

# Computer Vision

## Group\_14

### Assignment-2 Observation (Image Classification)

#### 1 . KNN Classifier :

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		32	50	64	100	128
	3	46.3	47.8	48.2	48.8	49.3
n	5	47.1	49.3	51.4	52.25	53.4
	8	51.375	51.25	53.3	51.7	54.0
	16	53.8	54.0	51.8	53.5	54.125

1 . We got highest accuracy in KNN classifier when K=50 and n = 16.

2 . Along with that, when K=128 and n = 16 we got **54.125**.

```

sumanth@sumanth: ~
Training Labels done
Visual Bag of Testing has done
Testing Labels done
0.618644067797
411
800
accuracy:51.375
[[54 1 25 2 8 5 2 3]
 [ 0 88 0 1 5 1 4 1]
 [26 0 44 4 3 14 4 5]
 [ 4 13 1 48 2 7 18 7]
 [ 4 4 6 1 52 15 13 5]
 [21 3 7 2 21 34 8 4]
 [ 1 3 1 8 11 13 57 6]
 [ 8 4 3 18 12 12 9 34]]
sumanth@sumanth:~$

```

Our confusion matrix for when K=32 and n=8 and Accuracy is 51.375.

## 2 . SVM Classifier :

K	Accuracy
32	31.5
50	47
64	44.25
100	51.75
128	57.0

1 . We got higher accuracy of 57.0 when K value is 128 in Linear-SVM which is higher than KNN at same K and n=8.

2 . Increase in Accuracy is observed when Clustering increases.

## 3 . TRANSFER LEARNING :

VGG16 :

Epochs	Test_Accuracy	Train_Accuracy
10	72.13	90.83
25	73.33	95.76
50	77.00	96.8
500	76.698	97.29
1000	77.496	97.6

**1 . Increase in Accuracy is directly proportional to Increase in Epochs.**

**4 . Extra Credit :**

Layers	Test Accuracy	Epochs	Train Acc
2	64.697	5	77.25
3	66.66	5	76.11
4	70.496	5	79.6
5	72.685	5	82.78

**We can observe that there is a increase in accuracy when no:of training layers are increased.**

**Learning rate = 0.001.**