

#1. Which of the following is not a type of machine learning algorithm?

☐

Unsupervised learning

☐

Reinforcement learning

☐

Supervised learning

☐

Semi-supervised learning

☐

Self-learning

#2. What is the purpose of a validation set in machine learning?

☐

To evaluate the model on data it has never seen before

☐

To test the model on the training data

☐

To fine-tune hyperparameters

☐

To select features for the model

☐

To train the model

#3. Which algorithm is commonly used for classification problems in machine learning?

☐

K-means clustering

☐

Decision trees

☐

Principal Component Analysis (PCA)

☐

Linear regression

☐

Apriori algorithm

#4. What is overfitting in machine learning?

☐

When the model performs well on the training data but poorly on new, unseen data

☐

When the model performs poorly on the training data but well on new, unseen data

☐

When the model performs equally well on both training and test data

☐

When the model is too simple to capture the underlying patterns in the data

☐

When the model has too few parameters

#5. Which activation function is commonly used in the output layer of a binary classification neural network?

☐

Sigmoid

☐

ReLU

☐

Tanh

☐

Softmax

☐

Linear

#6. What is a hyperparameter in machine learning?

☐

A parameter set prior to training and remains constant during training

☐

A parameter that determines the number of features in the dataset

☐

A parameter learned by the model during training

☐

A parameter that determines the number of training samples

☐

A parameter that is only relevant for unsupervised learning

#7. In which phase of the machine learning process is feature engineering typically performed?

☐

Data preprocessing

☐

Model training

☐

Model evaluation

☐

Model deployment

☐

Data collection

#8. Which algorithm is used for dimensionality reduction in machine learning?

☐

Principal Component Analysis (PCA)

☐

Random Forest

☐

K-Nearest Neighbors (KNN)

☐

Gradient Descent

☐

Support Vector Machine (SVM)

#9. What is the purpose of regularization in machine learning?

☐

To prevent overfitting

☐

To increase the complexity of the model

☐

To decrease the complexity of the model

☐

To speed up the training process

☐

To add noise to the data

#10. Which evaluation metric is commonly used for regression problems in machine learning?

☐

Mean Absolute Error (MAE)

☐

Accuracy

☐

F1-score

☐

Precision

☐

Recall

#11. Which algorithm is used for anomaly detection in machine learning?

☐

Isolation Forest

☐

Logistic Regression

☐

K-Means Clustering

☐

Decision Trees

☐

Support Vector Machines (SVM)

#12. What is the purpose of the bias term in a neural network?

☐

To shift the activation function to the left or right

☐

To reduce overfitting

☐

To increase model complexity

☐

To regularize the model

☐

To add non-linearity

#13. What is the goal of unsupervised learning?

☐

Discovering hidden patterns or structures in data

☐

Maximizing prediction accuracy

☐

Minimizing model complexity

☐

Minimizing training time

☐

Classifying data into predefined categories

#14. Which method is commonly used to handle missing data in a dataset?

☐

Imputation

☐

Deletion

☐

Ignoring it during training

☐

Normalization

☐

Standardization

#15. What is the purpose of the Adam optimizer in deep learning?

☐

A stochastic gradient descent optimization algorithm

☐

A clustering algorithm

☐

A dimensionality reduction technique

☐

A regularization technique

☐

A feature extraction method

#16. In reinforcement learning, what is the agent's objective?

☐

To maximize the cumulative reward over time

☐

To minimize the cumulative reward over time

☐

To memorize the training data

☐

To predict future states

☐

To classify data into predefined categories

#17. Which technique is used to reduce the risk of overfitting in decision trees?

☐

Pruning

☐

Grafting

☐

Bagging

☐

Boosting

☐

Random selection of features

#18. What does the term “bias-variance tradeoff” refer to in machine learning?

☐

The balance between model complexity and the amount of training data

☐

The balance between underfitting and overfitting

☐

The tradeoff between the accuracy of a model and its interpretability

☐

The tradeoff between bias (error due to too simple model) and variance (error due to too complex model)

☐

The tradeoff between the number of features and the number of samples in the dataset

#19. What is the purpose of a confusion matrix in classification problems?

☐

To visualize the performance of a model

☐

To display the distribution of classes in a dataset

☐

To evaluate the quality of features

☐

To quantify the performance of a classification model

☐

To calculate the probability of class membership

#20. Which algorithm is commonly used for collaborative filtering in recommendation systems?

☐

Matrix Factorization

☐

K-Nearest Neighbors (KNN)

☐

Support Vector Machines (SVM)

☐

Decision Trees

☐

Random Forest

Next

Results





