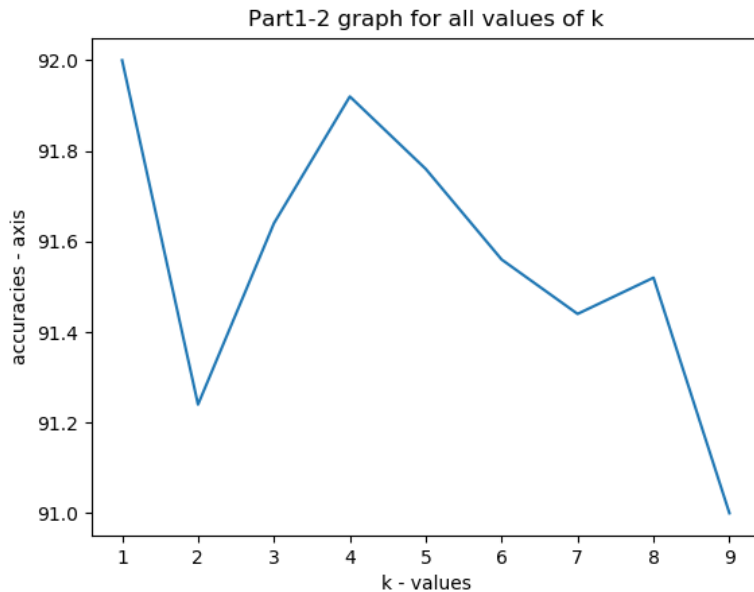


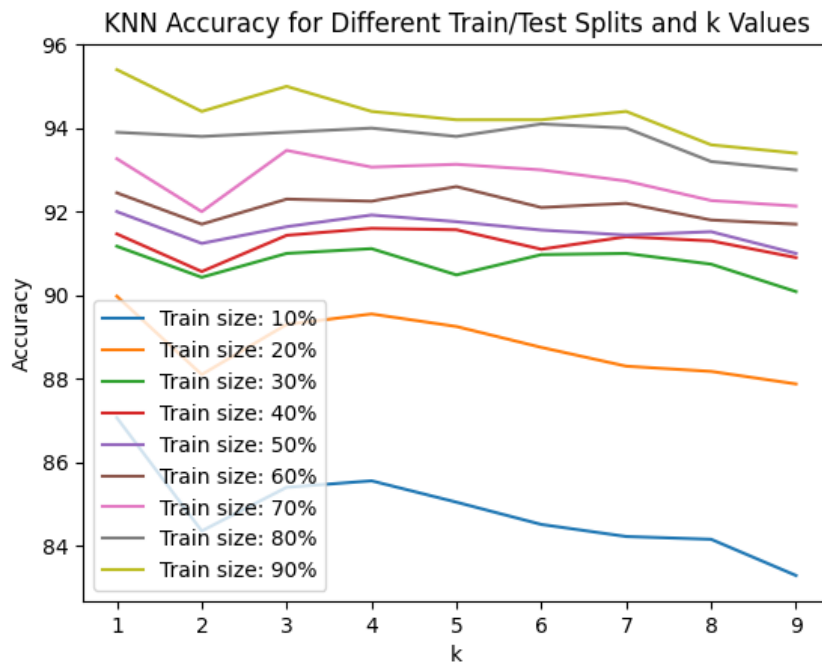
Name: Aadesh Surendra Varude

Part 1:

