Chapter 11. Linear Regression

Multiple Linear Regression

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Outline

Multiple Linear Regression

The multiple linear regression analysis concentrates on a model that has more than one independent (explantaory) variable. The independent variables are used to predict the dependent variable.

Multiple Linear Regression Modeling

- Purpose of multiple regression analysis is prediction
- Model: $y = b_0 + b_1 x_1 + ... + b_n x_n$; where b_i are the slopes, y is a dependent variable and x_i is an independent variable.
- Correlation coefficient, r_{ij}.
- Coefficient of determination, R^2 (or multiple R^2).

Multiple Linear Regression Modeling

continued

- Standard error of the estimated regr. line, s.
- Test hypothesis of slopes, p-value.
- Slope confidence intervals.
- Residual calculation.

MLR

Real Estate Example

A realtor in a suburban town would like to study the relationship between the size of a single-family house (as measured by the number of rooms) and the selling price of the house. The study is to be carried out in two different neighborhood, one on the east side (code=0) of the town and the other on the west side (code=1). A random sample of 8 houses was selected with the following results: