Exam Data Mining

Question 1) Advantages and Drawbacks of unweighted and weighted voting in K nearest neighborhood?

Ans 1)

Weighted KNN vs Unweighted KNN voting: -

Weighted KNN is the lazy learner, whenever we have a new point to classify, classify, we find its K nearest neighbors from the training data.

We can use the weighted KNN with various approaches.

1. Associate random weights to the attributes and then calculate the error of the and then we can adjust the weights according to the error till the accuracy is reached.
2. We can also use gradinant decent algorithm to reach to the minimum cost function and can train the weights using cross validation.

As because of these functionalities the Weighted KNN is relatively more accurate and provide proper insight of the calculation and the produced outputs these can be considered as the advantages whereas as the Functionalities increase it increase the overhead on the machine and become complex so the complexity and the more time consumption is the main disadvantage of the weighted KNN.IN the weighted KNN choosing the value of the K is also the important factor as If the K is very small it will take more time to reach to the minimum distance (Gradient decent) where as if K is large it will shoot the minimum distance.

Were as unweighted KNN has the simplest approach comparison to weighted KNN voting. IT Decide on the value for k to determine the number of similar records that “vote”. Based on the Euclidean

Distance function it decides the most similar unclassified records. In this way, it used to classify the values. It basically works under the functionally that if the what is the nearest distance of the value which we are predicting. Due to this it is less accurate as compare to the weighted KNN. However, it is more fast as compare to the weighted KNN.