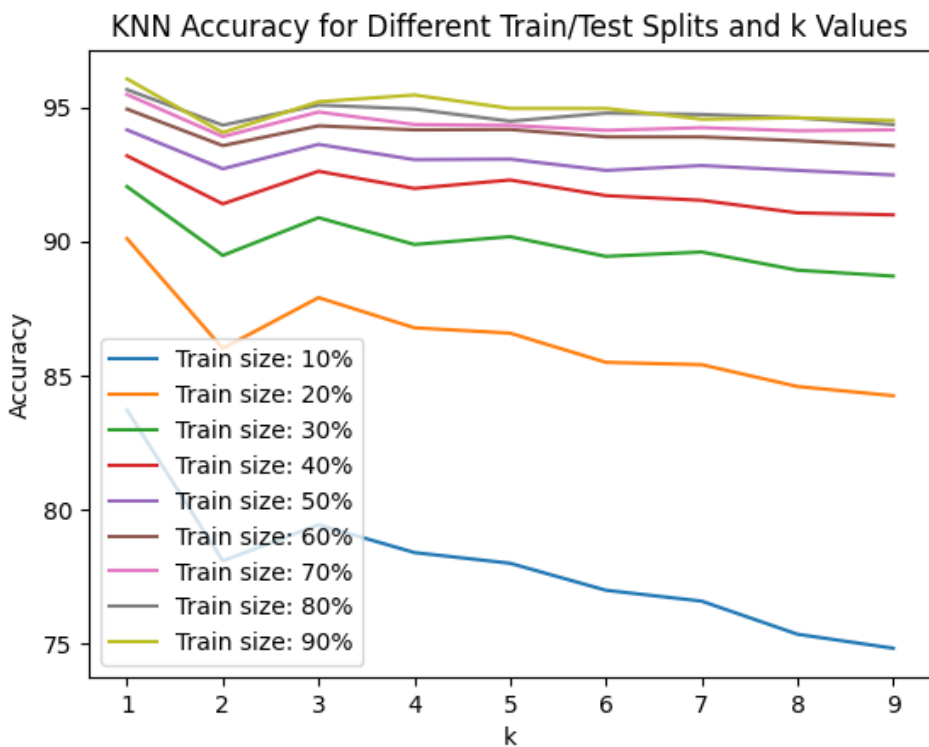
Train your KNN-based model for  $k = [1, \dots, 9]$  at train/test split = 50%/50% → “knn\_digits\_k\_set\_tr\_50.py”. → Show all the testing results in one graph.



c. Train your KNN-based model for all possible train/test splits (10%/90%, 20%/80%, 30%/70%, 40%/60%, 50%/50%, 60%/40%, 70%/30%, 80%/20%, 90%/10%) and all possible  $k = [1, \dots, 9]$ . → “knn\_digits\_k\_set\_tr\_set.py” → Show all the results in one graph. (3 points)



d. Perform the same steps for the English Alphabet dataset and show all the performance testing results for all possible train/test splits and all possible ks in one plot → “knn\_alphabet\_k\_set\_tr\_set.py” (2 points)



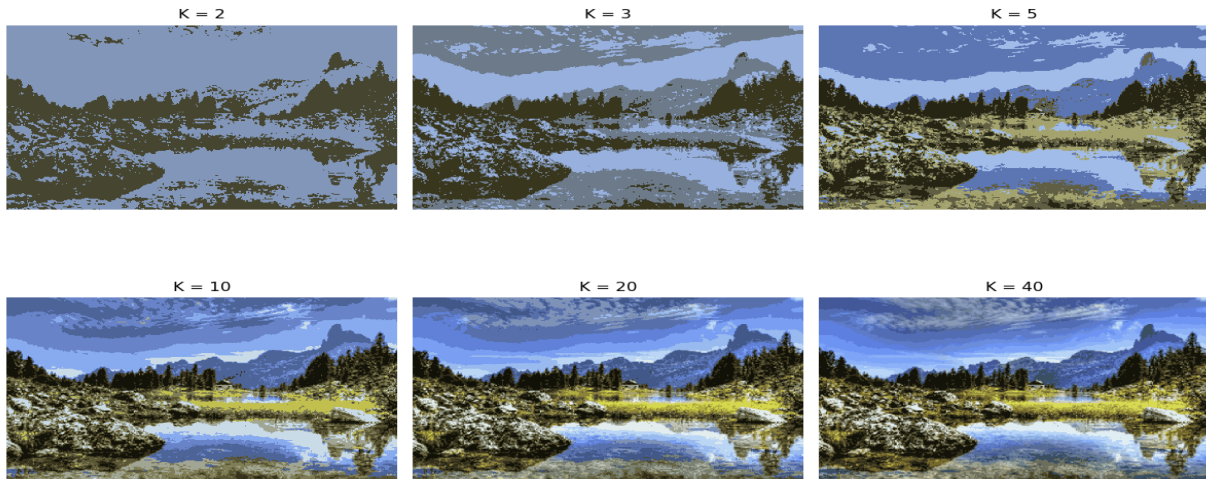
Part 2 :

1: Accuray : 93.84

Even after trying a lot and performing experiments the accuray could not be increased.

### Part 3:

Follow the 3rd part of the tutorial below to perform color quantization in the “nature.png” image attached for  $k = [2, 3, 5, 10, 20, 40]$



### Self experiment:

