**ASSIGNMENT 7 ML**

Q1- D

Q2- D

Q3-

Q4-

Q5- B

Q6- D

Q7- C

Q8- B

Q9- The Gini method uses this formula:

Gini = 1 - (x/n)2 + (y/n)2

Q10- 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.

Q11- Consider the two most important ones: **Min-Max Normalization**: This technique re-scales a feature or observation value with distribution value between 0 and 1. Standardization: It is a very effective technique which re-scales a feature value so that it has distribution with 0 mean value and variance equals to 1.

Q12- Gradient descent is an optimization algorithm which is commonly-used to train machine learning models and neural networks. **Training data helps these models learn over time**, and the cost function within gradient descent specifically acts as a barometer, gauging its accuracy with each iteration of parameter updates.

Q13- **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.

Q14- The F-score, also called the F1-score, is **a measure of a model's accuracy on a dataset**. It is used to evaluate binary classification systems, which classify examples into 'positive' or 'negative'.

F-measure formula:

* **F-score = 2 \* (precision \* recall) / (precision + recall)**

 It combines [**precision**](https://deepchecks.com/glossary/precision-in-machine-learning/) and [**recall**](https://deepchecks.com/glossary/recall-in-machine-learning/) into a single score.

Q15- 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**.