TYPES OF INFERENCES

1. IDENTIFYING THE POPULATION MEAN

2. IDENTIFYING THE POPULATION %

3. VERIFYING WHETHER THE POPULATION MEAN IS EQUAL TO A CERTAIN VALUE

4. VERIFYING WHETHER THE POPULATION % IS EQUAL TO A CERTAIN VALUE

5. VERIFYING WHETHER 2 POPULATION MEANS ARE DIFFERENT

6. VERIFYING WHETHER 2 POPULATION % ARE DIFFERENT

1. IDENTIFYING THE POPULATION MEAN

CASE STUDY: THE AVERAGE WEIGHT OF FOOTBALL PLAYERS

A COLLEGE STUDENT HAS TO PERFORM A STATISTICAL STUDY

HE DECIDES TO FIND THE
AVERAGE WEIGHT OF A FOOTBALL PLAYER

THE POPULATION HERE IS
EVERY FOOTBALL PLAYER IN
THE WORLD (DEAD OR ALIVE)

STEP : 1

PICK A SAMPLE

OUR GUY JUST MEASURES THE WEIGHTS OF HIS COLLEGE'S TEAM

OUR GUY JUST MEASURES THE WEIGHTS OF HIS COLLEGE'S TEAM (IN lbs)

170	160	200	210	230	190	180	120	171	165	130	...	..	...	179	203

THERE ARE 45 PLAYERS IN ALL

CALCULATE THE SAMPLE STATISTICS

SAMPLE MEAN = MEAN OF WEIGHTS IN THE SAMPLE

= 173

STEP : 2

CALCULATE THE SAMPLE STATISTICS

SAMPLE MEAN = 173

SAMPLE SD $= \sqrt{\dfrac{\sum (x - \bar{x})^2}{n}}$

= 15

STEP : 2

CALCULATE THE SAMPLE STATISTICS

SAMPLE MEAN = 173

SAMPLE SD = 15

$$\text{STANDARD ERROR} = \frac{\text{SAMPLE SD}}{\text{SQRT(N)}} = \frac{15}{\text{SQRT(45)}}$$

$$= 2.23$$

STEP : 2

CALCULATE THE SAMPLE STATISTICS

SAMPLE MEAN = 173

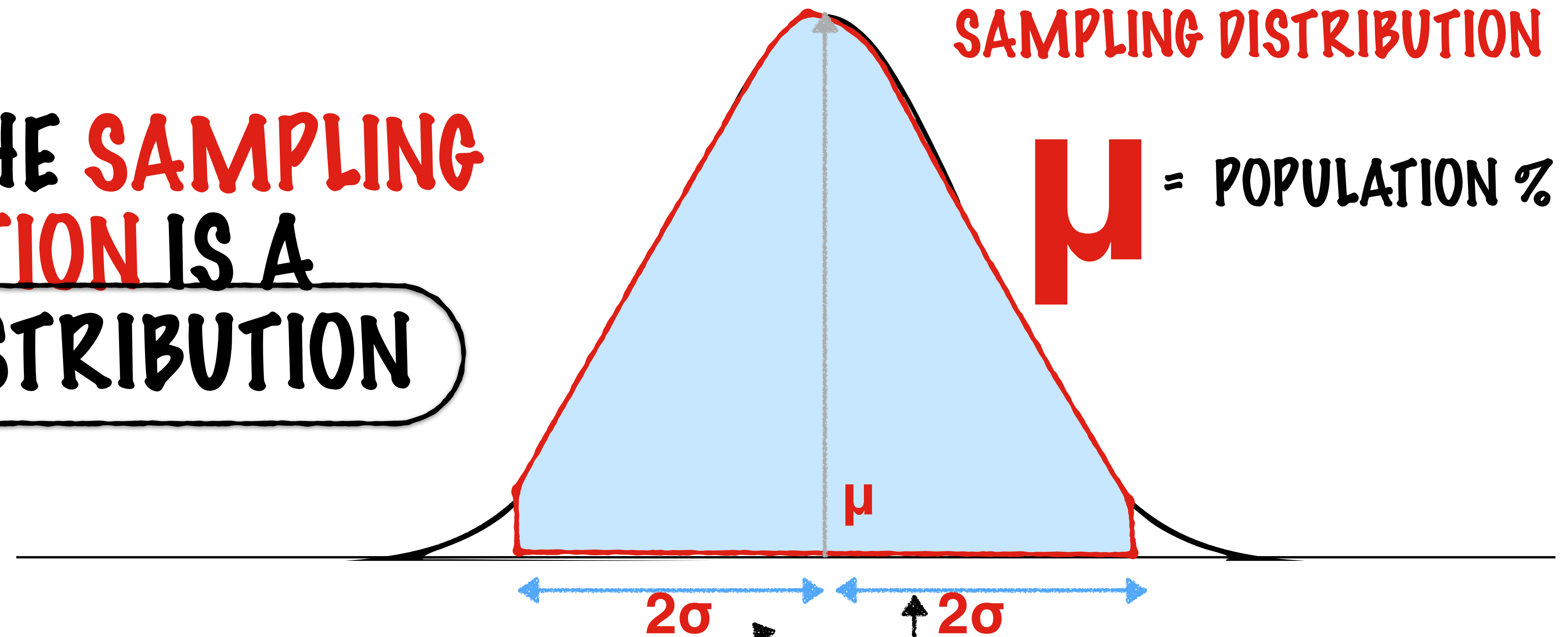SAMPLE SD   = 15

STANDARD ERROR= 2.23

STEP : 3

ESTIMATE THE DIFFERENCE BETWEEN SAMPLE MEAN AND POPULATION MEAN

REMEMBER THE **SAMPLING DISTRIBUTION** IS A **NORMAL** DISTRIBUTION

SAMPLING DISTRIBUTION

μ = POPULATION %

μ

2σ 2σ

95% PROBABILITY THAT THE SAMPLE MEAN LIES HERE

95% PROBABILITY THAT
SAMPLE MEAN LIES BETWEEN
$\mu - 2\sigma \ , \ \mu + 2\sigma$

95% PROBABILITY THAT
173 LIES BETWEEN
$\mu - 4.46 , \mu + 4.46$

THE COLLEGE STUDENT REPORTS

"THE AVERAGE WEIGHT OF A FOOTBALL PLAYER IS BETWEEN 173 +/ 4.46 WITH 95% CONFIDENCE "

TYPES OF INFERENCES

1. IDENTIFYING THE POPULATION MEAN

2. IDENTIFYING THE POPULATION %

3. VERIFYING WHETHER THE POPULATION MEAN IS EQUAL TO A CERTAIN VALUE

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