Programming Assignment-III

Computer Vision-CAP 5415

Question 2: Nearest Neighbor Classification

Accuracy for different K-values

```
(torch_gpu) E:\UCF\cv\p3\q2>python knn.py
Dataset loaded
K value=  1

Train Accuracy :  1.0

Test Accuracy :  0.988

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K value=  3

Train Accuracy :  0.9930609097918273

Test Accuracy :  0.988

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K value=  5

Train Accuracy :  0.9899768696993061

Test Accuracy :  0.986

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K value=  7

Train Accuracy :  0.9845797995373939

Test Accuracy :  0.986

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```

The accuracy was the highest for the k value =1 and it reduces gradually with the increase in k value. As K increases, the KNN fits a smoother curve to the data. This is because a higher value of K reduces the edginess by taking more data into account, thus reducing the overall complexity and flexibility of the model

For this particular dataset, the best accuracy is obtained for low k values.