

1. Exercises

1.1 ISLR 2e (Gareth James, et al.): Section 3.7 (Exercises), page 123: Exercise 6.

The least square line equation is $y = \widehat{\beta}_0 + \widehat{\beta}_1 x$, so if I sub in \bar{x} for x , I get the following:

$$y = \widehat{\beta}_0 + \widehat{\beta}_1 \bar{x} = \bar{y} - \widehat{\beta}_1 \bar{x} + \widehat{\beta}_1 \bar{x} = \bar{y}$$

This means that the least squares line passes through the point (\bar{x}, \bar{y}) .

1.2 [1 point] In HW-2, Problem 2.1(c) and (g), you created two linear regression models. For each of these models, using residual analysis (see lecture notes) analyze the predictive properties of the models. (That is, look at the values of RSS and the residual plot and comment on how well do you think your model will predict.)

For RSS, I got 479635 and I got the same numbers for RSS, RSE, and RMSE for both models, but different histograms. The first model had a more normal distribution though.