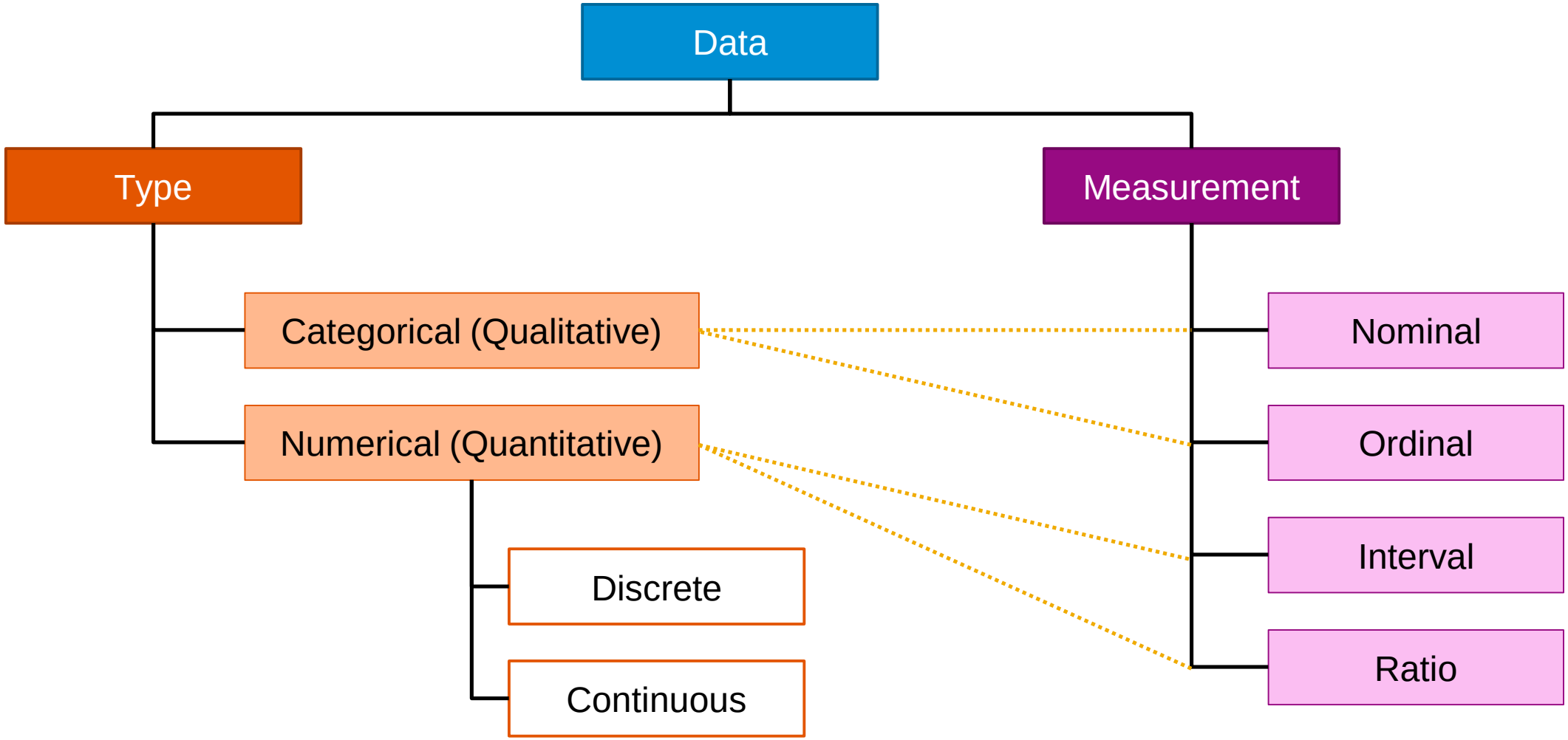
Week 2: Descriptive Statistics

# Unit 1: Data Types

Data Types

# Introduction



# Quantitative or qualitative

## Quantitative or Numerical Data

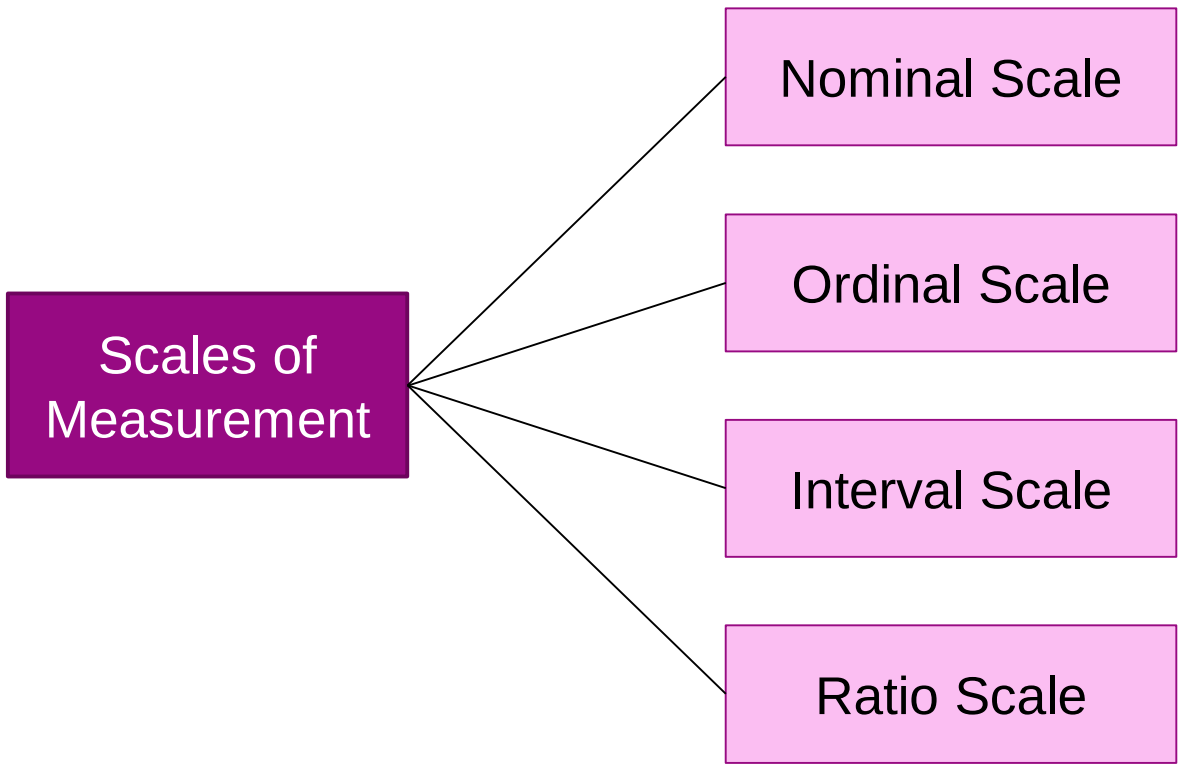
- Age of a person (28 years)
- Height of a person (1m 72cm)
- Exam score (85%)
- Dollar amount of salary

## Qualitative or Categorical Data

- Gender of a person
- Ethnicity of a person
- Grading system (A, B, C, D)
- Income level (low, medium, high)

