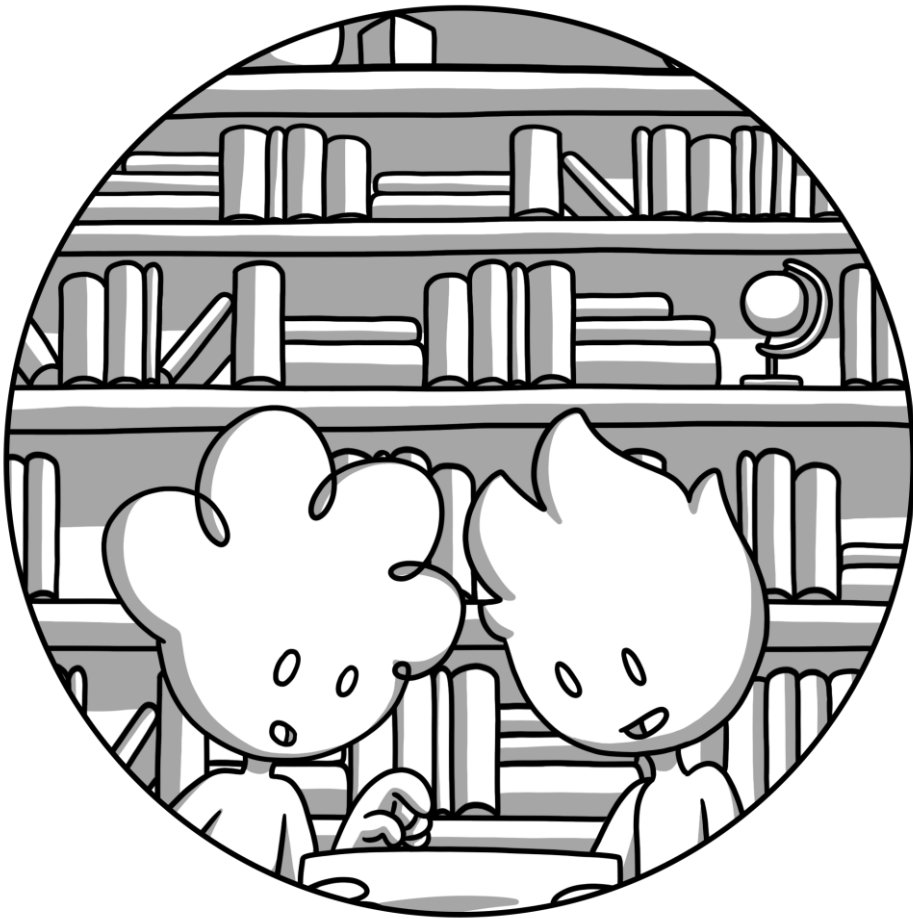


# Attribute Types



This comic was created in the course of the research project Comixplain, funded by St. Pölten UAS in the course of the Innovation Call 2022.

**Project Team:**

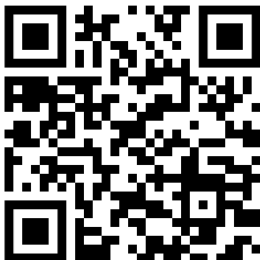
Victor-Adriel De-Jesus-Oliveira  
Hsiang-Yun Wu  
Christina Stoiber  
Magdalena Boucher  
Alena Ertl

