Why is statistics important?

So, you have to make decisions, right?

How do you make a decision? we use our gut some, but ideally, we want it to be based some on information, Data is important, because sometimes our gut is very wrong. But also more you understand statistics, the better your gut feelings get.

First we have learn how to gather information. if you gather the information incorrectly, it's worthless. if you have only asked your wife and your best friend "does this dress make my but look big?" you've gotton worse than no information, you have the potential for misinformation.

once you learn how to collect good data, how do we organize it? How do we summarize and describe it in a way that becomes meaningful and easier to deal with? How do we visualize it?

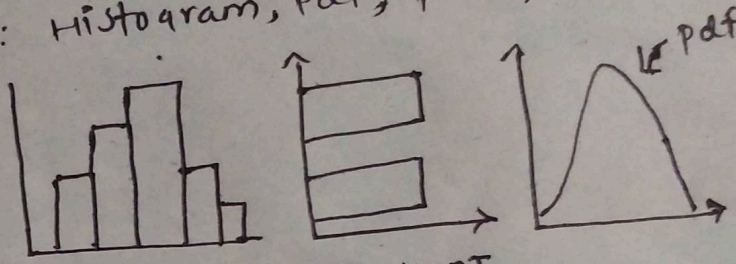
Now we have our information and we've organized it, what conclusions can be drawn? A set of Numbers can tell many different stories, How do we make it tell the truth? what are its limitations? what additional information do we need to make your decisions?

Sure, there are areas where statistics is used more formally, Namely business, science, and engineering. But really any time there are decisions to be made, whether they are personal decisions or professionals ones, a solid understanding of statistics can ultimately help you make better ones.

- What are the most important topics in statistics ?

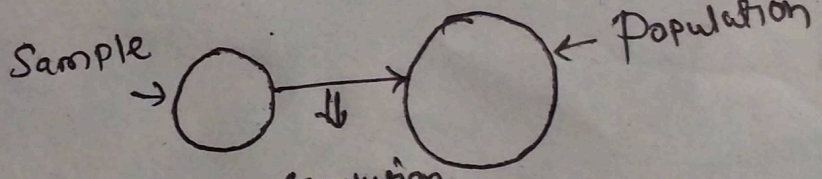
There are many important topics in statistics, but some of the most fundamental and widely used topics include

1. Descriptive statistics :- It consists of organizing and summarizing data
   - ① Measure of central tendency
     { Mean, Median, Mode }
   - ② Measure of Dispersion
     { Variance, Standard deviation
   - ③ Different types of Distribution of data
     Eg: Histogram, pdf, pmf, cdf.



Histograms BAR CHART

2. Inferential statistics :- It consists of a technique to form **conclusions**.



conclusion

Hypothesis Testing

Eg:- p value, z test, t-test, chi square test
Annova test.

3. Probability Theory :- This is the study of the likelihood of event occuring, and it is foundational to many statistical methods

4. Time series Analysis :- This involves analysing the data that is collected over a time, such as stock price, weather price patterns, and is used to make predictions about future values