

Name:

December 1, 2025

W#:

DATA 311 - (Practice) Quiz 9

1. Which statement best describes when relative error is more useful than absolute error?
 - (a) When all predictions are of similar magnitude
 - (b) When comparing errors across datasets with different scales
 - (c) When the target values are all close to zero
 - (d) When you want to penalize large errors more heavily

2. A regression model achieves an RMSE of 10.5 on a test set where the target variable (temperature in °C) ranges from -5 to 35. What does the RMSE value tell you?
 - (a) The average error is about 3.2°C
 - (b) The typical prediction error is approximately 10.5°C
 - (c) Exactly 10.5% of predictions are incorrect
 - (d) The model is 10.5 times better than random guessing

3. The F-score is useful because it:
 - (a) Always equals the accuracy
 - (b) Provides a single metric that balances precision and recall
 - (c) Only considers true positives
 - (d) Works better than accuracy when classes are perfectly balanced

4. A regression system is evaluated and its coefficient of determination (R^2) is negative. What does this tell you about the system's performance?
 - (a) The model is making predictions in the wrong direction (opposite sign from true values)
 - (b) This cannot happen; R^2 cannot be negative
 - (c) The model predicts negative values for all test examples
 - (d) The model performs worse than predicting the mean of the training labels for every example

5. You are building a system to classify email messages as spam or not spam. The test set has 200 messages. Your system performs as follows. On the line to the left of each of the above, label it with the appropriate choice from: True Positive (TP), True Negative (TN), False Positive (FP), and False Negative (FN).

a) _____ It correctly identifies 85 out of the 100 true spam messages as spam

b) _____ It misclassifies 20 non-spam messages as spam

c) _____ It correctly classifies 80 non-spam messages as not spam.

d) _____ It misclassifies 15 spam messages as non-spam.

6. Considering the scenario from the prior question, each of the following calculates one Accuracy, Precision, or Recall. Write the correct metric (A, P, or R) on the line to the left of the calculation.

a) _____ $85/100 = 0.85$

b) _____ $85/(85 + 20) \approx 0.81$

c) _____ $(85 + 80)/200 = 0.825$