1.Machine Learning (Week-3 to 4.3) - Set - 1

Total points 11/15

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✓ What does the term "overfitting" refer to in machine learning? 1/1

- a) When the model does not learn from the data
- b) When the model fits the training data too well but fails on new data ✓
- c) When the model generalizes well to unseen data
- d) When the model cannot capture complex patterns

✓ Which type of machine learning is used when the output variable is continuous? *1/1

- a) Classification
- b) Clustering
- c) Regression ✓
- d) Reinforcement Learning

✗ Which clustering algorithm is best for detecting outliers? 0/1

- (●) a) K-Means ✗
- ( ) b) DBSCAN
- ( ) c) Hierarchical Clustering
- ( ) d) Linear Regression

Correct answer

- (●) b) DBSCAN

✓ 1/1

Which evaluation metric is most commonly used for classification problems?

- ( ) a) Mean Squared Error (MSE)
- ( ) b) R-squared
- (●) c) Accuracy ✓
- ( ) d) Root Mean Squared Error (RMSE)

✓ 1/1

What is the main limitation of the K-Means clustering algorithm?

- ( ) a) It does not scale well for large datasets
- (●) b) It requires the number of clusters to be specified in advance ✓
- ( ) c) It cannot handle numerical data
- ( ) d) It always produces overlapping clusters

✗ Which metric is commonly used to evaluate a clustering algorithm? 0/1

- a) F1-score
- b) Sum of Squared Errors (SSE)
- c) Mean Squared Error
- d) Log-Loss ✗

Correct answer

- b) Sum of Squared Errors (SSE)

✓ What type of function does logistic regression use to convert values into probabilities? 1/1

- a) Linear function
- b) Sigmoid function ✓
- c) Exponential function
- d) Softmax function

✓ What is the purpose of the kernel trick in Support Vector Machines (SVM)? 1/1

- a) To reduce training time
- b) To map data into a higher-dimensional space for better classification ✓
- c) To normalize data
- d) To make the model interpret results more easily

✓ Which clustering algorithm does not require specifying the number of clusters in advance? 1/1

- a) K-Means
- b) DBSCAN ✓
- c) KNN
- d) Decision Tree

✓ 1/1

Which of the following is an unsupervised learning algorithm?

- a) Decision Tree
- b) K-Means ✓
- c) Linear Regression
- d) Logistic Regression

✗ If your classification model has a high recall but low precision, what does it mean? 0/1

- a) The model is predicting too many false positives
- b) The model is predicting too many false negatives ✗
- c) The model has low accuracy
- d) The model is not generalizing well

Correct answer

- a) The model is predicting too many false positives

✗ Which regularization technique adds both L1 and L2 penalties to a regression model? 0/1

- a) Ridge Regression
- b) Lasso Regression ✗
- c) Elastic Net
- d) Polynomial Regression

Correct answer

- c) Elastic Net

✓ 1/1

What is the main assumption of linear regression?

- a) The relationship between dependent and independent variables is linear ✓
- b) The data is always normally distributed
- c) There is no correlation between independent variables
- d) It can only be used for categorical data

✓ Which technique can be used to reduce the dimensionality of a dataset before applying clustering? 1/1

- a) Support Vector Machine
- b) Principal Component Analysis (PCA) ✓
- c) Logistic Regression
- d) Random Forest

✓ In which scenario would you use classification instead of regression? 1/1

- a) Predicting house prices based on area
- b) Predicting whether an email is spam or not ✓
- c) Predicting the temperature of a city
- d) Predicting the total sales of a store