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Learning for Life

Week 3: Hypothesis Testing (Total video duration= 2 hours. You will be required to spend 20 minutes/day along with practicing datasets and quizzes)

Learning Outcomes from the Module:

After learning from this module, learners will be able to understand:

- ▶ Central Limit Theorem and Sampling Distribution

- ▶ Hypothesis, formulation of Null and Alternate Hypothesis

- ▶ 1 sample t-test, z-statistics, p-value, Chi Square Test

- ▶ Case study on Hypothesis Testing, Hypothesis formulation

- ▶ Hands-on in Python to understand 1 sample and 2 sample T Test and Chi square Test

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Mentor Session Duration: 2 hours	Faculty Name: Dr. P K Viswanathan and Mr. Animesh Tiwari			No. of videos: 8
Video No.	**Video Name**	**Duration of the video(mins)**	**Topics Covered**	**Conceptual or Hands On**
1	Central Limit Theorem	19:41	We will learn about sampling distribution and how it relates to Central Limit Theorem.	Conceptual
2	Hypothesis Testing	13:34	We will learn about Statistical Hypothesis, formulation of the null & alternative hypothesis and testing the hypothesis. Type 1 & type 2 errors.	Conceptual
3	Case Study - Hypothesis Testing	22:29	Marketing example by Parasuraman, what is decision rule to reject Null Hypothesis, Z-statistics, p-value to decide the level of significance and understanding 1-tailed test.	Conceptual
4	Examples of Hypothesis Formulations	18:31	Hypothesis Testing- Inline Questions, Using Strawberry case study to understand Hypothesis Testing and different Hypothesis Formulation exercises	Hands-On using Excel
5	T-Test	26:06	1 sample T-test Similar to z-test but sample standard deviation is used. 2 sample T test is used for two samples which are independent, have nothing in common. To compare before and after results, paired T Test is used.	Conceptual+Hands-On using Excel
6	Chi square Test	08:16	Dependence of categorical variables is dealt with Chi square Test of independence. Data is reduced to cross tab form.	Conceptual+Hands-On using Excel
7	T Test Hands On	07:16	Hands-on using Python with Internet Mobile Time Dataset to apply One sample and two sample T Test	Hands-on in Python
8	Chi square Hands On	02:01	Hands-on in Python to apply Chi Square Test	Hands-on in Python

Few textbooks
that you can refer to:

1

Business Statistics : A First Course

By Kathryn A Szabat David M. Levine, P. K. Viswanathan, David Stephan

2

Statistics for Business and Economics

by David R. Anderson, Dennis J. Sweeney