UNIVERSITY OF TEXAS AT ARLINGTON

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COMPUTER VISION
ASSIGNMENT 6

Nudrat Nawal Saber

1001733394

Problem 1:

Ans:

For problem 1,I resized the image to a fixed resolution, normalize and use k nearest neighbour to predict the label of the test images. For classify_knn_tiny, the accuracy is 19.7333%.
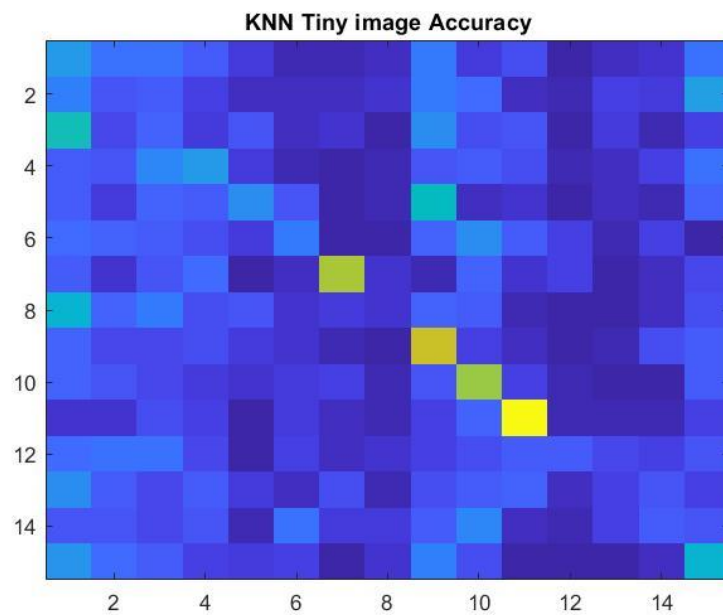

figure 1: Confusion matrix for KNN and Tiny Image Representation

Accuracy:

```
KNN_Tiny Accuracy
    19.7333
```

Problem 2

Ans:

(c) classify_knn_bow: KNN model was used for the prediction. The vocabulary is computed using vl dsift using parameters Step=10 and dic size=50. The optimum results is given by the fast version of the function, accuracy is 52.0667% for k=10.
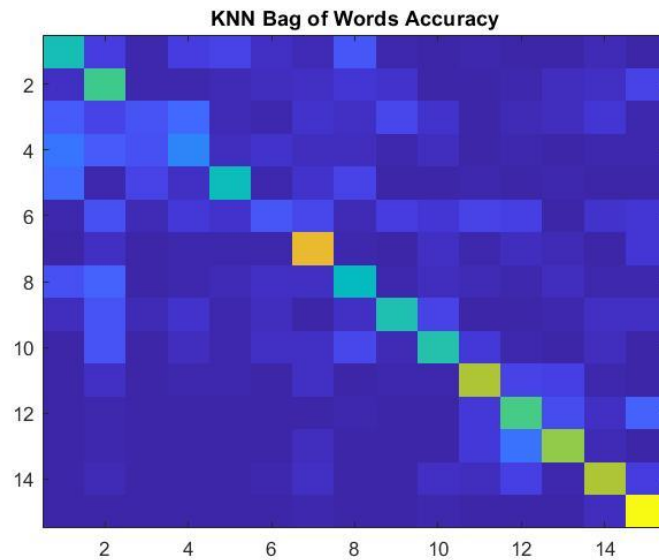

KNN Bag of Words Accuracy

Figure 2: Confusion matrix for KNN and BoW representation

Accuracy:

Extra Credit

Ans:

Classify_svm_bow: SVM model was used for the prediction. The vocabulary is computed using vl dsift using parameters Step=10. In this case, 15 binary classifiers have been trained by marking a particular label as 1 and all the other labels as -1The optimum results is given by the fast version of the function, the accuracy is 62% for dic_size=50 .
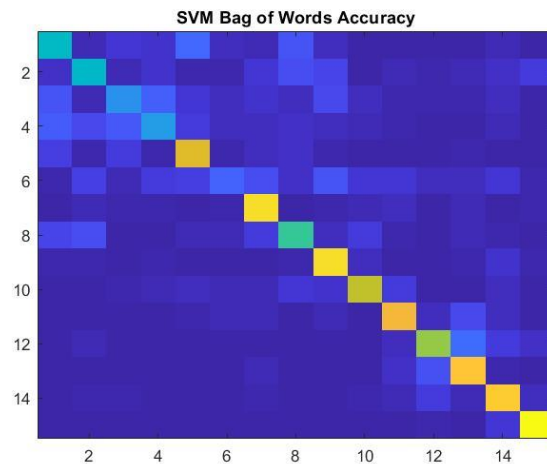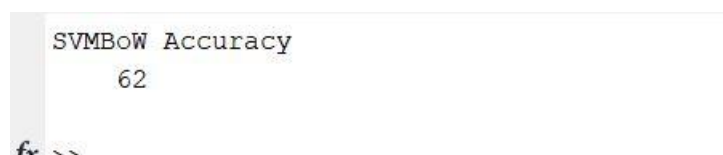

Figure 3: Confusion matrix for SVM using BoW representation

Accuracy:

References

1. https://www.mathworks.com/help/stats/fitcsvm.html
2. https://stackoverflow.com/questions/33289003/vl-dsift-trying-to-get-a-feature-vector-at-every-pixel

3. https://www.mathworks.com/help/stats/classificationknn.predict.html
4. https://www.mathworks.com/help/textanalytics/ref/bagofwords.html