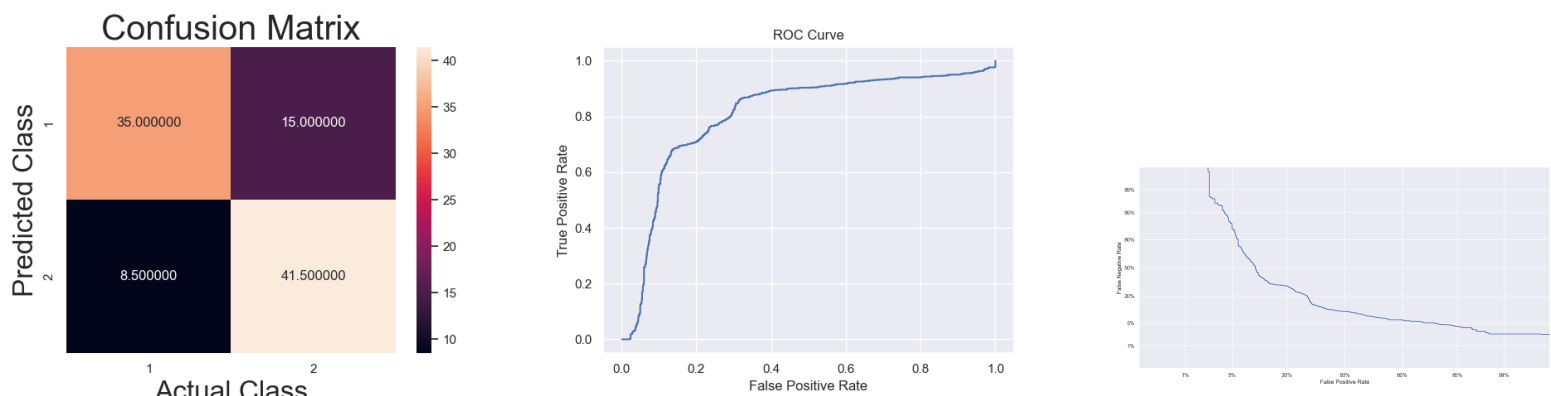
3.1 Image data:-



3.1.1 PCA and LDA comparison:-

dimension d	Accuracy with PCA	Accuracy with LDA
d = 8	52.3	53.8
d = 16	56	62
d = 64	90	93.3

