(2) In population the average IQ is 100 with a standard deviation of 15, A team of scientist wants to test a new medication to see if it has a true effect or no effect at all. A sample of 30 participants who have taken the medication has a mean of 100. Did the medication effect the intelligence

→ Population Data

$\mu = 100$

$\sigma = 15$

Sample Data

$n = 30$

$\bar{x} = 100$

Null hypothesis: Medication has no effect

Alternate hypothesis: Medication has effect

② Deciding The type of Test

Z Test condition

- Population standard deviation
- No population standard deviation
  sample size ≥ 30

T-test condition

① No population standard deviation or variance

② sample size is less than 30

We will use Z-Test

Confidence Interval = 95%

$\alpha = 1 - 0.95 = 0.05$

Two tail or One Tail

Hypothesis → +ve, -ve & both

Two tail test