30 Student Grade Prediction Questions

Original independent practice; complete before opening the worked solutions.

1. Define supervised learning

Write your answer and explain the assumptions.

2. What is regression?

Write your answer and explain the assumptions.

3. What is classification?

Write your answer and explain the assumptions.

4. What is the target in the UCI Mathematics project?

Write your answer and explain the assumptions.

5. Give two reduced-model features

Write your answer and explain the assumptions.

6. What is training data?

Write your answer and explain the assumptions.

7. What is held-out test data?

Write your answer and explain the assumptions.

8. Why does a mean baseline matter?

Write your answer and explain the assumptions.

9. When is G2 forbidden?

Write your answer and explain the assumptions.

10. Why is a prediction uncertain?

Write your answer and explain the assumptions.

11. Split 395 records 80/20

Write your answer and explain the assumptions.

12. Identify target leakage

Write your answer and explain the assumptions.

13. How to encode schoolsup?

Write your answer and explain the assumptions.

14. When is imputation fitted?

Write your answer and explain the assumptions.

15. Find absolute errors for five students

Write your answer and explain the assumptions.

16. Calculate MAE

Write your answer and explain the assumptions.

17. Calculate MSE

Write your answer and explain the assumptions.

18. Calculate RMSE

Write your answer and explain the assumptions.

19. Calculate R squared

Write your answer and explain the assumptions.

20. Compare five-student baseline

Write your answer and explain the assumptions.

21. Explain overfitting

Write your answer and explain the assumptions.

22. Explain underfitting

Write your answer and explain the assumptions.

23. Choose model validation

Write your answer and explain the assumptions.

24. Identify CV leakage

Write your answer and explain the assumptions.

25. Compare Ridge and Random Forest

Write your answer and explain the assumptions.

26. Interpret actual vs predicted scatter

Write your answer and explain the assumptions.

27. Can feature importance prove causality?

Write your answer and explain the assumptions.

28. What fairness/privacy concerns apply?

Write your answer and explain the assumptions.

29. Why can a Portuguese model fail elsewhere?

Write your answer and explain the assumptions.

30. State a responsible final recommendation

Write your answer and explain the assumptions.