Assignment Pool-2 (LAST DATE TO SUBMIT 20 OCT 2022)

SET 1

Q:1 Scrutinized Ensemble Methods and their advantages. Gives a scenario where Ensemble can improve the existing methodology.

Q:2 Outline the difference between random forest and decision tree?

Q:3 Use the Decision tree to classify the students in the class based on their academic performance. If you came to know that your model is suffering from low bias and high variance. Which algorithm should you use to tackle it? Reason.

Q:4 Outline the over fitting, noisy data, and pruning. Define with the example of decision tree.

SET 2

Q:5 Scrutinize the Support Vector Machines and its application domain.

Q:6 Consider a modified k-NN method in which once the k nearest neighbors to the query point are identified, you do a linear regression fit on them and output the fitted value for the query point. Which of the following is/are true regarding this method?

Justify your answer.

(a) This method makes an assumption that the data is locally linear.

(b) In order to perform well, this method would need dense distributed training data.

(c) This method has higher bias compared to K-NN

(d) This method has higher variance compared to K-NN

Q:7 Give a brief description on Naïve bay's algorithm and outlines some scenarios where naïve bay's is the best fit.

Q: 8 Explain the naïve nature of single and multi- linear regression.

SET 3

Q: 9 Describe Tradeoffs in Bias-Variance.

Q: 10 Describe the Difference between Decision List and Decision Tree.

Q: 11 Describe some of the different splitting rules used by different decision tree algorithms.

Q:12 Distinguish between over fitting and under fitting. How it can affect model generalization.

SET 4

Q:13 Write a brie note on the working of random forest algorithm and it's applications in various domains with advantages and examples

Q:14 Elaborate the Searching for simple trees and computational complexity with example.

Q:15 Explain Gain and Entropy. How is it used to build the Decision tree in algorithm? Illustrate using an example.

Q:16 Explain K nearest neighbor algorithm and representation of decision tree with an example.