

Machine Intelligence & Expert Systems

KNN Programming Assignment

Utkarsh Patel 18EC35034

1 Results from Hyperparameter Tuning

Metric	Neighbors	Train accuracy	Test accuracy
euclidean	1	1.0	0.957
euclidean	3	0.971	0.943
euclidean	5	0.967	0.943
euclidean	7	0.967	0.943
norm-euclidean	1	0.989	0.914
norm-euclidean	3	0.97	0.929
norm-euclidean	5	0.96	0.957
norm-euclidean	7	0.957	0.971
cosine	1	1.0	0.943
cosine	3	0.94	0.914
cosine	5	0.927	0.914
cosine	7	0.921	0.914

2 Best Performing Hyperparameter

It can be observed from the above table, maximum test accuracy is achieved using seven nearest neighbors for normalized Euclidean distance.

3 Analysis of Results

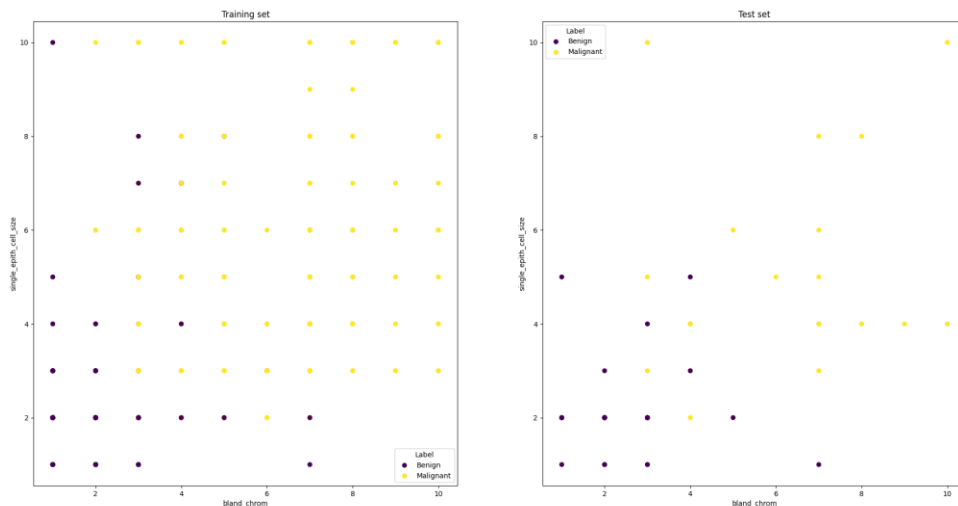


Fig. Scatter plot of training set and test set

It can be observed from the above table, the training accuracy and the test accuracy reduces as we increase number of neighbors to make prediction for Euclidean and cosine metrics, and reverse is observed for normalized Euclidean metric. The maximum test accuracy is achieved using seven nearest neighbors for normalized Euclidean distance.