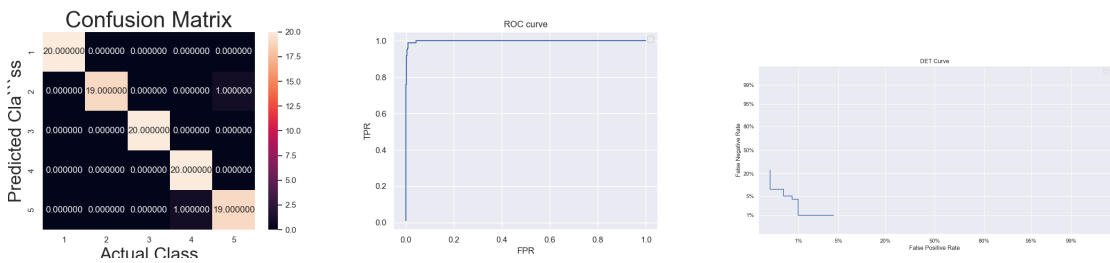
3.2 synthetic data:-



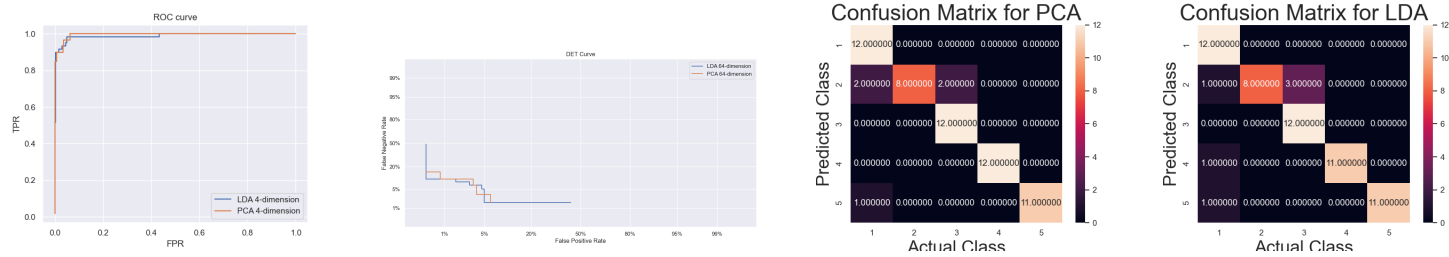
For synthetic data pca and lda is useless as the dimension given itself is very small(dimension given=2).

Accuracy = 77.5

3.3 Handwritten data:-



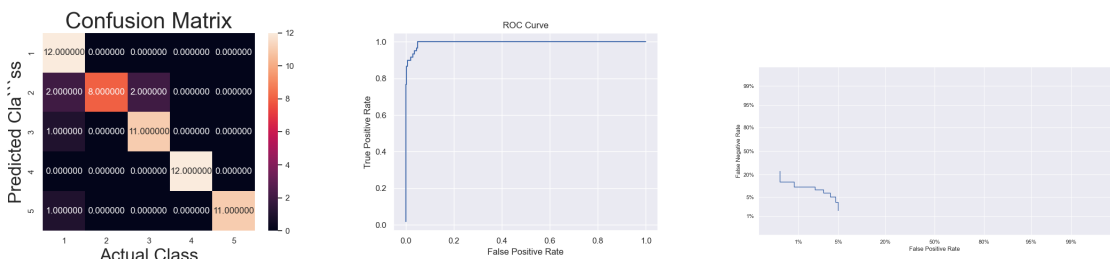
3.3.1 PCA,LDA:-



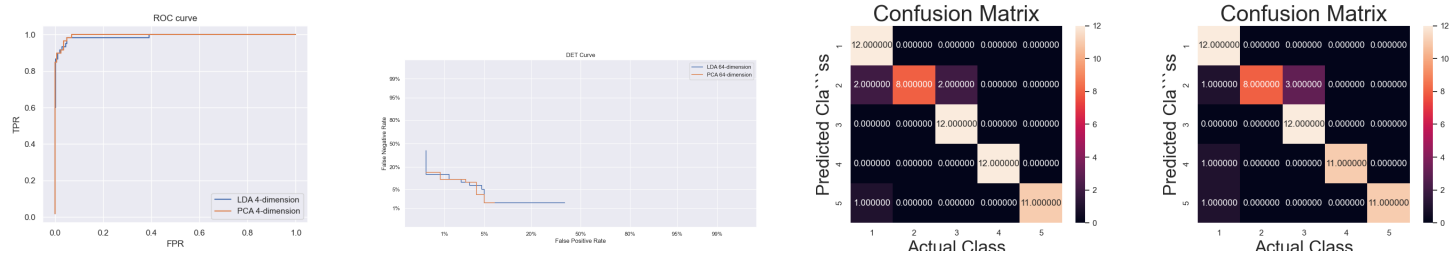
3.3.2 PCA and LDA comparison:-

dimension d	Accuracy with PCA	Accuracy with LDA
d = 4	91	71
d = 8	97	89
d = 10	97	91