**Contact:**

victor.oliveira@fhstp.ac.at

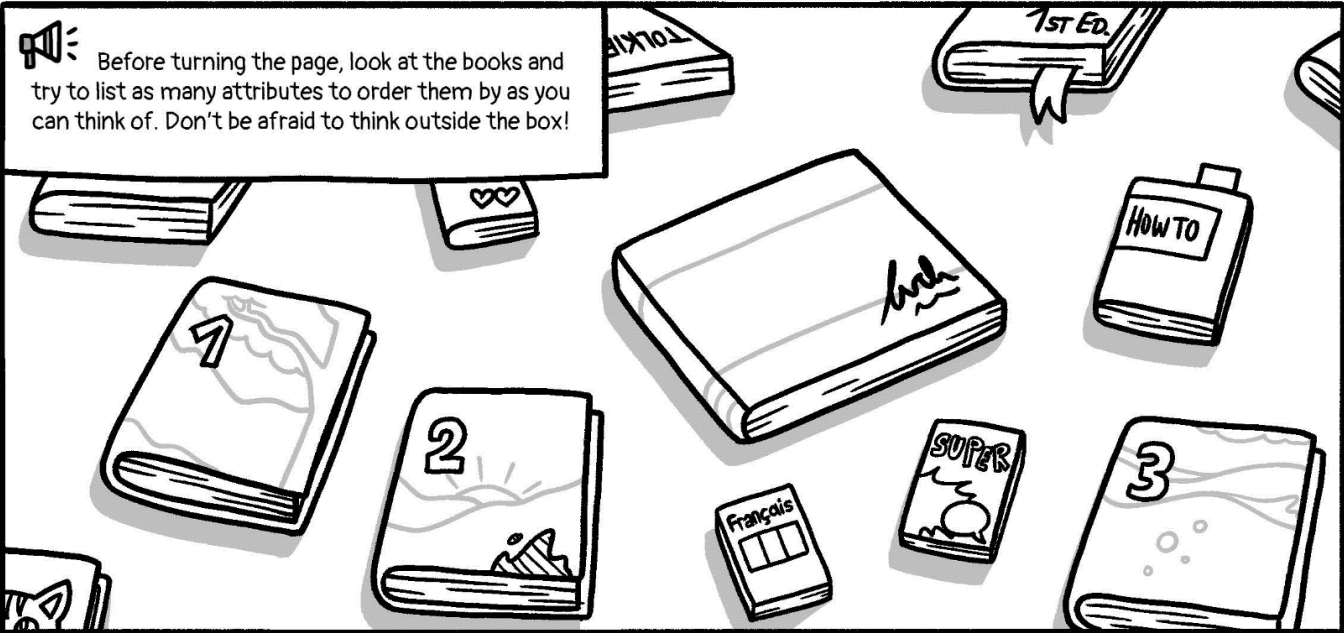
