Quiz 2

Due No due date	**Points** 20	**Questions** 10	**Time Limit** None

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	38 minutes	18 out of 20

Score for this quiz: **18** out of 20
Submitted Oct 8 at 2:07pm
This attempt took 38 minutes.

Question 1

2 / 2 pts

(1) Linear regression assumes:

- a. The relationship between X and Y is a straight line.
- b. The residuals are normally distributed.
- c. The residuals are homoscedastic.
- d. Both homoscedastic and normally distributed residuals.

Correct!

Question 2

0 / 2 pts

(2) Often times, residual plots as well as other plots of the data will suggest some difficulties or abnormalities in the data. Which of the following statements are not considered difficulties?

- a. A nonlinear relationship between X and Y is appropriate.

orrect Answer

b. The variance of the error term (and of Y) is constant.

'ou Answered

c. The error term does not have a normal distribution.

d. The selected model fits the data well except for very few discrepant or outlying data values, which may have greatly influenced the choice of the regression line.

Question 3

2 / 2 pts

(3) The Analysis of Variance (ANOVA) table in linear regression can be used to compute:

a. R-Squared

b. Adjusted R-Squared

c. The Overall F statistic

Correct!

d. R-Squared, Adjusted R-Squared, and the Overall F statistic

Question 4

2 / 2 pts

(4) The hat matrix is given by:

a. X

b. X'X, where ' denotes the matrix transpose

c. inv(X'X)*X', where we let inv() denote the matrix inverse

Correct!

d. X*inv(X'X)*X'

Question 5

2 / 2 pts

(5) Consider a linear regression model with the predictor variables X1, X2, and X3. If we regress X1 on the other two predictor variables X2 and X3 and get an R-Squared value of 0.25, then the corresponding Variance Inflation Factor (VIF) for X1 is:

- a. 0.25
- b. 0.50
- c. 0.66
- d. 1.33

Correct!

Question 6

2 / 2 pts

(6) Multicollinearity can be detected by:

- a. the Overall F-test
- b. a t-test
- c. a variance inflation factor
- d. a leverage value

Correct!

Question 7

2 / 2 pts

(7) Diagnostics for assessing the Goodness-of-Fit for a linear regression model include:

- a. Plotting Y-hat versus Y.
- b. Plotting a Quantile-Quantile plot of the residuals.
- c. Plotting Y against each continuous predictor variable.

Correct!

- d. d. Plots of Y-hat versus Y, a Quantile-Quantile plot of the residuals, and Y against each continuous predictor variable.

Question 8

2 / 2 pts

(8) Heteroscedasticity can be detected graphically by plotting the residuals against the in-sample predicted value Y-hat by visualizing these shapes:

- a. a tube
- b. a funnel
- c. a double bow
- d. a nonlinear pattern

Correct!

- e. a funnel, a double bow, or any nonlinear pattern

Question 9

2 / 2 pts

(9) The specification of a predictor effect can be validated using:

a. a histogram of the residuals

Correct!

b. a scatterplot of the residuals against the predictor variable of interest

c. a scatterplot of the residuals against the predicted values Y-hat

d. a Quantile-Quantile plot of the residuals

Question 10

2 / 2 pts

(10) Models need to be validated:

a. In-sample

b. Out-of-sample

Correct!

c. Both in-sample and out-of-sample

Quiz Score: **18** out of 20