

Report – KNN (nearest)

K-value	Accuracy	Time (in minutes)
5	69.214437	12.66548
7	69.639065	12.62253
11	71.231422	12.75319
15	70.276007	13.19874
21	70.912951	13.40724

The above table denotes the testing accuracy for different values of k, and the time taken for classification (includes the time taken to write to the output file).

There is no training involved in KNN.

The distance chosen for the model is Euclidian Distance.

As can be observed, the accuracy increases, as k increases, but that is the case only up to a certain point.

The time taken increases marginally as “k” increases. This is primarily because of the comparisons made by a test file with “k” training files, and thus the time increases only “marginally”.

Thus, I’d say, KNN, although slow in comparison to other models, provides roughly the same accuracy or even better in some cases, and if it can be optimized to decrease the run-time, is a very good model.

A few misclassified images, when “k” = 7:

Image Name	Actual Degree	Predicted Degree
test/10196604813.jpg	90	0
test/10351347465.jpg	270	180
test/10352491496.jpg	90	180
test/10484444553.jpg	180	0
test/10684428096.jpg	90	270