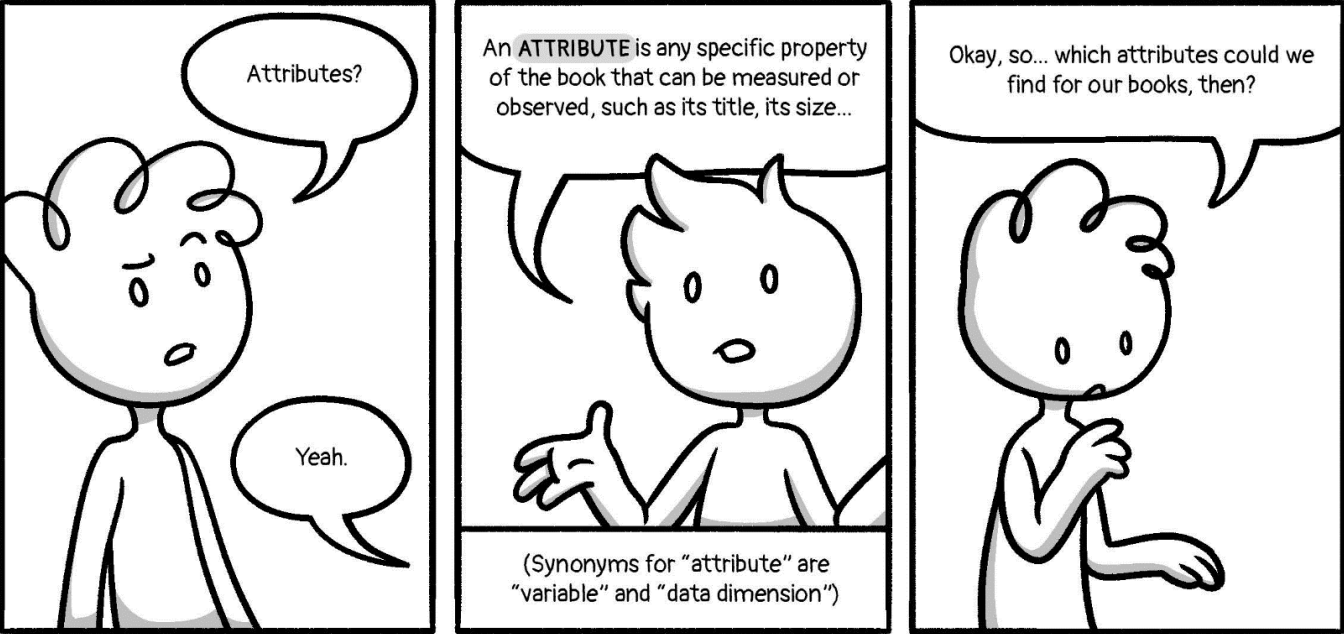
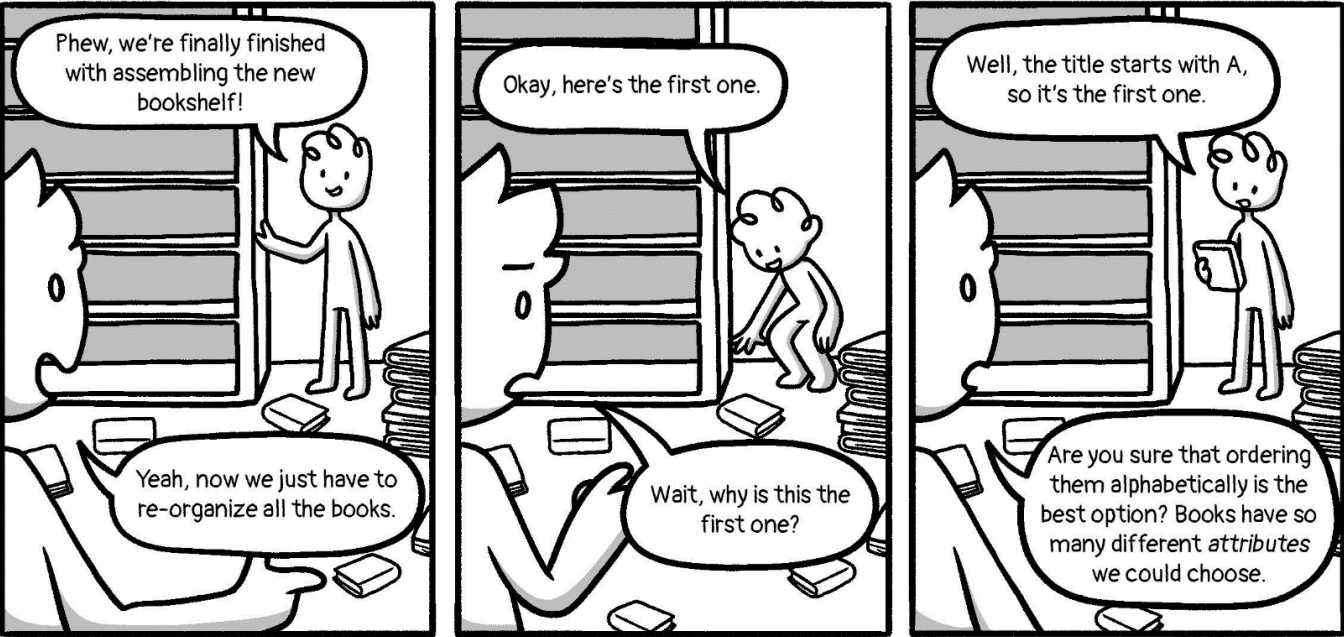
**Illustrations:**

