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Topic Name

Sample Space and Events

Sample Space:

- Set of all possible outcomes is called as the Sample Space.
- It is denoted by Ω or s and each point in the set is called sample points
- Example
- 1) Coin is tossed once then sample space is given by,

  $\Omega = \{ H , T \}$

  2) Only one die is thrown sample space is given by,

  $\Omega = \{ 1 , 2 , 3 , 4 , 5 , 6 \}$

Types Of Sample Space :

- There are mainly 2 Types of Sample Space

1)Finite Sample Space:

The sample space Ω is said to be the finite sample space if it contains finite no. of points.

Example :

If we thrown one coin then sample space becomes, Ω ={ H , T }

2)Infinite sample space :

Infinite sample space has mainly two types,

a)Uncountable Infinite Sample Space:

The sample space Ω is said to be the uncountable infinite sample space if it contains uncountable in finite no. of points.

Example: 1) Stars in the sky 2) Values between 0 to1

b)Countable Infinite Sample Space:

The sample space Ω is said to be the countable infinite sample space if it contains countable infinite no. of points.

Example: 1) Tossing coin untill getting head

Events:

- Any result of experiment or any subset of sample space is called as events.

  Example:

1)If we tossed a coin then getting head then head is an event of that experiment.

2) If we throw a die and getting 6 is an event of that experiment.

Types of Events

1)Elementory /Simple Events:

The event in which we are interested in only one characteristicsis called elementory event.

Example

Getting "heads" with a single toss of a coin,

2) Complementory Event/Compound event:

Event in which we are interested in more than one characteristics called compound events.

Example

Probability of rolling an even number on a die, then tossing a head on a coin.

Union of events:

The elements which are belongs to either in A or in B or in both is called union of an events.

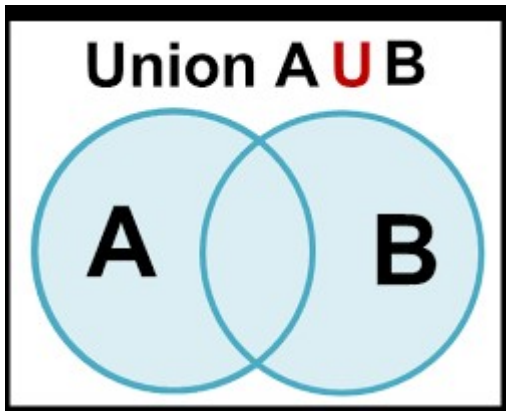
It is denoted by AUB.

Example:

A={ H } , B = { T }

AUB = { H , T }

Venn Diagram :



Intersection of Events:

The elements which are belongs to both A and B is called intersection of an events.

It is denoted by $A \cap B$.

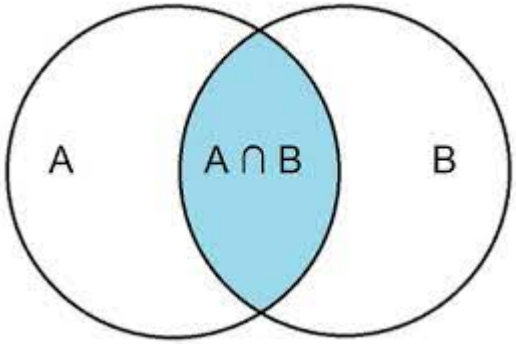
Example :

$A = \{1,2,3,4,5,6\}$

$B = \{2,4,6,8\}$

$A \cap B = \{ 2 , 4 , 6 \}$

Venn Diagram :



THANK YOU