**What is variable?**

A variable is a property that can take only values

**Ex**: Age = 14, Age = 25, Age = 100, here age is an variable which is holding different values.

Ages = [24, 25, 27, 30, 28]

**Different types of variables:**

There are 2 types of variables are there.

1. **Quantitative variable**
2. **Qualitative variable**

**Quantitative variable:**

**Which we can measured numerically (Mathematical Operations)**

**Ex:** Age, weight, height, rainfall (cms), temperature, distance etc**.**

**Qualitative variables: Categorical variables**

**Based on some characteristics, they are grouped together**

**Ex:** Gender, types of flower, types of movies etc**.**

**Quantitative variable** is further divided into **2 types**

* **Discrete variable - Whole numbers. Ex:** number of bank a/cs -1,2, number of children -1,2,3
* **Continuous variable – Decimal Numbers. Ex:** Height, weight, age, rainfall, speed

**Exercise:**

* What kind of variable is Marital status – **Categorical**
* What kind of variable is Gender - **Categorical**
* What kind of variable is Ganga river length – **Continuous**
* What kind of variable is Movie duration - **Continuous**
* What kind of variable is Pincode – **Discrete**

Let us discuss some more examples for better understanding of different variables.

|  |  |  |
| --- | --- | --- |
| **Weight** | **Height** | **BMI** |
| 70 | 170 | 22 |
| 80 | 180 | 24 |
| 90 | 190 | 26 |
| 100 | 200 | 30 |

In the above example, we have **structured data** with all continuous variables (**weight, height and BMI** are **continuous variables**)

Lets discuss another example.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Age** | **Height** | **Gender** | **Weight** | **Education** |
| Sunny | 25 | 170 | Male | 70 | UG |
| Arijit | 30 | 180 | Male | 80 | PG |
| Prijam | 35 | 160 | Male | 60 | UG |
| Priya | 20 | 150 | Female | 55 | PhD |
| Aditi | 27 | 145 | Female | 58 | PG |

**Explanation**:

* **Name** – Categorical – Nominal (Order is not matter)
* **Age** – Numerical – Continuous
* **Height** – Numerical – Continuous
* **Gender** – Categorical – Nominal
* **Weight** – Numerical – Continuous
* **Education** – Categorical – Ordinal (Where order plays a major role. Ex: UG, PG and PhD is the sequence)