**Your grade: 100%**

Your latest: **100%**  •  Your highest: **100%**  •  To pass you need at least 60%. We keep your highest score.

Next item →

1.  What is the purpose of a train/test split in machine learning?                                  **1 / 1 point**

    ○ To visualize the dataset

    ○ To increase the size of the training dataset

    ○ To optimize the model's hyperparameters

    ⦿ To estimate the performance of machine learning algorithms on unseen data

    ⊘ **Correct**
    This approach helps evaluate the model's ability to generalize to data it hasn't seen before, giving an estimate of real-world performance.

2.  What does the F1 score represent in model evaluation?                                           **1 / 1 point**

    ○ The weighted sum of precision and recall

    ○ The average accuracy of the model

    ○ The probability of a true positive prediction

    ⦿ The harmonic mean of precision and recall

    ⊘ **Correct**
    F1 score calculates a balanced mean between precision and recall, making it valuable when both metrics need to be optimized simultaneously.

3.  What does R-squared measure in regression analysis?                                             **1 / 1 point**

    ○ The unexplained variance of the model

    ⦿ The proportion of variance in the target variable explained by the model

    ○ The total variance of the target variable

    ○ The sum of squared differences between predicted and actual values

    ⊘ **Correct**
    R-squared represents the proportion of variance in the target variable that can be predicted by the input features, indicating model performance.

4.  What is the effect of using a mean-value model in regression analysis?                          **1 / 1 point**

    ○ R-squared will be one

    ⦿ R-squared will be zero, as the model explains no variance

    ○ Explained variance will be greater than total variance

    ○ R-squared will be one half

    ⊘ **Correct**
    A mean-value model predicts the average value for all data points, resulting in an R-squared value of zero, indicating no explanatory power.

**5.** Which of the following clustering evaluation metrics ranges from -1 to 1, with higher values indicating better-defined clusters?

○ Davies-Bouldin Index

○ Within-cluster sum of squares (WCSS)

○ Inertia

◉ Silhouette Score

> ⊘ **Correct**
> The Silhouette Score measures cluster cohesion and separation, with higher values indicating more defined and distinct clusters.