

SESSION PLAN 10

Session Name

Introduction to Probability

Learning Outcomes

- Understand how to calculate the probability
- Learn how probability can be utilized in decision making
- Understand and differentiate between various probability distributions
- Apply principles of probability to answers questions on real data

Prerequisites for the Student

- Introduction to Probability - Go through the concept and solve the tasks and assessments.

Student Activities

- Discuss with the Mentor what you have learned.
- Overview of Introduction to Probability
 - Conditional Probability & Bayes Theorem
 - Probability Distributions
- How many ways are there to split 10 people into 2 teams so that they can play 5 on 5 basketball?
- One hundred people line up to board an aeroplane. Each has a boarding pass with an assigned seat. However, the first person to the board has lost his boarding pass and takes a random seat. After that, each person takes the assigned seat if it is unoccupied, and one of the unoccupied seats at random otherwise. What is the probability that the last person to board gets to sit in his assigned seat?
- A classic example: **The famous Monty Hall Problem**
You're on a game show, and you're given the choice of three doors: Behind one door is a car; behind the others, goats. You pick a door, say No. 1, and the host, who knows what's behind the doors, opens another door, say No. 3, which has a goat. He then says to you, "Do you want to pick door No. 2?" Is it to your advantage to switch your choice? Will you switch or stay with your door?
- Take weather data and perform probability operations on weather data in the classroom so that learners can understand how to convert a probability into coding.
- Practice problems on Conditional Probability & Bayes Theorem and Probability Distributions.
 - Refer the GitHub repo for problems
- Quiz on Introduction to Probability.
- Questions and Discussion on doubts - AMA

Next Session

- Concept - Making Inference from Data
- Key topics to be highlighted - highlight where they would need to spend more time and importance w.r.t Data Science.
 - Basics of inferential statistics
 - Central Limit Theorem
 - Confidence Intervals
 - Hypothesis Testing