***Quiz Time: How Much Do You Know?  
Quiz:***

1. **Which of the following statement is the correct one?**

Classification is a supervised machine learning problem

In a classification problem, the target variable has only two possible outcomes.

In a classification problem, the target is a continuous numerical variable.

Classification is a unsupervised machine learning problem

2. **Select which of the following scenarios are classification problems.**

Impact of blood alcohol content on coordination

Predict if a company will spend more than 10000 USD in electricity the next semester.

Predict if a Titanic passenger lives or dies due to their age, class, and gender.

Predict the prices of the Miami house

3. **At what point in the pipeline process are the parameters adjusted?**

Feature engineering

Data cleaning

Testing

Training

4. **What are some common evaluation metrics used for classification tasks?**

MAE

RMSE

Accuracy

5. **Decision trees can be used for both classification and regression tasks.**

False

True

6. **In a learning problem with 2D features, what is the relationship between decision tree and 1-nearest neighbor decision boundaries?**

In both cases, the decision boundary is not linear

There is no relationship

In both cases, the decision boundary is piecewise linear.

7. **What does 'naive' mean in Naive Bayes?**

The full Bayes' Theorem is not used.

The model assumes that the input features are statistically independent of one another.

8. **How does ensemble learning improve model performance?**

The models in an ensemble are trained independently, and their predictions are combined in some way to produce the final output.

The classification models in an ensemble are trained independently, and their predictions are combined by simply taking the average of their predictions.

Boths answers are incorrect

9. **Given a confusion matrix for a binary classification problem, how would you compute the precision score?**

Precision = True Positives / (True Positives + False Positives)

Precision = True Positives / False Positives

Precision = False Positives / (True Positives + False Positives)

Precision = True Positives / (True Positives + True Negatives)

10. **We build a model and test it on a set of 100 customer records, and the resulting confusion matrix is as follows:**

|  | Predicted Negative | Predicted Positive |
| --- | --- | --- |
| Actual Negative | 80 | 5 |
| Actual Positive | 5 | 20 |

Compute the recall score to one decimal place

0.8

0.4

The confusion matrix is incorrect based on the main statement

Incorrect answer

11. **As a reviewer for an international conference, you have been given papers with different experimental setups to review. Based on the content of each paper, would you recommend accepting or rejecting them?**

In comparison to your algorithm, mine appears to be more effective. I suggest observing the training error rates for confirmation.

Reject

Accept

12. **For k cross-validation, larger k value implies more bias.**

False

True

13. **Let´s suppose three classifications model are built to discriminate apples from bananas. The following table shows the results obtained according to these algorithms:**

| model | Model 1 | Model 2 | Model 3 |
| --- | --- | --- | --- |
| Accuracy (training) | 0.99 | 0.93 | 0.99 |
| Accuracy (testing) | 0.90 | 0.75 | 0.10 |

Model 3 fits better a High Variance scenario

Model 3 fits better a High Bias scenario

Model 1 fits better a High Bias scenario

Model 2 fits better a High Variance scenario