#1. What is the role of a learning rate in gradient descent optimization?

☐
It controls the size of the steps taken during optimization
☐
It determines the number of training samples
☐
It specifies the number of features in the dataset
☐
It defines the number of iterations in training
☐
It adjusts the complexity of the model

#2. In a neural network, what is the purpose of the activation function?

☐
To introduce non-linearity into the model
☐
To reduce the number of parameters
☐
To improve the interpretability of the model
☐
To speed up the training process
☐
To add noise to the data

#3. Which type of machine learning algorithm is well-suited for recommendation systems?

☐
Collaborative Filtering
☐
Decision Trees

☐
Support Vector Machines (SVM)
☐
K-Means Clustering
☐
Linear Regression

#4. What is the objective of Principal Component Analysis (PCA) in dimensionality reduction?

☐
To project data onto a lower-dimensional subspace while retaining the most important information
☐
To increase the number of features in the dataset
☐
To separate data into distinct clusters
☐
To minimize the training time
☐
To transform data into a non-linear space

#5. What is the main advantage of using an ensemble learning method like Random Forest?

☐
It reduces overfitting and increases model robustness
☐
It simplifies the model and improves interpretability
☐
It speeds up the training process
☐
It eliminates the need for feature engineering
☐

It requires fewer training samples

#6. In which phase of a machine learning project is cross-validation typically applied?

☐
Model evaluation
☐
Data preprocessing
☐
Model training
☐
Model deployment
☐
Data collection

#7. What is the purpose of L1 regularization (Lasso) in linear regression?

☐
It encourages sparsity by penalizing the absolute values of coefficients
☐
It increases the number of features in the model
☐
It adds noise to the data
☐
It reduces the complexity of the model
☐
It enforces non-negativity of coefficients

#8. Which algorithm is used for finding frequent itemsets in association rule mining?

☐
Apriori algorithm
☐

K-Means Clustering

☐

Naive Bayes

☐

Decision Trees

☐

Support Vector Machines (SVM)

#9. What is the objective of batch normalization in deep learning?

☐

To stabilize and speed up the training process

☐

To reduce the number of parameters in the model

☐

To increase the learning rate

☐

To add noise to the data

☐

To simplify the model

#10. Which technique is used to combat the class imbalance problem in classification tasks?

☐

Resampling (e.g., oversampling or undersampling)

☐

Bagging

☐

Pruning

☐

Feature selection

☐

Dimensionality red

#11. What is the objective of a support vector machine (SVM) in classification tasks?

☐
To find the hyperplane that maximizes the margin between classes
☐
To reduce model complexity
☐
To perform feature selection
☐
To maximize prediction accuracy
☐
To minimize the number of features

#12. Which technique is used for handling multicollinearity in linear regression?

☐
Ridge regression
☐
L1 regularization (Lasso)
☐
Principal Component Analysis (PCA)
☐
Logistic regression
☐
K-Nearest Neighbors (KNN)

#13. What is the purpose of dropout regularization in deep learning?

☐
To prevent overfitting by randomly dropping out neurons during training
☐
To increase the number of hidden layers
☐
To speed up the training process

☐
To add noise to the data
☐
To reduce the learning rate

#14. In reinforcement learning, what is the role of the reward function?

☐
It provides feedback to the agent about its actions
☐
It specifies the number of episodes in training
☐
It determines the number of states in the environment
☐
It controls the exploration rate
☐
It sets the learning rate

#15. Which type of learning algorithm can perform online learning (i.e., learn continuously from new data)?

☐
Incremental learning
☐
Batch learning
☐
Reinforcement learning
☐
Unsupervised learning
☐
Semi-supervised learning

#16. What is the purpose of the term “momentum” in gradient descent optimization?

☐
To help accelerate convergence and escape local minima
☐
To reduce the learning rate
☐
To add noise to the data
☐
To increase the number of features
☐
To regularize the model

#17. Which method is used for feature extraction in natural language processing (NLP)?

☐
Word Embeddings (e.g., Word2Vec, GloVe)
☐
Principal Component Analysis (PCA)
☐
Support Vector Machines (SVM)
☐
K-Means Clustering
☐
Decision Trees

#18. What is the goal of hierarchical clustering in unsupervised learning?

☐
To group similar data points into clusters based on their proximity
☐
To classify data into predefined categories
☐
To maximize prediction accuracy
☐
To minimize model complexity

☐
To reduce the number of features

#19. Which algorithm is commonly used for time series forecasting in machine learning?

☐
ARIMA (AutoRegressive Integrated Moving Average)
☐
Naive Bayes
☐
Support Vector Machines (SVM)
☐
K-Nearest Neighbors (KNN)
☐
Decision Trees

#20. What is the purpose of a learning rate scheduler in deep learning?

☐
To dynamically adjust the learning rate during training
☐
To add noise to the data
☐
To increase the number of hidden layers
☐
To reduce model complexity
☐
To speed up the training process

Next

Results