Random Variables

Random variable is a process of mapping the output of a random process or experiment to a number.

Example: Random process

Tossing a coin

Rolling a dice

Measure the temperature of next day

Random variables

$$X = \begin{cases} 0 & \text{if } H \\ 1 & \text{if } T \end{cases}$$

Y [Sum of rolling dice 7 times] $= \{4, 6, 5, 1, 2, 3, 1\}$

$= 22$

difference random variables and variable we use in linear algebra

$$\begin{aligned} x + 5 &= 7 \\ y + x &= 10 \end{aligned} \quad \Big] \quad \begin{aligned} x &= 2 \\ y + 2 &= 10 \quad y = 8 \end{aligned}$$

values are fixed

where are values of random variables are dependent on outcomes of random experiment. Hence value is not fixed.