3.4 Spoken digit data:-



3.4.1 PCA,LDA:-

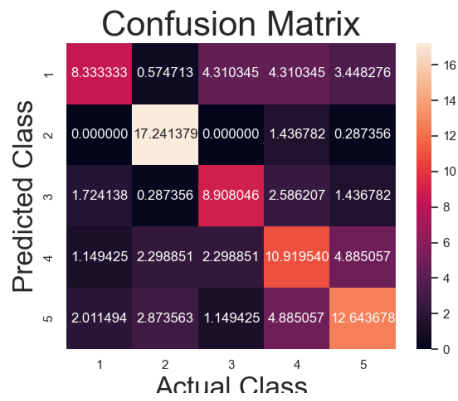


3.4.2 PCA and LDA comparison:-

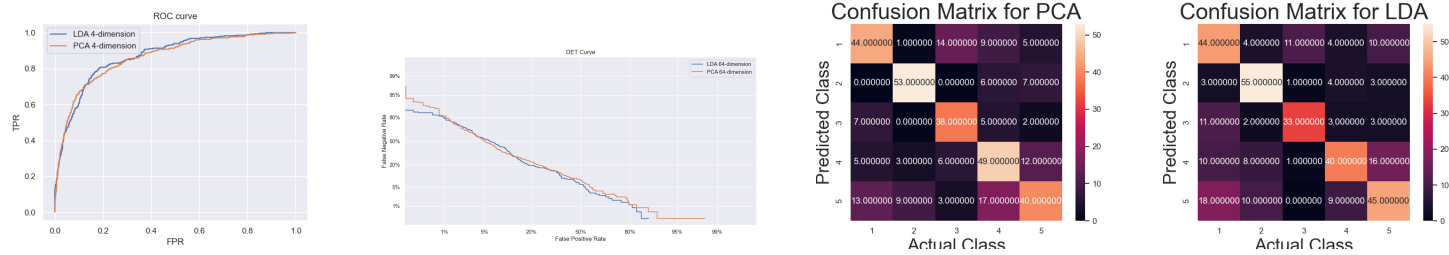
dimension d	Accuracy with PCA	Accuracy with LDA
d = 8	85	73.3
d = 16	91.6	86.6
d = 64	91.6	90.3

