

HomeWork-4: Dimensionality Reduction Techniques

Q4.) I analyzed the Algorithms behavior with their different metrics scores by applying Decision Tree.

IRIS Dataset:

	Accuracy Score	F1 Score	Precision Score	Recall Score	Time Taken
PCA	0.9777	0.9777	0.9777	0.9777	0.003982 Seconds
LDA	0.9777	0.9777	0.9777	0.9777	0.00299 Seconds
Without KPCA	0.9777	0.9777	0.9777	0.9777	0.01895 Seconds
KPCA	0.3333	0.3333	0.3333	0.3333	0.02692 Seconds

MNIST Dataset:

	Accuracy Score	F1 Score	Precision Score	Recall Score	Time Taken
PCA	0.3316	0.3316	0.3316	0.3316	0.00099 Seconds
LDA	1.0	1.0	1.0	1.0	0.00398 Seconds
Without KPCA	1.0	1.0	1.0	1.0	0.24434 Seconds
KPCA	0.3333	0.3333	0.3333	0.3333	0.02553 Seconds

The sample size taken for the MNIST dataset is 2000.

As we can see from the above tables the IRIS Dataset, we can see that the accuracy scores for the PCA, LDA are much better than that of KPCA and also the running time of LDA is better than that of PCA and KPCA.

And from the MNIST Dataset, we can say that the accuracy scores for the LDA and non-KPCA are much better than that of PCA and KPCA and the running time of PCA is much better than the rest of the algorithms.