RANDOM VARIABLES AND PROBABILITY DISTRIBUTIONS

Part 1

RANDOM VARIABLES AND PROBABILITY DISTRIBUTIONS

Definition:

A random variable is a rule that assigns a ***numerical value*** to each possible outcome of an experiment.

Example:

Flip a coin: ***S = {Heads, Tails}***

Call a head “1” and a tail “0”

S = {1, 0}

Random variables are DISCRETE or CONTINUOUS

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Discrete Random Variable:

A random variable is discrete if its values can assume integer values only.

Examples:

- number of sales in a week.
- number of typing errors in a page.
- number of telephone calls in an hour.
- number of customers waiting to be served in a coffee shop.

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Continuous Random Variable:

A random variable is continuous if its values can assume all points in a particular interval.

(in other words, values can be any real number.)

Examples:

- time between telephone calls to a helpline.
- weight of a food item in a supermarket.
- lifetime of a machine component.