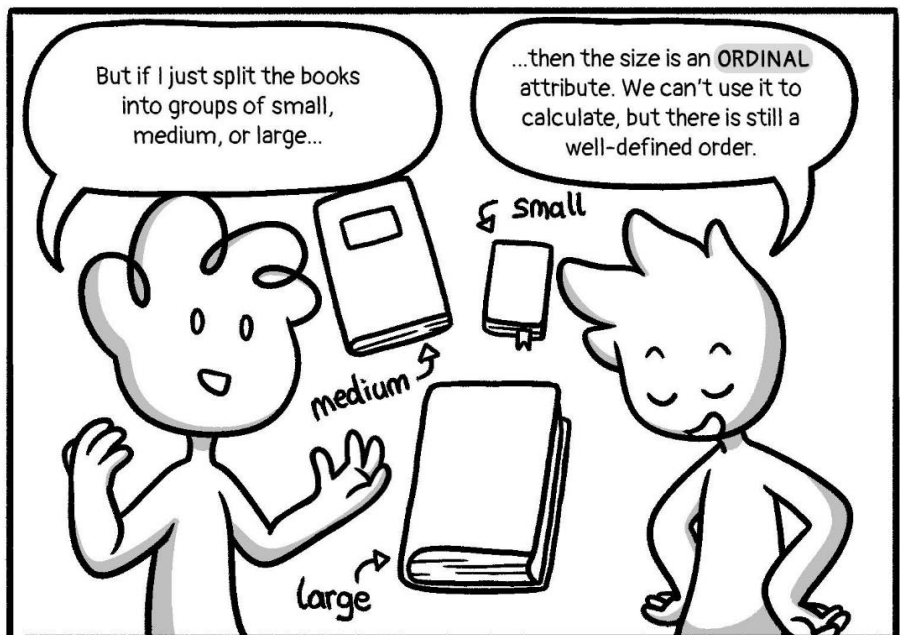
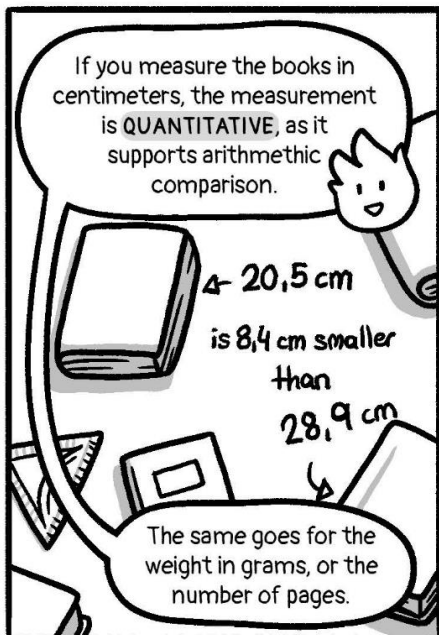
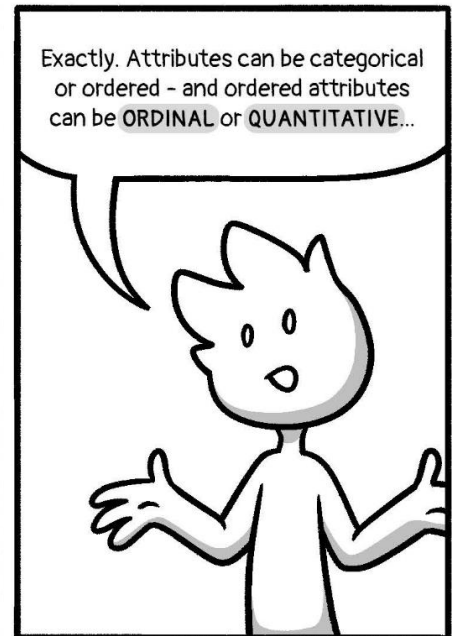
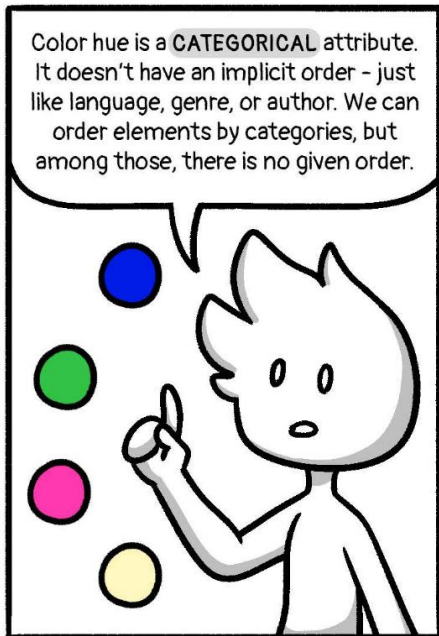
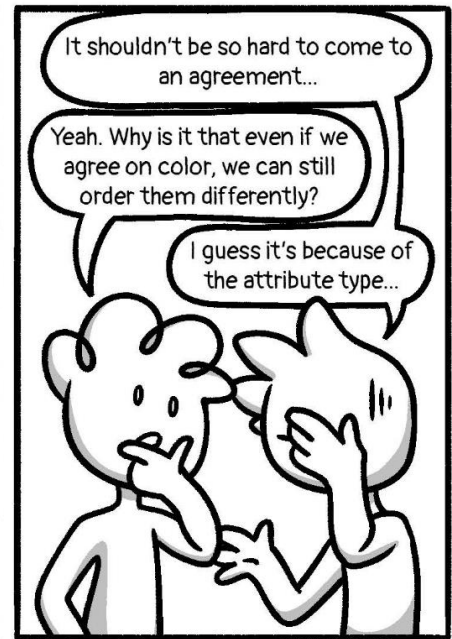
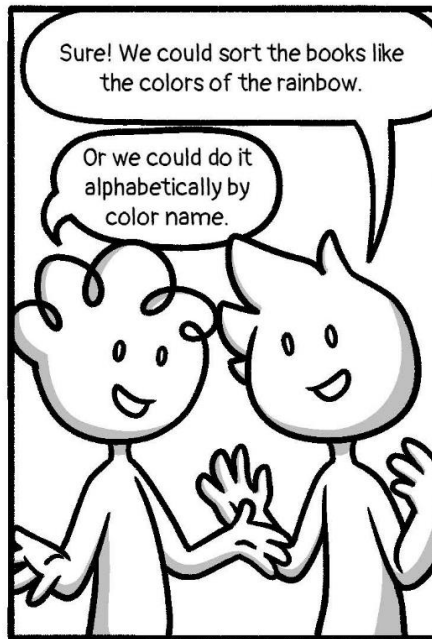
Magdalena Boucher & Alena Ertl



