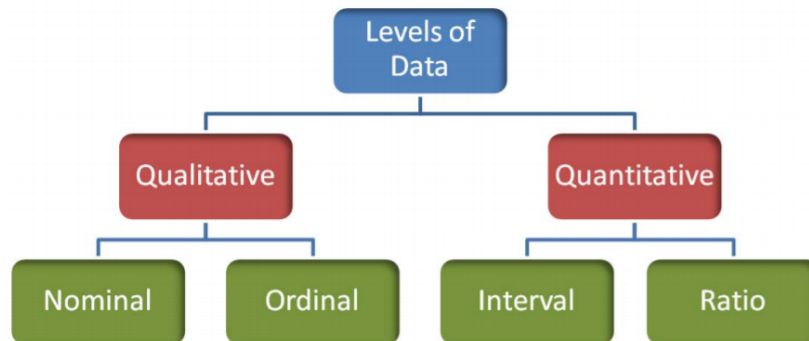


### 1.3.3: Levels of Data

Data can also be organized into four levels of data, Nominal, Ordinal, Interval and Ratio



**Nominal Data** are qualitative data that only define attributes, not hierarchal ranking. Examples of nominal data include hair color, ethnicity, gender and any yes/no question.

**Ordinal Data** are qualitative data that define attributes with a hierarchal ranking. Examples of nominal data include movie rating (G, PG, PG13, R, NC17), T-shirt size (S, M L, XL), or your letter grade on a term paper.

The difference between Nominal and Ordinal data is that Ordinal data can be ranked, while Nominal data are just labels.

**Interval Data** are quantitative data that have meaningful distance between values, but do not have a "true" zero. Interval data are numeric, but zero is just a place holder. Examples of interval data include temperature in degrees Celsius, and year of birth.

**Ratio Data** are quantitative data that have meaningful distance between values, and have a "true" zero. Examples of ratio data include time it takes to drive to work, weight, height, and number of children in a family. Most numeric data will be ratio.

One way to tell the difference between Interval and Ratio data is to look if zero has the same value under all possible units. For example zero degrees Celsius is not the same as zero degrees Fahrenheit, so temperature has no true zero. But zero minutes, zero days, zero months all mean the same thing, since for time zero means "no time."

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