Many factors can influence the price at which a house is listed for sale on the market. The dataset **CantonHousing.csv** contains such information about a large random sample of homes listed for sale.

Model 1

1. Fit and report the least squares regression equation for predicting **Price (in thousands)** using **Total Rooms**.
2. Examine residual plots for this model. Do you have any concerns about the appropriateness of this linear model?
3. Construct and interpret a 95% confidence interval for the population slope relating **Price (in thousands)** and **Total Rooms**.

1. Based on your confidence interval, is there evidence that **Total Rooms** is a useful predictor of list **price (in thousands)**? Explain briefly.

Model 2

1. Fit and report the least squares regression equation for predicting **Price (in thousands)** using **Sq. Ft.** (the size of the house).
2. Examine residual plots for this model. Do you have any concerns about the appropriateness of this linear model?
3. Test (include all steps) if there is evidence that **Sq. Ft.** (i.e., size) is a useful predictor of list **Price (in thousands).**

Model 1 Output

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Regression Equation**   |  |  |  | | --- | --- | --- | | Price (in thousands) | = | 25.7 + 0.05445 Sq. Ft |   **Coefficients**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Term** | **Coef** | **SE Coef** | **T-Value** | **P-Value** | **VIF** | | Constant | 25.7 | 17.9 | 1.43 | 0.156 |  | | Sq. Ft | 0.05445 | 0.00977 | 5.57 | 0.000 | 1.00 |   **Model Summary**   |  |  |  |  | | --- | --- | --- | --- | | **S** | **R-sq** | **R-sq(adj)** | **R-sq(pred)** | | 43.2995 | 31.35% | 30.34% | 26.50% | |  |

Model 2 Output

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Regression Equation**   |  |  |  | | --- | --- | --- | | Price (in thousands) | = | 24.4 + 12.84 Total Rooms |   **Coefficients**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Term** | **Coef** | **SE Coef** | **T-Value** | **P-Value** | **VIF** | | Constant | 24.4 | 26.0 | 0.94 | 0.351 |  | | Total Rooms | 12.84 | 3.36 | 3.82 | 0.000 | 1.00 |   **Model Summary**   |  |  |  |  | | --- | --- | --- | --- | | **S** | **R-sq** | **R-sq(adj)** | **R-sq(pred)** | | 47.4114 | 17.69% | 16.48% | 13.17% | |  |