<https://fhstp.github.io/comixplain>

Data Attribute Types





## Data Attribute Types

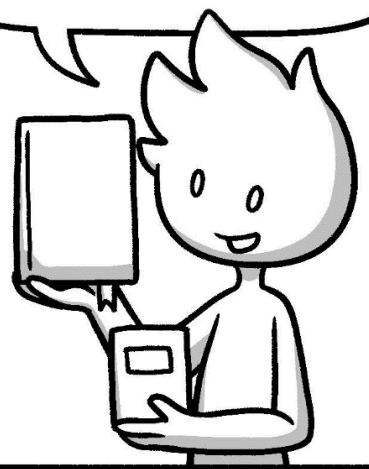
A variable can even be transformed to have another attribute type after you have collected the data.



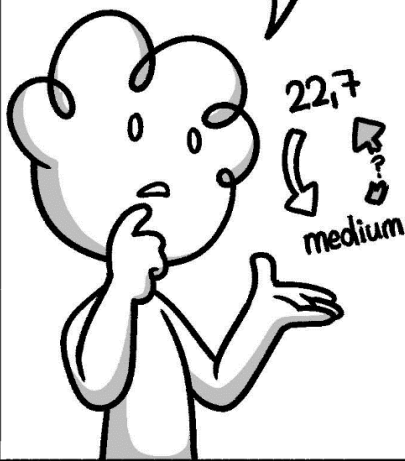
Like measuring all books in centimeters, and then deciding that every book under 18 centimeters is "small"? That would be transforming a quantitative attribute into an ordinal one.



