

## Chapter 1 Statistics and Data Science

# 1.3 Variables and Data

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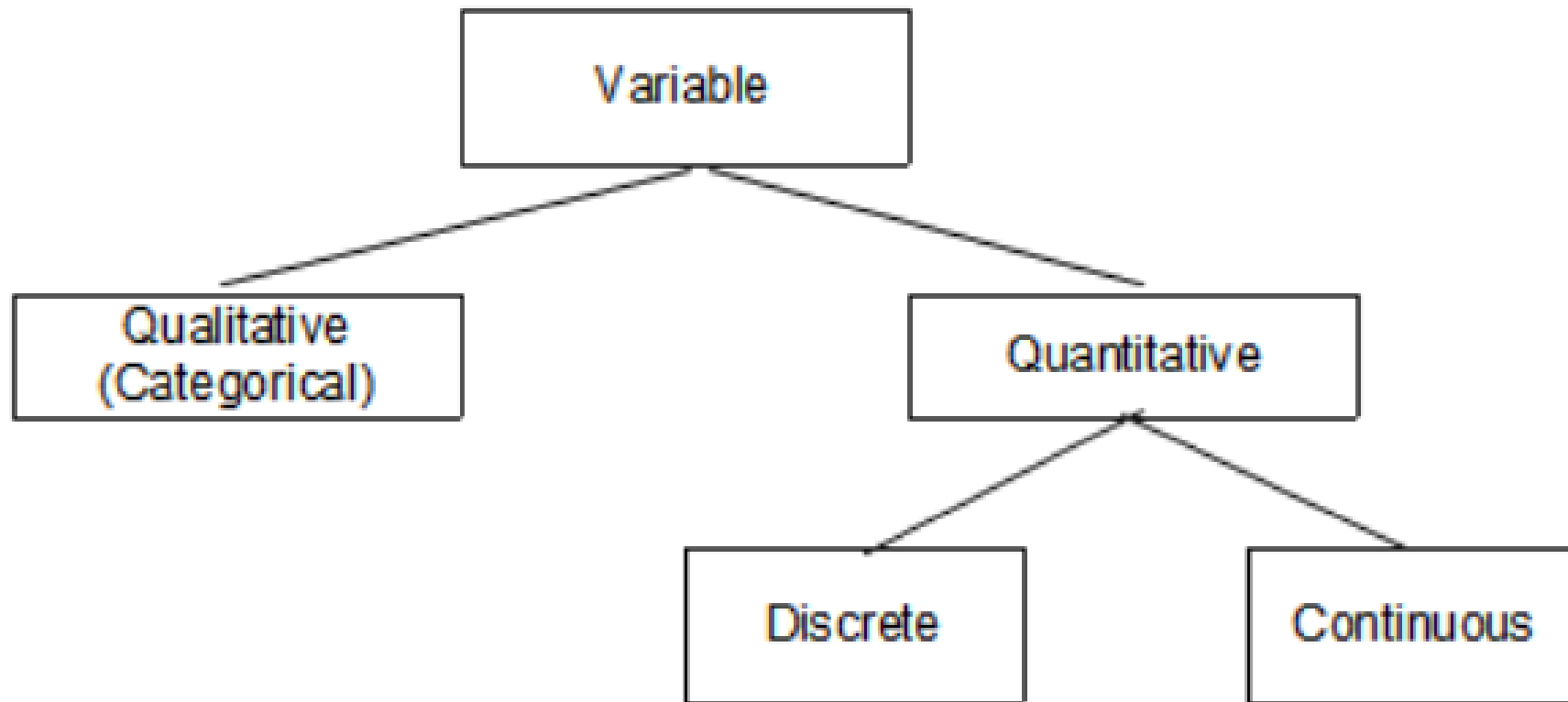
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## 1.3 Variables and Data

