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Small Project 1

(i) $price\ (hat) = -19.315 + 0.128sqrft + 15.198bdrms$

(price is measured in thousands of dollars)

N = 88, R-squared = 0.6319

(ii) The estimated increase in price for a house with one more bedroom, holding square footage constant, is approximately equal to 15,198 dollars.

(iii) If we add a bedroom, which is 140 square feet, to our existing house, it means that square footage and the number of bedrooms in the house will both change. Thus, the estimated increase in price is equal to the following:

$\uparrow in\ price = 0.128 * 140 + 15.198 = 33.118$ (in thousands of dollars), which is higher than the estimated increase in price for a house with one more bedroom, holding square footage constant, by 17,920 dollars.

(iv) The percentage of the variation in price, which is explained by square footage and number of bedrooms, is approximately equal to 63% (according to the found R-squared).

(v) The predicted selling price for the house with 2,438 square foot and 4 bedrooms is approximately equal to $-19.315 + 0.128 * 2438 + 15.198 * 4 = 353.541 \approx 354$ (in thousands of dollars)

(vi) The residual for the house is approximately equal to 300 - 354 = - 54 (in thousands of dollars). Since the residual is negative, it means that the buyer underpaid for the house.