**Prerequisites**

Learners should have:

* Knowledge of descriptive statistics (mean, median, standard deviation, etc.),
* Conceptual clarity on probability distributions (especially binomial and normal),
* Awareness of sampling methods and central limit theorem, and
* Conceptual understanding of different hypothesis testing methods

**Session Overview**

In this 180-min-long live session, learners will gain hands-on experience in applying statistical concepts to real-world scenarios. The session is problem-driven, where learners will explore and solve a business use case involving a bank’s call-center. The session includes a deep dive into a realistic case problem, detailed solution walkthrough, and ends with open Q&A. The goal is to equip learners with the ability to compute test statistics and make data-driven business decisions. The final segment of the session is reserved for clarifying doubts and discussing key takeaways.

The associated session material can be found in [this](https://ueducation-my.sharepoint.com/:f:/g/personal/aranya_shirodkar_upgrad_com/EozSOiMUP5FMkAlZoPXT8U4BynAiMhWIpJW5cUhF4pjOdw?e=rGZWKm) folder.

**Learning Outcomes**

By the end of this session, learners will be able to:

* Calculate measures for describing the data
* Calculate probabilities and confidence intervals for a given metric
* Calculate parameters for a sample proportion
* Draw inferences based on the calculated values

**Brief Agenda**

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| **Section** | **Title** | **Comments** | **Duration (mins)** | **Mode** |
| **I** | **Introduction** | Overview of session flow, and business context | 5 mins | - |
| **II** | **Revision** | Recap the concepts: normal distribution, confidence intervals, margin of error | 30 mins | Theory |
| **III** | **Problem Statement** | Discuss the case of Finmax Bank, context of the problem, and the five practice questions  Give some more industry-relevant examples of inferential statistics | 30 mins | - |
| **IV** | **Solution Discussion-I** | Detailed walkthrough of the five questions with conceptual and computational explanations – relate the solution with business implications (solve by manual calculations or using Excel) | 75 mins | Demonstration |
| **V** | **Solution Discussion-II** | Solve the same questions by writing Python code | 30 mins | Demonstration |
| **VI** | **Q&A / Closing** | Final Q&A, troubleshoot issues  Recap key takeaways | 10 mins | - |

**Conclusion**

By the end of this session, learners will have practical understanding of basic statistics and be able to make business-driven inferences from sample data.

**What’s Ahead**

In the coming session, the focus will be on inferential statistics that involve hypothesis testing. Learners will make assumptions on the data and use the different techniques of hypothesis testing to conclude if those assumptions are true or not. This will help the business to take appropriate decisions based on thorough analysis of the data collected and preprocessed. All these concepts will be demonstrated using a case study.