

## DAILY ASSESSMENT FORMAT

Date:	18-06-2020	Name:	Abhishek
Course:	Statistical Learning	USN:	4al17ec001
Topic:	All topics	Semester & Section:	6 & 'A'
Github Repository:	Abhishek-online-courses		

### FORENOON SESSION DETAILS

Image of session

The screenshot shows the Great Learning interface. At the top, there is a navigation bar with the Great Learning logo and a user profile icon. Below the navigation bar, there is a blue button labeled 'Go Back to Statistical Learning'. Underneath, there is a purple link labeled 'Course Content'. The main heading of the page is 'Rules for Probability calculation'. Below this, there is a section titled 'Multiplication Rule' with the Great Learning logo. Under 'Multiplication Rule', there is a sub-section titled 'Independent Events' which contains the formula  $P(A \cap B) = P(A) \cdot P(B)$ . Below the formula, there is a paragraph explaining the rule: 'This rule says when the two events A and B are independent, the probability of the simultaneous occurrence of A and B (also known as probability of intersection of A and B) equals the product of the probability of A and the probability of B. Of course this rule can be extended to more than two events.'

Report –

Introduction to Probability:

- Probability means possibility.
- It is a branch of mathematics that deals with the occurrence of a random event.
- The value is expressed between zero and one.
- Probability has been introduced in Maths to predict how likely events are to happen.

### Rules for Probability Calculation

- **Rule of Subtraction** - The probability that event A will occur is equal to 1 minus the probability that event A will not occur.

$$P(A) = 1 - P(A')$$

- **Rule of Multiplication** - The probability that Events A and B both occur is equal to the probability that Event A occurs times the probability that Event B occurs, given that A has occurred.

$$P(A \cap B) = P(A) P(B|A)$$

- **Rule of Addition** - The probability that Event A or Event B occurs is equal to the probability that Event A occurs plus the probability that Event B occurs minus the probability that both Events A and B occur.

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

### Bayes theorem:

- **Bayes' Theorem** is a way of finding a probability when we know certain other probabilities.
- The formula is:

$$P(A|B) = P(A) P(B|A) / P(B)$$

- Which tells us:

how often A happens given that B happens, written  $P(A|B)$ ,

- When we know:

how often B happens given that A happens, written  $P(B|A)$

and how likely A is on its own, written  $P(A)$

and how likely B is on its own, written  $P(B)$

### Normal distribution:

- Normal distribution, also known as the Gaussian distribution, is a probability distribution that is symmetric about the mean, showing that data near the mean are more frequent in occurrence than data far from the mean.



### Shape of the normal distribution



