

DM-Quiz-2020-Q5

16 Questions

1. In the multiple linear regression, we assume that...

- 3/10 ☒ A The number of observations is much larger than the number of variables ($n \gg p$)
- 2/10 ☐ B The number of observations is slightly larger than the number of variables ($n > p$)
- 3/10 ☐ C The number of observations equals than the number of variables ($n = p$)
- 1/10 ☐ D The number of observations is less than the number of variables ($n < p$)
- 1/10 ☐ E It is not important
- 0/10 ☐ F I do not know

2. The way of solving the problem of a large number of variables is...

- 3/10 ☒ A Subset Selection & Shrinkage (Regularization)
- 3/10 ☐ B Shrinkage (Regularization) & Maximum Likelihood estimation
- 3/10 ☐ C Dimension Reduction & OLS estimation
- 0/10 ☐ D I do not know
- 1/10 ☐ E The absence of the right answer

3. The bias of an estimator (e.g. \hat{z}) equals

- 0/10 ☒ A $E(\hat{z}) - z$
- 6/10 ☐ B $E(\hat{z}^2) - [E(z)]^2$
- 3/10 ☐ C $[E(\hat{z}^2) - E(z)]^2$
- 1/10 ☐ D $E(\hat{z}^2)$
- 0/10 ☐ E I do not know

4. The main idea of regularization is

- 4/10 ☒ A To introduce a small amount of bias in order to have less variance.
- 4/10 ☐ B To introduce a small amount of variance in order to have less bias.
- 2/10 ☐ C To introduce a small amount of variance and bias in order to have less bias.
- 0/10 ☐ D I do not know

5. With which function we can show regularization in R

- 8/10 ☒ A glmnet()
- 0/10 ☐ B regular()
- 1/10 ☐ C lm()
- 0/10 ☐ D glm()
- 1/10 ☐ E I do not know

6. How the tune of any parametr can be made

- 3/10 ☒ A using Cross validation
- 0/10 ☐ B It is impossible
- 2/10 ☐ C I do not now
- 5/10 ☐ D using larger sample
- 0/10 ☐ E only having population

7. Elastic Net is

- 5/10 ☒ A the combination of L1 and L2 regularization
- 2/10 ☐ B the combination of L2 and L3 regularization
- 0/10 ☐ C is independent from other types of regularization
- 2/10 ☐ D I do not know
- 1/10 ☐ E not a type of regularization

8. Regularization is used only for

- 0/10 ☐ A Poisson Regression
- 3/10 ☐ B Linear Regression
- 1/10 ☐ C Logistic Regression
- 6/10 ☒ D any regression
- 0/10 ☐ E I do not know

9. Regularization can solve the problem of

- 2/10 ☐ A heteroscedasticity
- 8/10 ☒ B multicollinearity
- 0/10 ☐ C autocorrelation
- 0/10 ☐ D I do not know

10. As a result of regularization, we will have

- 7/11 ☒ A smaller slope than in case of OLS
- 1/11 ☐ B larger slope than in case of OLS
- 3/11 ☐ C the slope remains the same
- 0/11 ☐ D I do not know

11. The ridge coefficient estimates shrink towards zero

- 5/10 ☒ A when lambda increases
- 2/10 ☐ B when lambda decreases
- 2/10 ☐ C when lambda = 0
- 1/10 ☐ D I do not know

12. Which one can shrink the slope all the way to 0?

- 5/10 ☒ A Lasso
- 3/10 ☐ B Ridge
- 0/10 ☐ C Regression
- 2/10 ☐ D I do not know

13. When lambda = 0, we have

- 2/10 ☐ A Ridge
- 2/10 ☐ B Lasso
- 1/10 ☐ C EL
- 2/10 ☒ D Regression
- 3/10 ☐ E I do not know

14. When alpha = 0, we have

- 3/10 ☒ A Ridge
- 2/10 ☐ B Lasso
- 1/10 ☐ C EL
- 1/10 ☐ D Regression
- 3/10 ☐ E I do not know

15. Which function can help to perform cross-validation for regularization in R?

2/10 **A** ☒ cv.glmnet()

3/10 **B** ☐ cros_val()

5/10 **C** ☐ glmnet(method = "cv")

0/10 **D** ☐ I do not know

16. Why we use set.seed() in R?

4/10 **A** ☒ To have universal result

2/10 **B** ☐ To perform better result

4/10 **C** ☐ To have random models

0/10 **D** ☐ I do not know