

# **Assignment 9 - report - Soft Computing**

Mtech - 2nd Sem

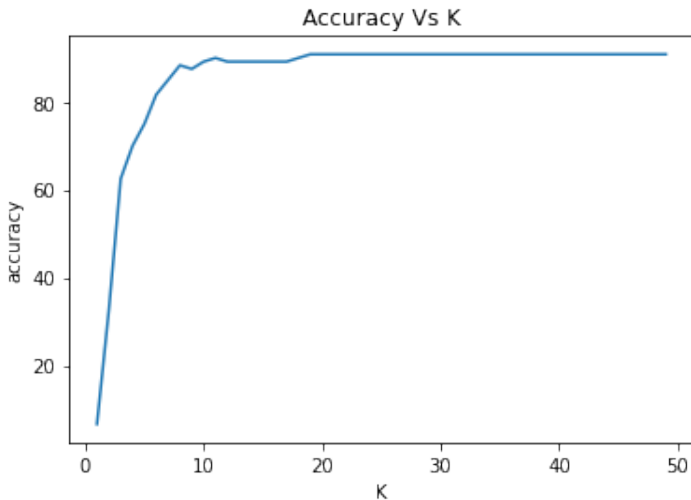
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## problem a

plot for accuracy vs k



## problem a: conclusions

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1. As  $K$  increases accuracy also increases
2. when  $k \geq 19$ , The accuracy value stagnates to 90.833
3. As value of  $K$  increases more eigen vectors are considered as a result information of train data is more accurately captured in eigen face matrix so accuracy increases as  $K$  increases
4. accuracy value stagnates at 90.833 after  $k = 19$ , it says that the eigen vectors after  $k = 19$  are less or no importance for face classification. so the accuracy is not increasing and it is constant after  $k = 19$ .

## problem b: approach

1. when flattened given images are of size 10304, so a list of random numbers of size 10304 is created to act as an imposter
2. The minimum norm value we got is around 18919418 (threshold).
3. So when a test data is passed into our PCA algorithm if minimum norm of that test data is less than 18919418 then the test data is our one of the test image otherwise it is considered as imposter.
4. We created 10 imposters whose norm is around 28665174, which is  $> 18919418$ , so they all are detected as imposters