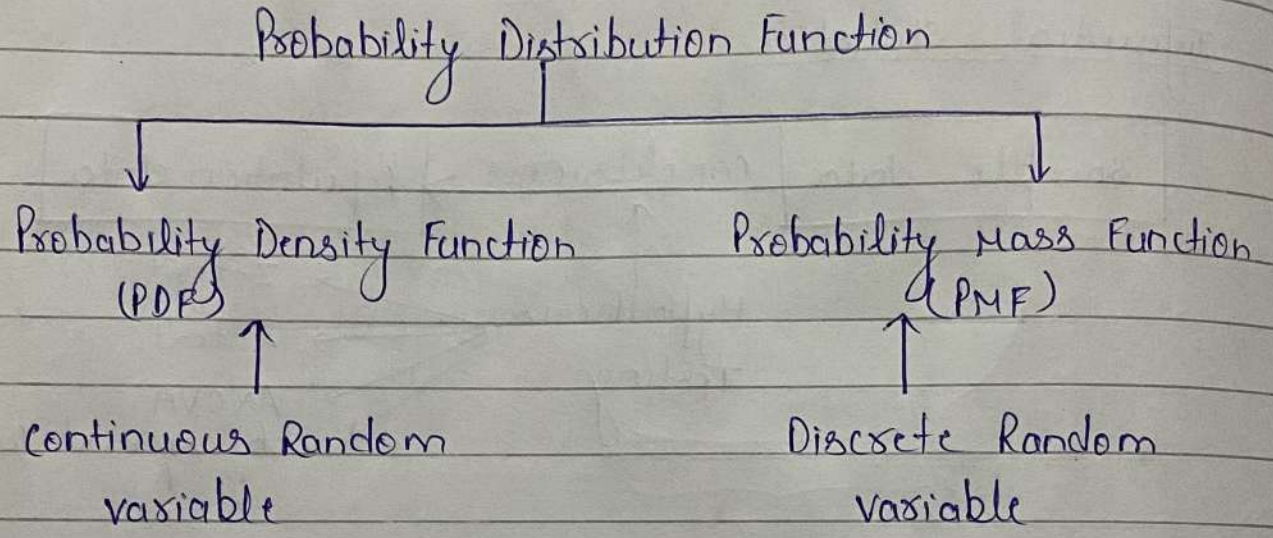
Distribution Functions

① Probability Distribution Function
② Probability Density Function (PDF)
③ Probability Mass Function (PMF)
④ Cumulative Distribution Function.



* Random variables :

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

Eg: • Tossing a coin

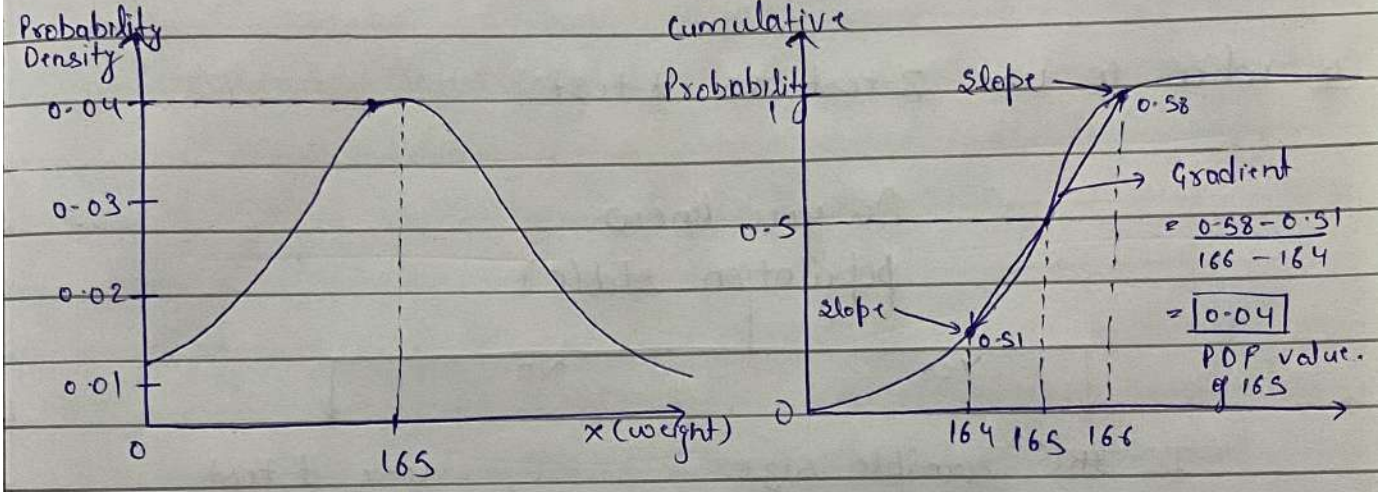
$$X : \begin{cases} 0 & \text{if Head} \\ 1 & \text{if Tail} \end{cases}$$

• Rolling a die

$$X : \{1, 2, 3, 4, 5, 6\}$$

Probability Density Function (PDF) — Cumulative Density Function (CDF)

(i) Distribution of continuous random variable.



Probability Density is the gradient descent of cumulative curve.

Probability Mass Function (PMF) — cumulative Distribution Function (CDF)

(ii) Distribution of discrete random variable

Eg: Rolling a die