Machine learning

Worksheet 7

Answer-1 D

Answer-2 D

Answer3- A

Answer4-A

Answer 5-C

Answer 6-A

Answer7-B

Answer8-A

Answer-9

The Gini index ranges from 0% to 100%, with 0 representing perfect equality and 100 representing perfect inequality. **A Gini of 50 marks the halfway point and can generally be perceived as a place where income is not fairly distributed**.

Answer-10

Random forest algorithm avoids and prevents overfitting by using multiple trees. The results are not accurate. This gives accurate and precise results. Decision trees require low computation, thus reducing time to implement and carrying low accuracy.

Answer-11

Scaling can make a difference between a weak machine learning model and a better one. The most common techniques of feature scaling are Normalization

and Standardization. Normalization is used when we want to bound our values between two numbers, typically, between [0,1] or [-1,1].

Answer-12

The main advantages:

- We can use fixed learning rate during training without worrying about learning rate decay.
- It has straight trajectory towards the minimum and it is guaranteed to converge in theory to the global minimum if the loss function is convex and to a local minimum if the loss function is not convex.

Answer-13

Accuracy is not a good metric for imbalanced datasets.
This model would receive a very good accuracy score as it predicted correctly for the majority of observations, but this hides the true performance of the model which is objectively not good as it only predicts for one class.

Answer-14

For example, a perfect precision and recall score would result in a perfect F-Measure score: F-Measure = (2 * Precision * Recall) / (Precision + Recall) F-Measure = (2 * 1.0 * 1.0) / (1.0 + 1.0) F-Measure = (2 * 1.0) / 2.0

Answer-15

The fit() method helps in fitting the data into a model, transform() method helps in transforming the data into a form that is more suitable for the model. Fit_transform() method, on the other hand, combines the functionalities of both fit() and transform() methods in one step.