



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad -500 043

COMPUTER SCIENCE AND ENGINEERING

COURSE HANDOUT

Course Name	PROBABILITY AND STATISTICS
Course Code	AHS010
Programme	B.Tech
Semester	II
Course Coordinator	Mr. J Suresh Goud
Course Faculty	Ms. P Srilatha
Lecture Number	39
Topics Covered	Null Hypothesis, Alternative Hypothesis
Course Learning Outcome's	Understand the concept of hypothesis testing in real-world problem to selecting the best means to stop smoking.

Testing of Hypothesis

Hypothesis testing:

A hypothesis is an assumption about something.

Example:

A hypothesis about family pets could be something like the average number of dogs per American household is two.

Testing of hypothesis:

Hypothesis test as the formal procedures that statisticians use to test whether a hypothesis can be accepted or not.

There are two types of testing of hypothesis

1. Null Hypothesis (H_0)
2. Alternative Hypothesis (H_1)

1. Null Hypothesis: There is no relationship between two quantities.

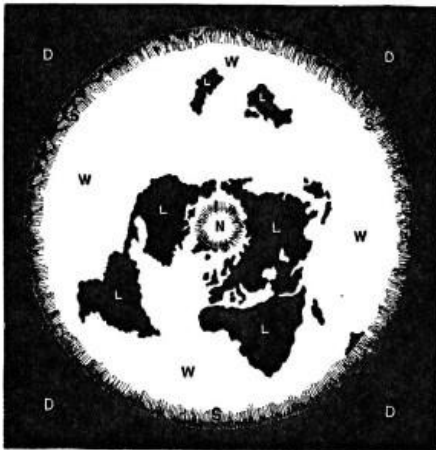
Example:

A ten percent increase in price will not adversely affect the sale of this product.

2. Alternative Hypothesis: It is the hypothesis differs from the given null hypothesis.

Example:

Not so long ago, people believed that the world was flat.



Null hypothesis: The world is flat.

Alternate hypothesis: The world is round.

Several scientists, including Copernicus, set out to disprove the null hypothesis. This eventually led to the rejection of the null and the acceptance of the alternate. Most people accepted it. The ones that didn't created the Flat Earth Society. What would have happened if Copernicus had not disproved the it and merely proved the alternate? No one would have listened to him. In order to change people's thinking, he first had to prove that their thinking was wrong.

Note: $H_0: \mu = 20$

$H_1: \mu \neq 20$ Two tailed test

$H_1: \mu > 20$ Right tailed test

$H_1: \mu < 20$ Left tailed test