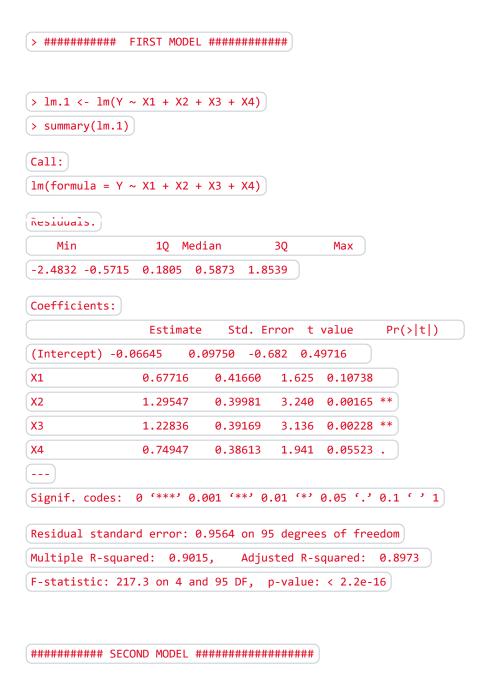
## Quiz 3 (Last part of Ch 6)

Started: Sep 19 at 5:28pm

## **Quiz Instructions**

This quiz involves a simulated data set with 100 observations and five variables Y, X1, X2, X3, and X4. Two regressions are fitted, as follows. Please answer the four T/F questions about these two models.



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```
Call:
lm(formula = Y \sim X1 + X3 + X4)
Residuals:
                  1Q Median
      Min
                                    3Q
                                             Max
-2.7781 -0.6107 0.1096 0.7207 2.0080
Coefficients:
                  Estimate
                             Std. Error t value
                                                    Pr(>|t|)
(Intercept) -0.01747
                       0.10097 -0.173 0.86301
X1
                1.99315
                           0.09727 20.491 < 2e-16 ***
                                   2.778 0.00659 **
X3
                1.13759
                           0.40956
X4
                0.82137
                           0.40412 2.033 0.04486 *
---
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Residual standard error: 1.003 on 96 degrees of freedom
Multiple R-squared: 0.8906, Adjusted R-squared: 0.8871
F-statistic: 260.4 on 3 and 96 DF, p-value: < 2.2e-16
```

## In the first model, 1m.1, we find that the VIF for X2 is 20.18 and the VIF for X4 is 16.06. True or False: This means that X2 and X4 are collinear. True False

**Question 2** 

1 pts

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True or False: There might be no linear relationship between X1 and X3, even
though the VIF for X2 is 20.18 and the VIF for X4 is 16.06.
○ True
○ False

Question 3	1 pts
Note that in 1m.1, <i>only two predictors</i> have coefficients significantly different from zero: X2 and X3. The coefficient for X4 is just at the borderline of significance the coefficient for X1 is not significantly different from zero at all.	
On the other hand, in the model 1m.2, all three predictors X1, X3 and X4 have coefficients significantly different from zero.	;
<u>True or False:</u> Since all the predictors in <u>lm.2</u> are significant, and only two of four predictors in <u>lm.1</u> are significant, <u>lm.2</u> is a better model than <u>lm.1</u> .	the
○ True	
○ False	

Question 4	1 pts
Comparing models [lm.1] and [lm.2]	
True or False: X2 and X1 appear to be collinear.	

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Quiz saved at 5:33pm

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