1. Define conditional probability in relation to Bayes theorem and explain its use as a machine learning classifier when applied to both discrete and continuous forms of data. In what sorts of situations are Bayes classifiers and predictors useful.

The Bayes Theorem is a computer-based processing of handling two or more multivariance probabilities for evaluating the likelihood of new data. The training phase of the Bayes Theorem is applying Laplace’s formulation calculations of known data. Then the prediction phase uses the calculated prior, unconditional, and likelihood probabilities parameters to yield the posterior probabilities results of where the new data may belong to. As the new data goes through the Bayes Theorem formula, the evaluating probabilities may shift.

28? The Bayes classifiers

references: Unit2 slides

1.       The two primary ensemble learning methods that are based upon decision trees are the random forest and the adaboost (adaptive boosting) algorithms. Explain how they fundamentally differ in simple terms. (Hint: compare bagging vs boosting methods with respect to ensemble learning)

|  |  |
| --- | --- |
| primary ensemble learning methods |  |
| random forest |  |
| adaboost |  |

references: Unit2 slides

2.       There are many ways to compare the performance of machine learning algorithms upon your own data. Describe how confusion matrices, cross-validation, and AUC-ROC curves are all used to assess performance across different methods of machine learning.

|  |  |  |
| --- | --- | --- |
| machine learning algorithms | compare the performance |  |
| confusion matrices |  |  |
| cross-validation |  |  |
| AUC-ROC curves |  |  |

references: Unit2 slides​