**Probability**

It quantifies uncertainty it measures how likely an even is to occur.

Expressed as a number between 0 and 1

* Probability of 0 represents that event is impossible
* Probability of 1 represents that event is certain
* Probability between 0 and 1 reflects likelihood of the event occurring with larger number indicating higher likelihood.

**P(E) = number of favourable Outcomes for an event / Total number of Possible outcomes**

**Sample space**= set of al possible outcomes of a probabilistic experiment denoted by s or

**Event** is any subset of sample space. it consists of one or more outcomes.

Events were of two types-

* **Simple event**- contains exactly one outcome
* **Compound event** – contains more than one outcome

**Probability Rule**

1. **Non negativity rule**- P(E) = 0 the event is impossible P(E) = 1 the event is Uncertain
2. **Total Probability rule –** Som of probabilities for all possible outcomes in a sample space is 1 always.
3. **Complement’s rule** – The probability of the complement of an event is

P(Ec)= 1-(P(E))

1. **Addition rule** – the probability of the union of two events A or B
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2. **Addition rule for Mutually Exclusive** - Mutually Exclusive are those events that cannot occur at the same time.
3. **Multiplication rule** – is use to find the probability fo intersection

**Conditional Probability** – Probability of an event A occurring given that another event B has already occurred