SL TEST 2 (20 to 30 mins)



15-Question Test on Overfitting & Underfitting,   
Regularization, Ridge Regression, Lasso Regression, and Logistic Regression



Section 1: Overfitting & Underfitting

Q1. Define overfitting and underfitting in the context of machine learning. Answer:

Q2. What are the signs that a model is overfitting?   
Answer:

Q3. What are some common methods to prevent overfitting? Answer:

Section 2: Regularization

Q4. What is regularization, and why is it used in machine learning models? Answer:

Q5. Explain the difference between L1 and L2 regularization. Answer:

Q6. How does regularization affect the bias-variance tradeoff? Answer:

Section 3: Ridge Regression

Q7. What is Ridge Regression, and how does it differ from standard linear regression? Answer:

Q8. What is the effect of the regularization parameter (λ) in Ridge Regression? Answer:

Section 4: Lasso Regression

Q9. What is Lasso Regression, and how does it perform feature selection?

Answer:

Q10. In which scenarios is Lasso Regression preferred over Ridge Regression?

Answer:

Section 5: Logistic Regression

Q11. Explain the purpose of Logistic Regression.

Answer:

Q12. How does the cost function in Logistic Regression differ from that in Linear Regression?

Answer:

Section 6: Multiple Choice Questions

Q13. Which of the following statements about Lasso Regression is true?

A) Lasso Regression always includes all features in the final model.

B) Lasso Regression can set some coefficients to exactly zero, performing feature selection. C) Lasso Regression is not affected by the choice of the regularization parameter.

D) Lasso Regression can only be applied to linear models.

Q14. What is the main disadvantage of using Ridge Regression compared to Lasso Regression?

A) It cannot handle multicollinearity.

B) It does not perform feature selection.

C) It requires more computational resources.   
D) It can only be used for binary classification.

Q15. Explain the concept of the confusion matrix and its significance in evaluating the performance of classification models like Logistic Regression.

Answer: