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Statistical Modeling: Types of Variables

Let's start with a review of statistical modeling. As you might recall, the type of modeling depends on the level of measurement of two types of variables: response and predictors.

Response variables are also known as the outcome, target, or, in designed experiments, dependent variables. They are typically the focus of your business or research, and the variables that you seek to predict. Predictor variables are also known as input, explanatory, or, in designed experiments, independent variables. They are the measures associated with the response variables and therefore can be used to predict the value of the response variables.

In our Ames housing example, square footage, number of garages, and quality of heating system are predictor variables that we'll use to predict the value of the response variable, SalePrice.

Both the response and predictor variables can be either continuous, categorical, or ordinal. A continuous variable can take on any numeric measurement, whereas a categorical variable is associated with specific non-numeric levels. For example, a common categorical variable is status, with the levels on and off. An ordinal variable is similar to a categorical variable, but the levels have a natural hierarchy such as low, medium, and high.

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