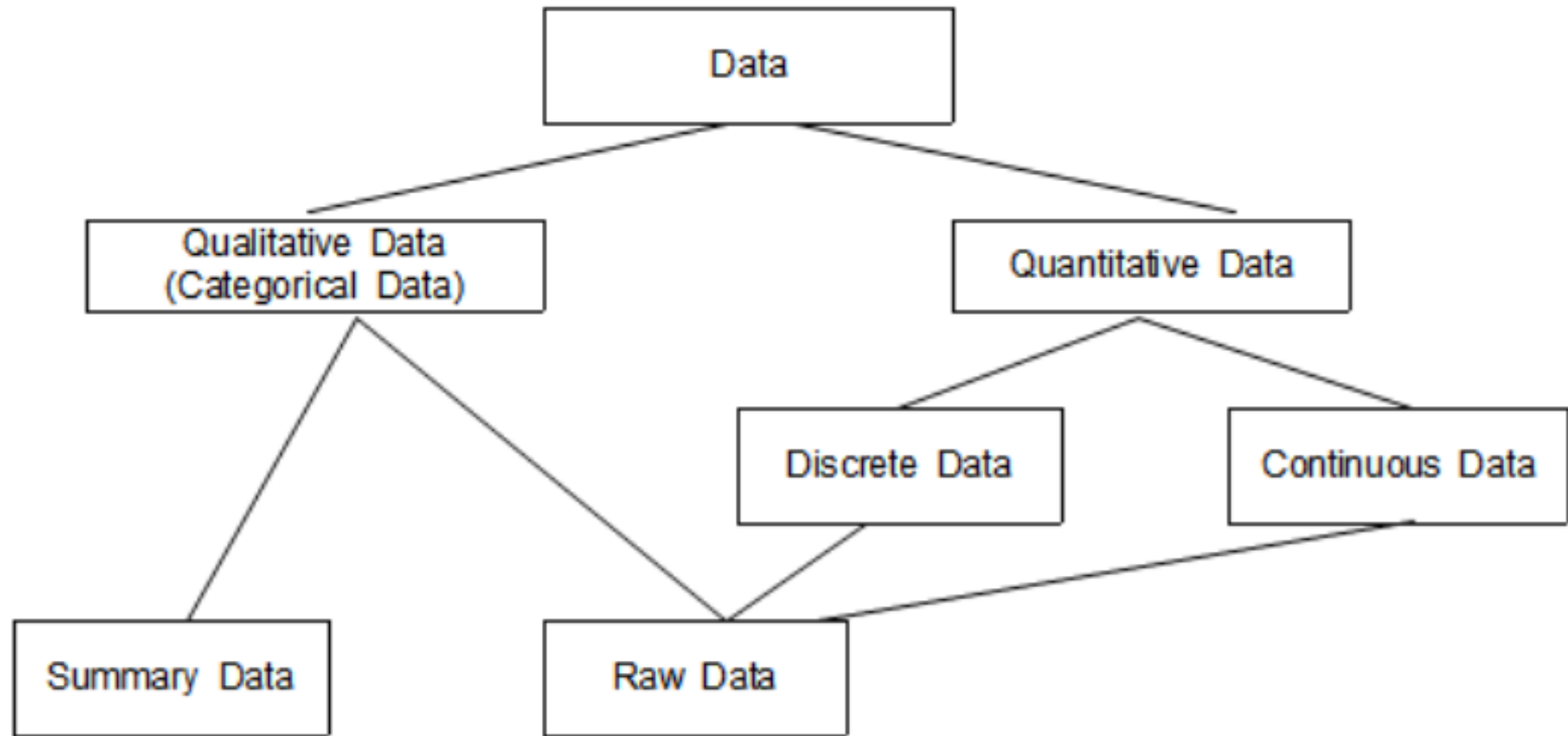
- **Data** are values that observe or measure the properties of an object or event that are of interest by a given rule.
- The property of these objects or events is called a **variable**.
  - if you measured the gender and height of a college student, there are two variables (gender and height).
- **Qualitative variable**: Attributes of gender are 'Male', 'Female',... (Categorical variable)
  - => frequency analysis
- **Quantitative variable**: Height are 180cm, 165cm, 175cm, ...
  - => Discrete(countable) vs Continuous(uncountable) variable
  - => statistical analysis

## 1.3 Variables and Data



<Figure 1.3.1> Types of variables

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<Figure 1.3.2> Types of data

## 1.3 Variables and Data

- Categorical data are classified either **raw data** or **summary data**

### - Raw Data of Gender

row	Gender
1	Male
2	Female
3	Male
4	Female
5	Male
6	Male
7	Male
8	Female
9	Female
10	Male

### - Summary Data of Gender

Gender	Students
Male	6
Female	4

- 'Gender' **variable name**
- , 'Male' or 'Female' **variable value**



Thank you