

# STATISTICS

Q what is statistics and its types?

Definition :

Statistics is a science of collecting, organizing and analysing data.

Data : It is nothing but 'facts or pieces of information.'

Eg : \* Heights of student in classroom

↳ 140cm, 145cm, 146cm, 180cm, 172cm

\* Gender of person visiting doctor.

↳ M, F, M, M

## Statistics

### Descriptive Stats

It consist of organizing and summarizing data

\* Measure of central Tendency  
{ Mean, Median, Mode }

\* Measure of dispersion  
{ variance, standard deviation }

\* Different types of distribution of data.

{ Histogram, PDF, PMF, CDF }

### Inferential Stats

It consists of data you have measured to form conclusion.

\* Z-test

\* t-test

\* chi-square test

\* ANOVA/F-test

Hypothesis Testing

$H_0$ ,  $H_1$

P-value, Significance.



Eg: let consider these are 20 classrooms in a college.  
let say you have collected the ages of students  
in one class.  
→ Ages : {19, 21, 18, 24, 22, 21, 25, 34}

### \* Descriptive Stats:

Q. what is the common age in your stats class.

A. Mean(age) → Measure of central tendency.

### \* Inferential Stats:

Q. Are the ages of students similar to the  
ages of student in university.

A. Need to perform tests → Infer from that

