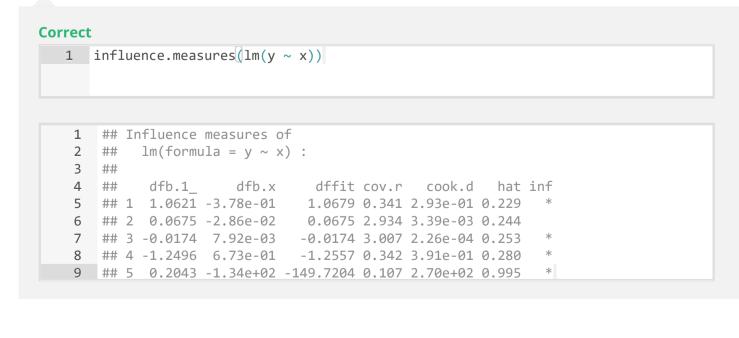
Consider the following data set 1 $x \leftarrow c(0.586, 0.166, -0.042, -0.614, 11.72)$ 2 y <- d(0.549, -0.026, -0.127, -0.751, 1.344) Give the hat diagonal for the most influential point 0.2804 0.9946 Correct 1 influence($lm(y \sim x)$)\$hat **1** ## 1 2 3 4 5 **2** ## 0.2287 0.2438 0.2525 0.2804 0.9946 1 ## showing how it's actually calculated $2 \times xm \leftarrow cbind(1, x)$ 3 diag(xm %*% solve(t(xm) %*% xm) %*% t(xm)) **1** ## [1] 0.2287 0.2438 0.2525 0.2804 0.9946 0.2025 0.2287

Consider the following data set 1 x <- c(0.586, 0.166, -0.042, -0.614, 11.72) 2 y <- d(0.549, -0.026, -0.127, -0.751, 1.344) Give the slope dfbeta for the point with the highest hat value.

-0.378 0.673 -.00134 -134 Correct 1 influence.measures($lm(y \sim x)$) 1 ## Influence measures of 2 ## $lm(formula = y \sim x)$: 4 ## dfb.1_ dfb.x dffit cov.r cook.d hat inf 5 ## 1 1.0621 -3.78e-01 1.0679 0.341 2.93e-01 0.229 *



Consider a regression relationship between Y and X with and without adjustment for a third variable Z. Which of the following is true about comparing the regression coefficient between Y and X with and without adjustment for Z. For the the coefficient to change sign, there must be a significant interaction term. The coefficient can't change sign after adjustment, except for slight numerical pathological cases. Adjusting for another variable can only attenuate the coefficient toward zero. It can't materially change sign. It is possible for the coefficient to reverse sign after adjustment. For example, it can be strongly significant and positive before adjustment and strongly significant and negative after adjustment. Correct See lecture 02_03 for various examples.