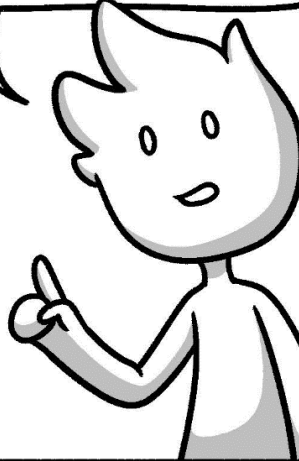
You're right. You could go even further and transform it into a binary categorical attribute: Pocketbooks or normal-sized.



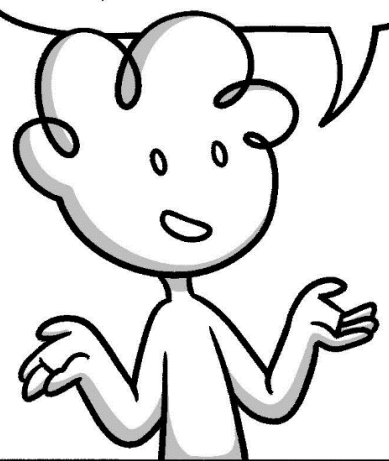
Oh, true. But doesn't that mean we'd lose most of the details of the data?



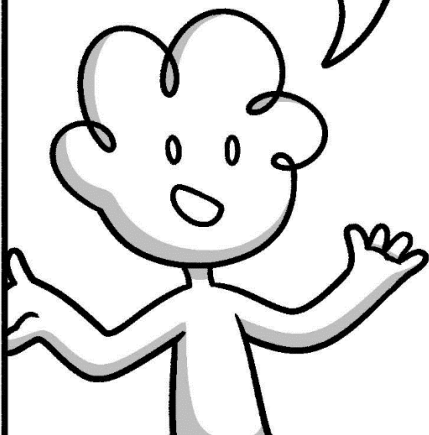
Yes, these transformations are *lossy*. Therefore, if you're not sure how you'll use the data, it might be better to collect it in more detail.



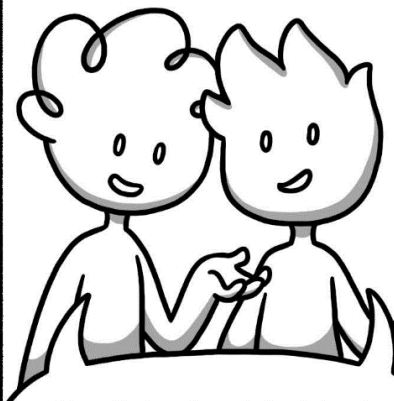
That makes sense. You can always transform a quantitative value, but if you only have categorical values from the start, you cannot switch to quantitative ones later.



Great, now that we both know everything about data attributes and attribute types, we can make an informed decision!



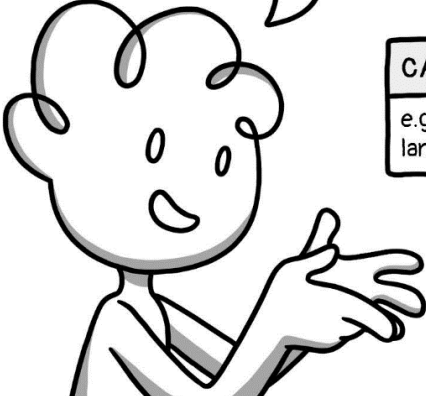
Sure, I will **attribute** that task to you and go grab a snack. Most of the books are yours, anyway.



Now that we have talked about data attributes and their types, turn the page and see if you can apply the knowledge in some exercises!




Remember: An attribute is a specific property that can be measured, observed, or logged. This graphic gives you an overview of the different attribute types.



