

2. Machine Learning (Week-3 to 4.3) - Set -2

Total points 12/15

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✓ Which of the following is a key characteristic of supervised learning? * 1/1

- ☒ a) The model learns from labeled data ✓
- ☐ b) The model learns from unlabeled data
- ☐ c) The model learns through trial and error
- ☐ d) The model requires no input data

✗ 8. Which machine learning algorithm is used for both classification and regression tasks? 0/1

- ☐ a) Random Forest
- ☐ b) K-Means
- ☒ c) Support Vector Machine ✗
- ☐ d) K-Nearest Neighbors

Correct answer

- ☒ a) Random Forest



✓ What is "regularization" used for in machine learning?

1/1

- ☐ a) To speed up the training process
- ☒ b) To prevent overfitting by adding a penalty to the model's complexity ✓
- ☐ c) To improve the model's precision
- ☐ d) To increase the size of the training data

✓ In decision trees, what is the criterion used to split the data at each node? 1/1

- ☒ a) Entropy or Gini index ✓
- ☐ b) Accuracy
- ☐ c) Log-Loss
- ☐ d) Cross-Validation

✓ Which machine learning algorithm is based on the concept of "neighbors"? 1/1

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

✗ Which of the following is a common method for handling missing data? 0/1

- ☐ a) Ignoring missing values
- ☒ b) Replacing missing values with the mean or median ✗
- ☐ c) Using machine learning algorithms that ignore missing values
- ☐ d) Both b and c

Correct answer

- ☒ d) Both b and c

✓ What does the "variance" in a machine learning model refer to? 1/1

- ☐ a) The model's ability to generalize to new data
- ☒ b) The model's sensitivity to small changes in the training data ✓
- ☐ c) The error due to the model's complexity
- ☐ d) The model's bias towards certain outcomes

✓ Which of the following is true for gradient descent? 1/1

- ☒ a) It is an optimization technique used to minimize the cost function ✓
- ☐ b) It is used to maximize the accuracy of the model
- ☐ c) It helps in reducing the size of the dataset
- ☐ d) It requires only a linear relationship between features and target

✓ Which type of machine learning algorithm is typically used for anomaly detection? 1/1

- ☐ a) Supervised Learning
- ☒ b) Unsupervised Learning ✓
- ☐ c) Reinforcement Learning
- ☐ d) Semi-supervised Learning

✓ Which of the following is a hyperparameter in machine learning? 1/1

- ☐ a) Model weights
- ☒ b) Learning rate ✓
- ☐ c) Predicted output
- ☐ d) Training data

✓ Which of the following is a disadvantage of using K-Nearest Neighbors (KNN)? 1/1

- ☒ a) It is sensitive to irrelevant features ✓
- ☐ b) It is difficult to interpret
- ☐ c) It requires a large number of hyperparameters
- ☐ d) It only works for regression problems

✓ Which algorithm is often used for feature selection in high-dimensional datasets? 1/1

- ☒ a) Principal Component Analysis (PCA) ✓
- ☐ b) Linear Regression
- ☐ c) Decision Trees
- ☐ d) K-Nearest Neighbors

✓ Which of the following is a commonly used evaluation metric for regression models? 1/1

- ☐ a) F1-Score
- ☒ b) Mean Squared Error (MSE) ✓
- ☐ c) Precision
- ☐ d) Recall

✓ Which algorithm is best suited for a high-dimensional dataset with many features? 1/1

- ☐ a) K-Nearest Neighbors
- ☐ b) Support Vector Machines with a linear kernel
- ☐ c) Logistic Regression
- ☒ d) Support Vector Machines with a non-linear kernel ✓

✗ What does the "bias" in a machine learning model refer to?

0/1

- ☐ a) The error introduced by the model's inability to fit the training data well
- ☐ b) The error due to the model being too complex
- ☐ c) The difference between the predicted and actual values
- ☒ d) The difference between the model's predictions and the true values for all data points ✗

Correct answer

- ☒ a) The error introduced by the model's inability to fit the training data well

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