4 ANN

4.1 Image data:-



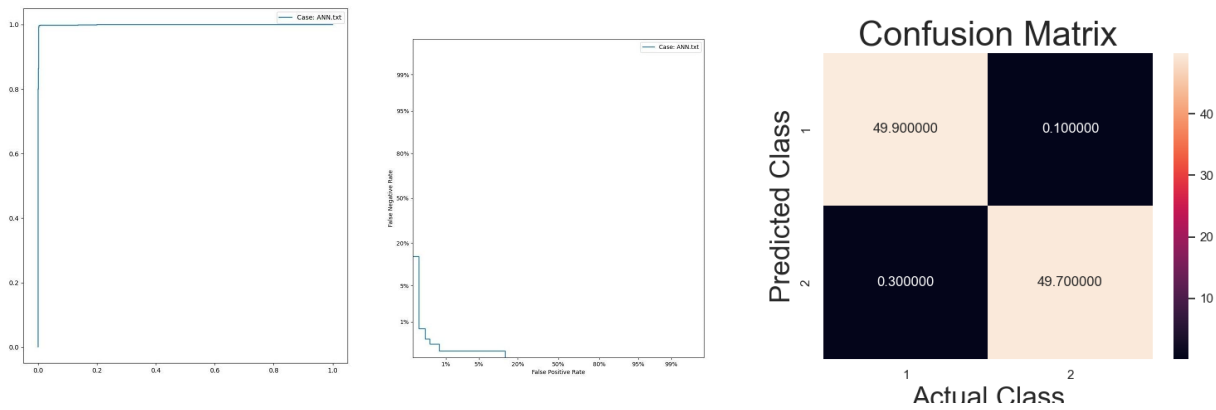
4.1.1 PCA,LDA:-



4.1.2 PCA and LDA comparison:-

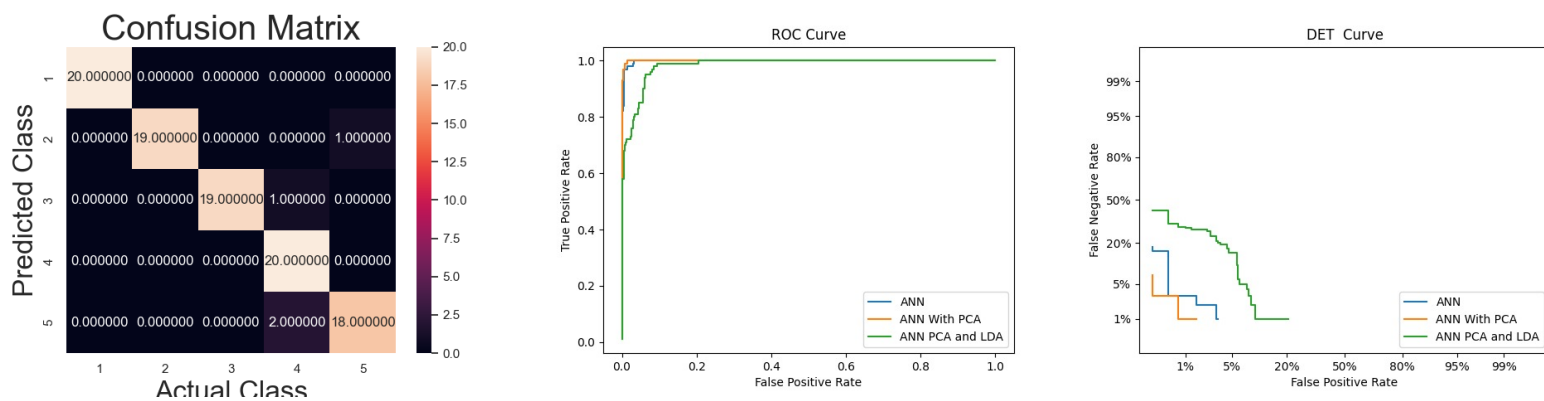
dimension d	Accuracy with PCA	Accuracy with LDA
d = 8	54	40.7
d = 16	57	56
d = 64	64.2	62.3

4.2 synthetic data:-



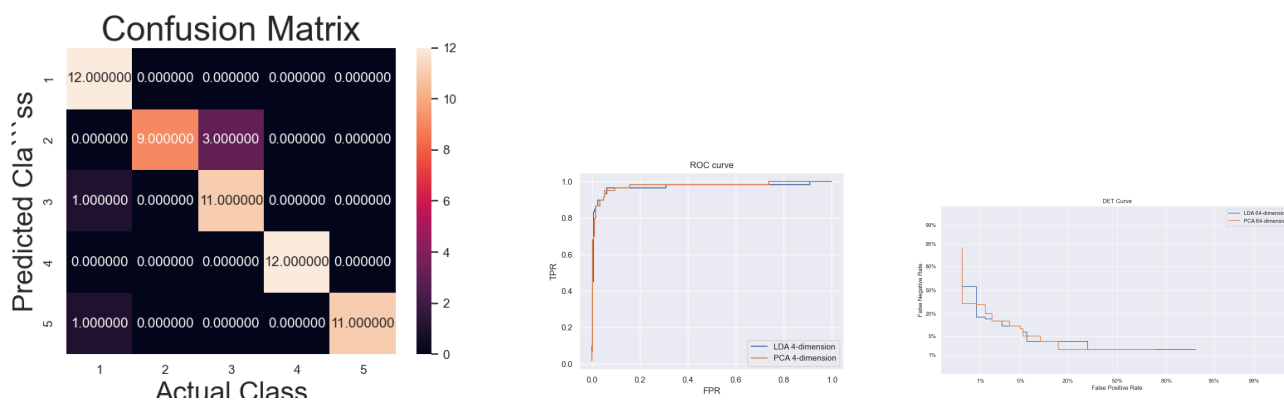
For synthetic data pca and lda is useless as the dimension given itself is very small(dimension given=2),Accuracy=99.6

4.3 Handwritten data:-



Accuracy:96 without pca,96 with pca,73 with pca and lda

4.4 Spoken digit data:-



4.4.1 PCA and LDA comparison:-

dimension d	Accuracy with PCA	Accuracy with LDA
d = 8	86.6	78.5
d = 16	86.6	85
d = 64	91.6	90.3