Data Types

# Scales of measurement



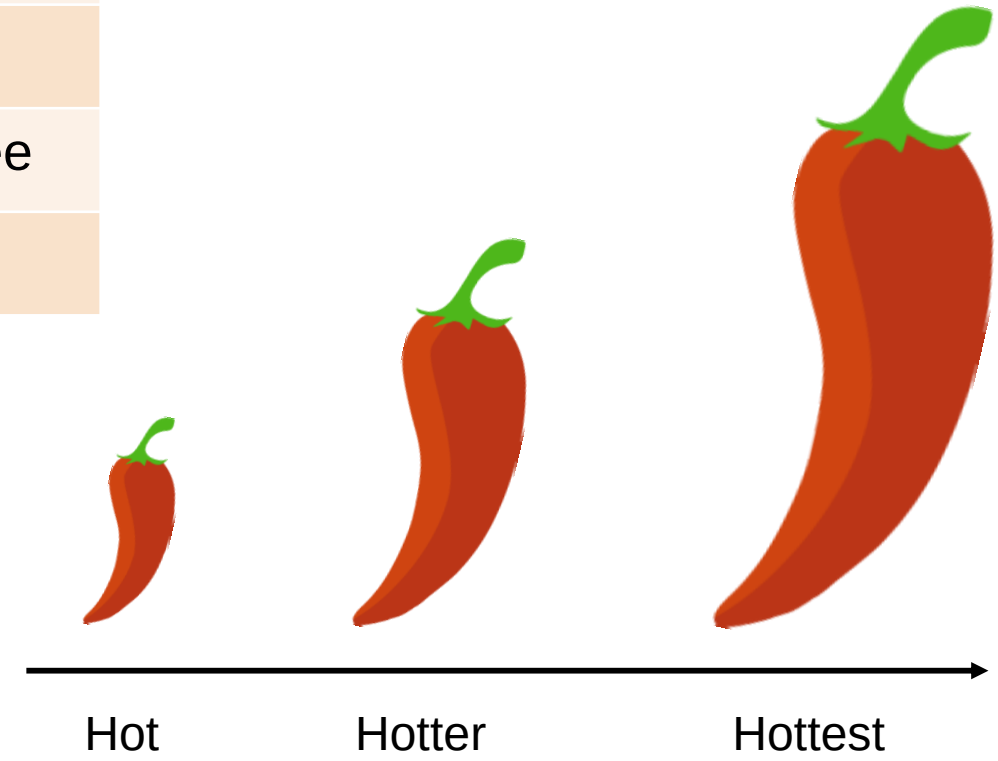
# Nominal scale

| | |
|---|---|
| **Gender** | Male or Female |
| **Ethnicity** | Caucasian, African, Asian, or Latino |
| **Marital Status** | Married, Divorced, Separated, Single |
| **Payment** | Debit, Credit, or Cash |

# Ordinal scale

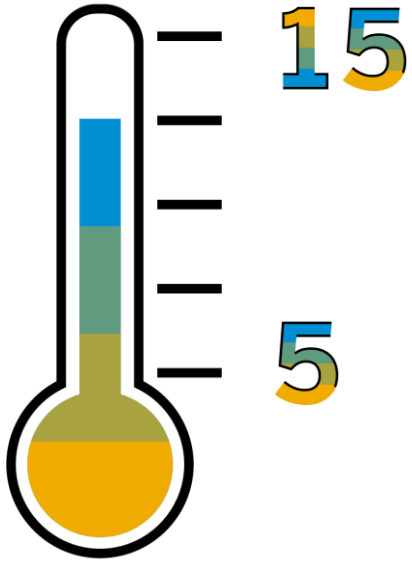
| | |
|---|---|
| **Income Level** | Low Income, Middle Income, High Income |
| **Rating** | Excellent, Good, Average, Poor |
| **Pain Level** | Mild, Moderate, Severe |
| **Risk Level** | Strongly Agree, Agree, Neutral, Disagree |
| **Frequency** | Often, Sometimes, Seldom, Rare |

**The “Hot” Scale**



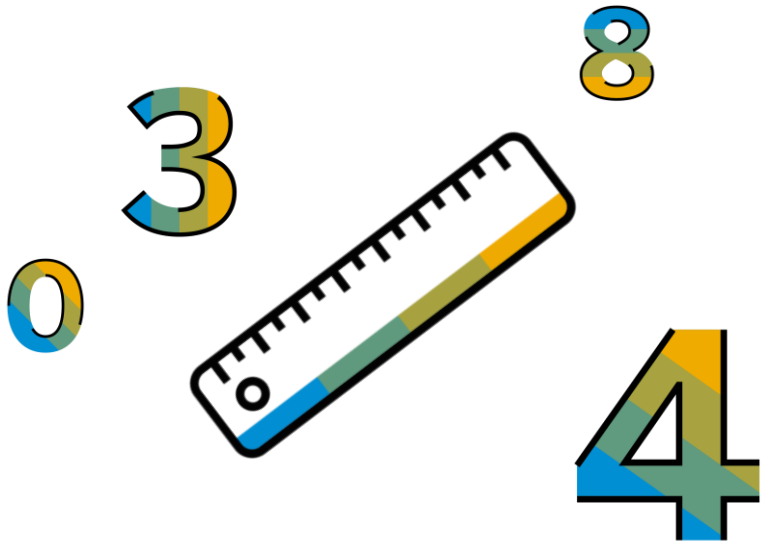
# Interval scale

- Interval data is numbers and can be quantified.
- Data can be ranked from the lowest to the highest. Not only can you say one item is greater or smaller than the other item (example:15°C is warmer than 5°C), but you can also say by how much or by how much less (example: 15°C is warmer than 5°C by 10°C).
- You can only apply limited mathematical operations such as addition and subtraction to manipulate interval data, but you **cannot** use division or multiplication.
- Examples: *Dress Size, Shoe Size, IQ Level, Temperature (Celsius or Fahrenheit)*



# Ratio scale

- Data are numbers and can be quantified.
- Data can be ranked from the lowest to the highest.
  - For example, a person who is 12 years of age is younger than a person who is 36 years of age.
- Examples: *Price ($), Income ($), Age (years), Weight (kg), Distance (miles or centimeters)*.



# Summary

- The data type and measurement dictate how data should be summarized using mean, median, and mode.
- The inferences that can be drawn from a study can only be related to the data being used.
- Understanding data types is fundamental to your goal to ensure the proper use of statistical methods when analyzing data.

# Thank you.

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