SNS COLLEGE OF TECHNOLOGY

An Autonomous Institution
Coimbatore-35

DEPARTMENT OF ARTIFICIAL INTELLIGENCE & DATA SCIENCE

23ADT202 – FUNDAMENTALS OF DATA SCIENCE AND ANALYTICS

II YEAR IV SEM

UNIT III –Interpretations - one-tailed and two-tailed tests

Interpretations: One-Tailed & Two-Tailed Tests

- Course: Statistics for Engineers
- Focus: Hypothesis Testing
- Instructor:

Empathize

- Applications:
- - Software optimization
- - Manufacturing
- - ML models
- Need correct test direction

Define Problem

- How to choose between directional vs non-directional tests?
- Avoid wrong conclusions

Overview

Two Types:
- One-tailed
- Two-tailed

Ideate

- Strategies:
- - Increase only
- - Decrease only
- - Any difference

One-Tailed Concept

- Tests effect in one direction only
- Right-tailed / Left-tailed

One-Tailed Hypothesis

- H0: $\mu = \mu 0$
- H1: $\mu > \mu 0$ OR $\mu < \mu 0$

Two-Tailed Concept

- Tests for any difference

Two-Tailed Hypothesis

- $H0: \mu = \mu0$
- $H1: \mu \neq \mu0$

Decision Rule

- One-tailed: α in one side
- Two-tailed: α split

Application

- Drug testing
- Network optimization
- Quality control

Evaluation

- One-tailed: powerful but risky
- Two-tailed: safer but less sensitive