# ATTRIBUTES

- CATEGORICAL**  
e.g., color, genre, author, language...
- ORDERED**
  - ORDINAL**  
educational level, shoe size, age group...
  - QUANTITATIVE**  
centimeters, kilograms, exact age, temperature...

Sources:  
- Munzner, T. (2014). Visualization analysis and design. CRC press.  
- Lazar, J., Feng, J. H., & Hochheiser, H. (2017). Research methods in human-computer interaction. Morgan Kaufmann.

 Here is another exercise on attribute types: See how many different attributes you can find for this assortment of chocolates!

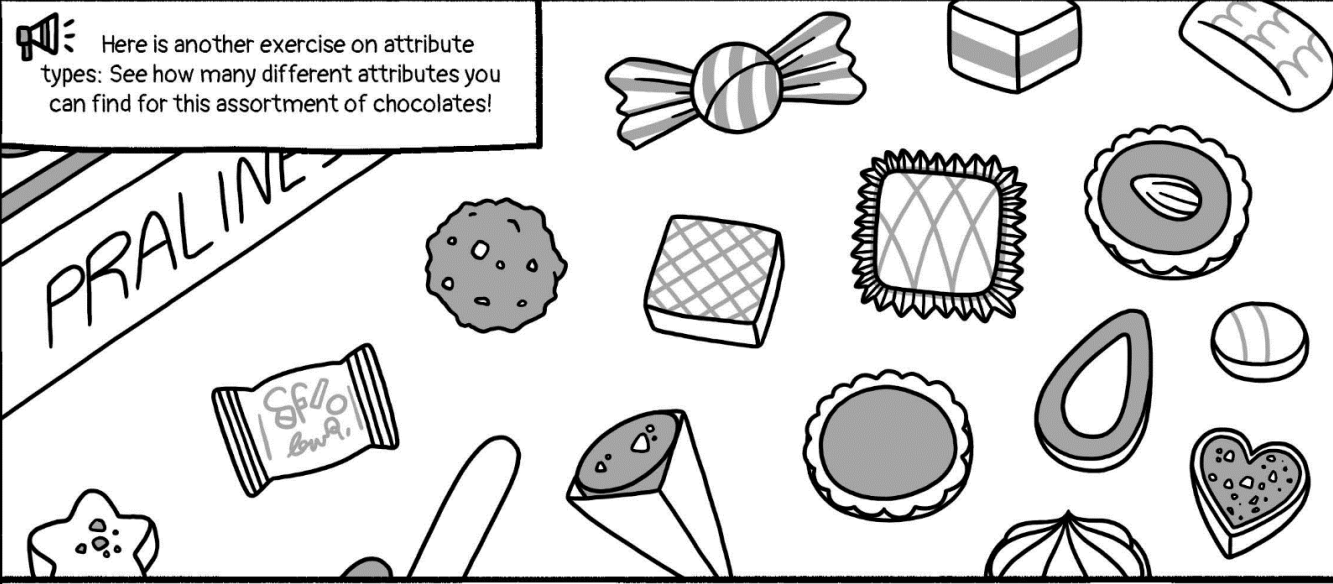



Fig.: size, weight, shape, color, flavor, calories, sugar/fat..., number of nuts, type of wrapping/filling/chocolate..., expiration date, consistency, (not) handmade...

 Most of the time, data is presented to you in tables. Try to guess the attribute types of each row!

Title	Director	Actor	Length	Year	Popularity	Genre
Goldfinger	Hamilton	Connery	112	1964	7.7	Action
Ben Hur	Wyler	Heston	212	1959	8.2	Action
Ben Hur	Niblo	Novarro	133	1926	7.4	Drama
Gladiator	Scott	Crowe	155	2000	8.5	History
Casablanca	Curtiz	Bogart	102	1942	9.5	Romance

Categorical: Title, Director, Actor, Genre | Quantitative: Year, Length, Popularity

**Sources:**

Munzner, T. (2014). Visualization analysis and design. CRC press.

Lazar, J., Feng, J. H., & Hochheiser, H. (2017). Research methods in human-computer interaction. Morgan Kaufmann.