4.Machine Learning (Week-3 to 4.3) - Set -4

Total points 13/15

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✓ Which technique is commonly used to prevent overfitting in machine learning models? 1/1

- a) Increasing model parameters
- b) Regularization ✓
- c) Using a single-layer model
- d) Reducing training data

✓ Which of the following techniques is used to select important features in a dataset? 1/1

- a) Feature Scaling
- b) Principal Component Analysis (PCA) ✓
- c) Label Encoding
- d) One-Hot Encoding

✓ Which evaluation metric is most suitable for an imbalanced classification problem? 1/1

- a) Accuracy
- b) Precision-Recall AUC ✓
- c) Mean Squared Error
- d) Adjusted R-squared

✓ Which machine learning model is most suitable for handling high-dimensional sparse data? 1/1

- a) Decision Trees
- b) Support Vector Machines (SVM) ✓
- c) K-Means
- d) K-Nearest Neighbors

✓ Which of the following can be used to handle multicollinearity in regression models? 1/1

- a) Normalization
- b) Ridge Regression ✓
- c) Decision Trees
- d) K-Means Clustering

1/1

Which machine learning algorithm is commonly used for anomaly detection?

- a) K-Means
- b) Isolation Forest ✓
- c) Linear Regression
- d) Logistic Regression

1/1

Which loss function is typically used in multi-class classification problems?

- a) Mean Squared Error (MSE)
- b) Categorical Cross-Entropy ✓
- c) Hinge Loss
- d) Binary Cross-Entropy

✗ Which machine learning technique allows models to continuously learn from new data? 0/1

- (●) a) Transfer Learning ✗
- ( ) b) Online Learning
- ( ) c) Semi-Supervised Learning
- ( ) d) K-Means Clustering

Correct answer

- (●) b) Online Learning

✓ What is an advantage of using ensemble learning methods? 1/1

- ( ) a) They always reduce training time
- (●) b) They combine multiple models to improve accuracy ✓
- ( ) c) They always require deep learning models
- ( ) d) They work only with supervised learning

✗ Which algorithm is commonly used in real-time fraud detection systems? 0/1

- a) K-Means Clustering
- b) Random Forest
- c) Naïve Bayes ✗
- d) One-Class SVM

Correct answer

- d) One-Class SVM

✓ What is the purpose of cross-validation in machine learning? 1/1

- a) To reduce the dataset size
- b) To improve model accuracy by using all available data
- c) To assess model performance and reduce overfitting ✓
- d) To increase the bias of the model

✓ Which of the following is a key difference between bagging and boosting? 1/1

- a) Bagging reduces variance, while boosting reduces bias ✓
- b) Bagging reduces bias, while boosting reduces variance
- c) Both bagging and boosting are the same
- d) Bagging is used for regression, while boosting is used for classification

✓ What is the role of a validation set in machine learning? 1/1

- a) To test the final model before deployment
- b) To tune hyperparameters and select the best model ✓
- c) To train the model
- d) To replace the need for a test set

✓ Which machine learning algorithm is best suited for handling imbalanced datasets? 1/1

- a) K-Means
- b) Decision Trees
- c) Random Forest with class weighting
- d) Support Vector Machines with SMOTE ✓

✓ What is a major advantage of using decision trees in machine learning? 1/1

- a) They require very large datasets
- b) They are highly interpretable and easy to visualize ✓
- c) They are always more accurate than other models
- d) They are only useful for unsupervised learning
- Option 5