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Unit 8 - Week 6

Course
outline

How to access
the portal

Pre-requisite
Assignment

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

● Multicollinearity
(Part A) (unit?
unit=36&lesson=37)

● Multicollinearity
(Part B) (unit?
unit=36&lesson=38)

● Multicollinearity
(Part C) (unit?
unit=36&lesson=39)

Assignment 6

The due date for submitting this assignment has passed. **Due on 2019-09-11, 23:59 IST.**
As per our records you have not submitted this assignment.

1) Consider a multiple linear regression model with $k - 1$ regressor variables. If there is a strong multicollinearity between x_j and any subset of other

1 point

$k - 2$ regressors, then $V(\hat{\beta}_j)$ will tend to

- ∞
- 1
- 0
- none of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

∞

2) Consider a multiple linear regression model with $k - 1$ regressor variables. If there is a strong multicollinearity in the model then the value of

1 point

$$L^2 = \sum_{i=1}^{k-1} (\hat{\beta}_i - \beta_i)^2$$

- large
- small
- cannot decide

No, the answer is incorrect.

Score: 0

Accepted Answers:

large

WEEK 6 -
FEEDBACK -
Regression
analysis (unit?
unit=36&lesson=40)

Assignment 6
Solution (unit?
unit=36&lesson=41)

Quiz :
Assignment 6
(assessment?
name=89)

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

VIDEO
DOWNLOAD

3) Can we use the data below to get a unique fit to the model

1 point

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

X_1	X_2	X_3	Y
-5	2	3	8.4
3	2	-5	14.7
-1	5	-4	13.9
4	4	-8	14.2
-3	5	-2	12.1
-1	6	-5	14.8

Yes

No

No, the answer is incorrect.

Score: 0

Accepted Answers:

No

4) Can we use the data below to get a unique fit to the model

0 points

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

X_1	X_2	X_3	Y
-5	2	3	7.4
3	2	-5	14.7
1	3	-4	13.9
4	4	-8	18.2
-3	5	-2	12.1
-1	6	-5	14.8

Yes

No

No, the answer is incorrect.

Score: 0

Accepted Answers:

Yes

5) Consider the data below for the model $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon$.

1 point

X_1	X_2	Y
2	4	16
2	2	14
0	0	8
-1	-1	10
-2	-4	11

Center and scale the X_1, X_2, Y columns. Let x_1, x_2, y be centered and scaled columns. Now fit the model $y = \beta_1 x_1 + \beta_2 x_2 + \epsilon$. The variance inflation factor VIF_1 for the first regressor x_1 is

- 12.2666
- 23.5133
- 10.2312

No, the answer is incorrect.

Score: 0

Accepted Answers:

12.2666

6) Consider the data in Problem 5. What is the value of the determinant of the correlation matrix $X'X$ = **1 point**

$$\begin{bmatrix} 1 & r_{12} \\ r_{12} & 1 \end{bmatrix}$$

- 0.0815
- 10.2347
- 3.4221
- 1.0852

No, the answer is incorrect.

Score: 0

Accepted Answers:

0.0815

7) Consider the data in Problem 5. The condition number k of $X'X$ is **1 point**

- 82.32
- 50.18
- 47.04
- 110.23

No, the answer is incorrect.

Score: 0

Accepted Answers:

47.04

8) Is there any serious problem with multicollinearity for the data in Problem 5. **1 point**

- Yes
- No

No, the answer is incorrect.

Score: 0

Accepted Answers:

No

