

Chun  
Chun Analysis:

$\therefore$  NULL: negative statement / negation / Rejects.

$\therefore$  Alternative: True (to reject)  
False (Accept)

Fails to reject

Taking reviews from loyal customers.

## \* Hypothesis Testing:

Hypothesis testing is an act of possibility in statistics whereby an analyst test an assumption regarding a population parameter.

### Types:

- 1) NULL hypothesis: Statement formed over hypothesis
- 2) Alternative hypothesis: Any hypothesis that differs the null hypothesis.

\* NULL: 50% chances of landing heads.

\* Alternative: 50% chances of landing tails not heads

### Steps:

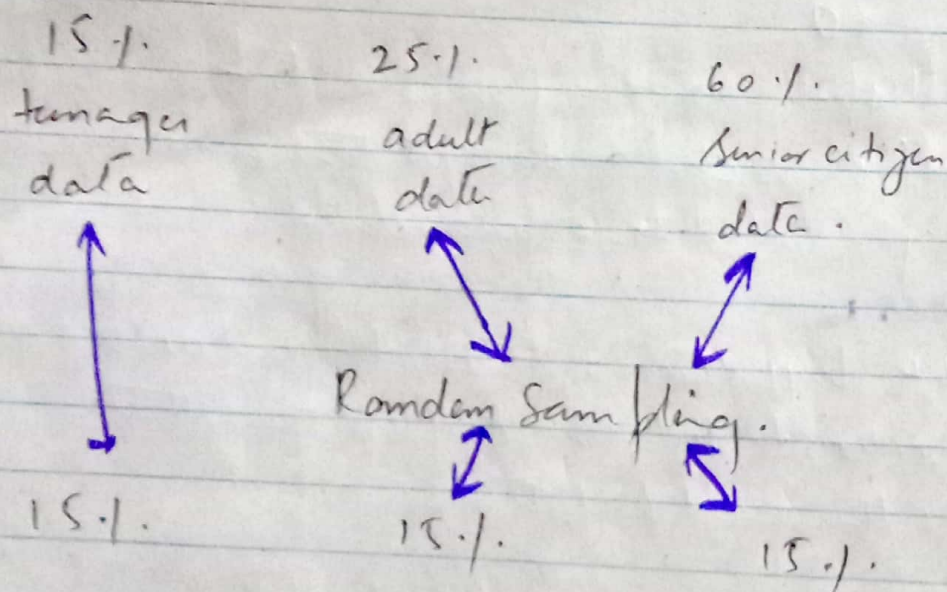
- 1) State your ~~own~~ research hypothesis as a null & alternative hypothesis.
- 2) Collect data in a way designed to test the hypothesis.
- 3) Perform an appropriate statistical test.
- 4) Decide whether to reject or fail to reject your null hypothesis.

HT: Student's reads statistics in their life. X  
90% Student's might read statistics in their life.  
Those who are present in the class. ✓

5) Present the findings in your results & discussion section.

- Close to mean: lesser - variance
- Away from mean: larger - variance.

Split of data from mean position.



better to reduce them in case the data.



## Confidence Interval :

Surety of ~~missin~~ confidence  
either you failed it or pass it.

### EXAMPLE:

pop mean = 168

pop std = 3.9

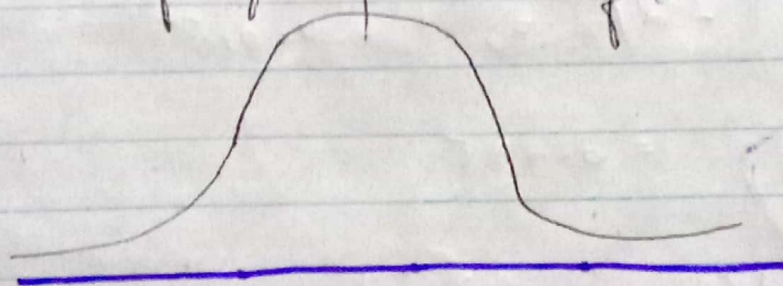
Sample size = 36

Sample mean = 169.5

Confidence Interval = 95%.

Alpha = 100% - CI = 100% - 95% = 5% = 0.05

Decision Boundary: Is basically a  $z$ -score  
for both left & right side of the mean.



$H_0$  = Null hypothesis = Mean value of pop is 168

$H_1$  : Alternative hypothesis = Mean value of pop  
is not 168.

$$\alpha = 0.05$$

If  $\alpha$  is greater than 30, a test will be performed  
on  $p$  value.

If vice versa, a test will be performed.

One tailed:

Either true or false.

Two tailed

Either 0 or 1 or may be 0.5.

We are going to perform by the two-tailed method, either to prove that the pop mean is 168 or smaller or bigger.

$$\alpha = 0.05 / 2 = 0.025$$

$$1 - \alpha/2 \Rightarrow 1 - 0.025$$

CI =

Confidence level

$$= 0.975$$

$$[CI = 0.975]$$

Search the value & take it as  $z$ .

$$\pm 1.96$$

$$z = \frac{x - \mu}{SD}$$

$$169.5 - 168 / 3.9 / \sqrt{n}$$

$$z = \frac{169.5 - 168}{3.9 \times \sqrt{36}}$$



$$z = 2.307$$

if  $z > t \Rightarrow$  "reject" else "pass"

$$2.307 > 1.96$$

Is rejected!

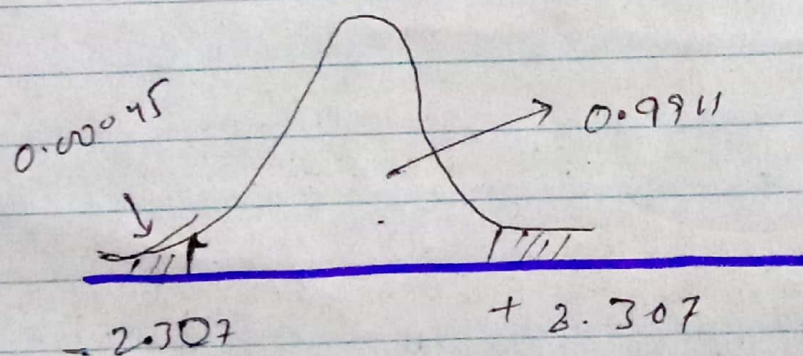
2.

$$H_0 = P_p = 168$$

X

$$H_1 = P_p \neq 168$$

✓



$$\rightarrow 1 - 0.9911$$

$$\rightarrow 0.009 / 2$$

$$0.00045$$

$$0.00045 \times 2 + 0.9911 = 1$$

$$\text{Possible} = 100\%$$

$$0.00045 < 0.05$$

$H_0$  is reject.