applied on a sample of a population ← STATISTICS → a way to get information out of the data.

DESCRIPTIVE STATISTICS [make yourself aware of the data]

techniques for organizing and summarizing information using

1. Table
2. Graph
3. Charts.

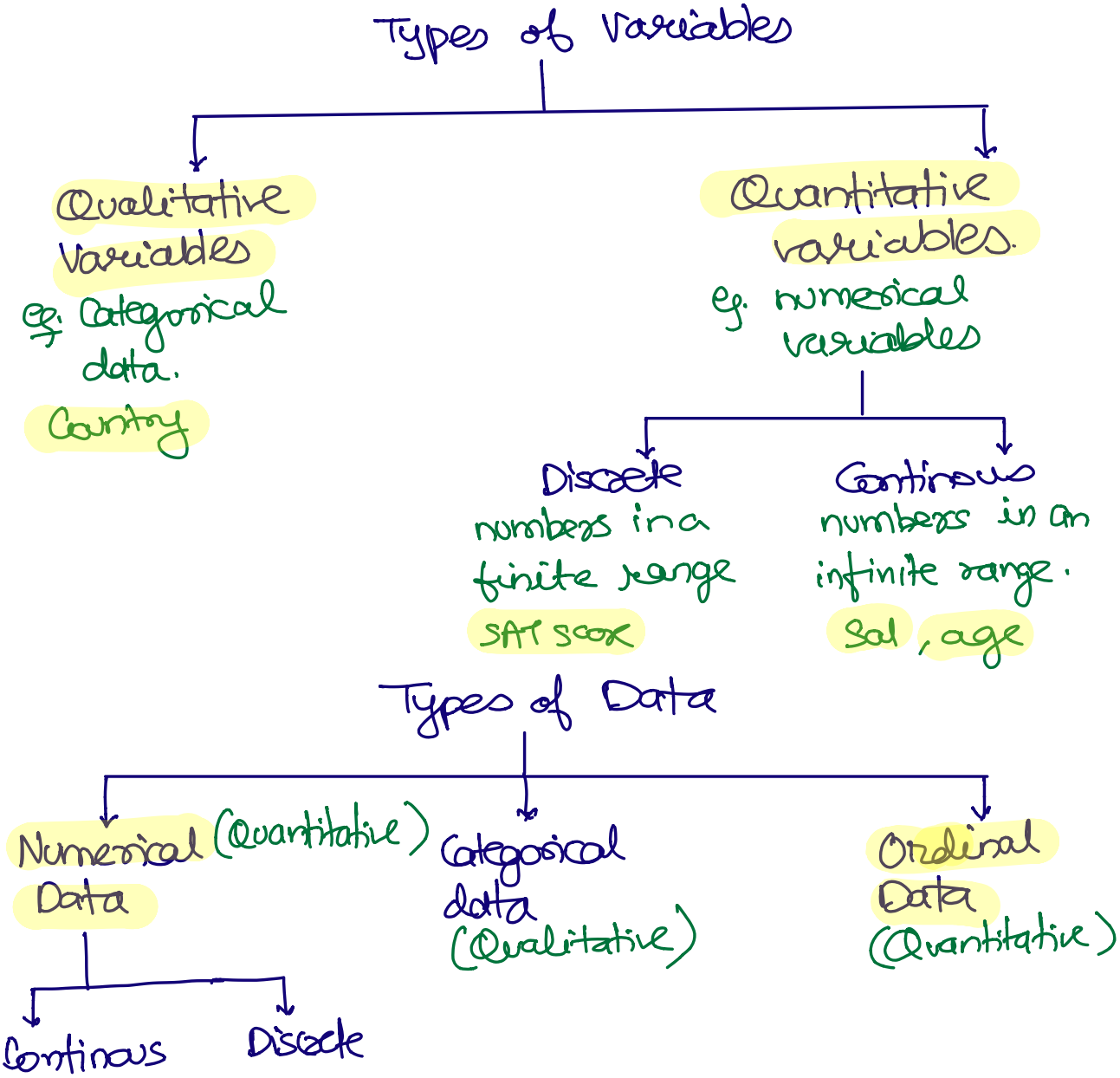
INFERENTIAL STATISTICS [Prediction, Reliability of Predicted values]

techniques for drawing & measuring the reliability of conclusions of the population based on info. obtained by sample of the population.

Population: The collection of all individuals or items under consideration in a statistical study. [UNIVERSAL SET] [Accurate results]

Sample: The part of population from which information is obtained.

[SUBSET OF THE UNIVERSAL SET] [Approx. result]


Types of Variables
Qualitative Variables
Eg: Categorical data.
Country
Quantitative variables.
Eg. numerical variables
Discrete
numbers in a finite range
SAT score
Continous
numbers in an infinite range.
Sal, age
Types of Data
Numerical (Quantitative) Data
Continous
Discrete
Categorical data (Qualitative)
Ordinal Data (Quantitative)

DESCRIPTIVE STATISTICS

Qualitative data – To organize your data you can use the following :-

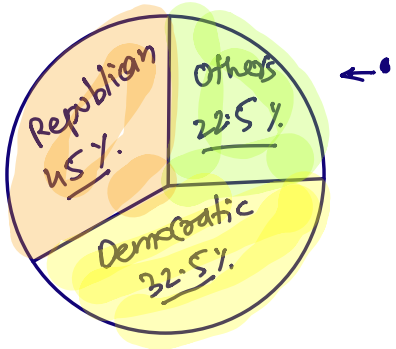
① Frequency distribution Table

Party	Tally	Frequency	Relative Freq	
Democratic	𝍸 𝍸 |||	13	13/40 → 0.325	32.5%
Republican	𝍸 𝍸 𝍸 ||	18	18/40 → 0.45	45%
Others	𝍸 ||||	9	9/40 → 0.225	22.5%
		Sample → 40	1.00	!

② Visualize it :

ⓐ Pie chart

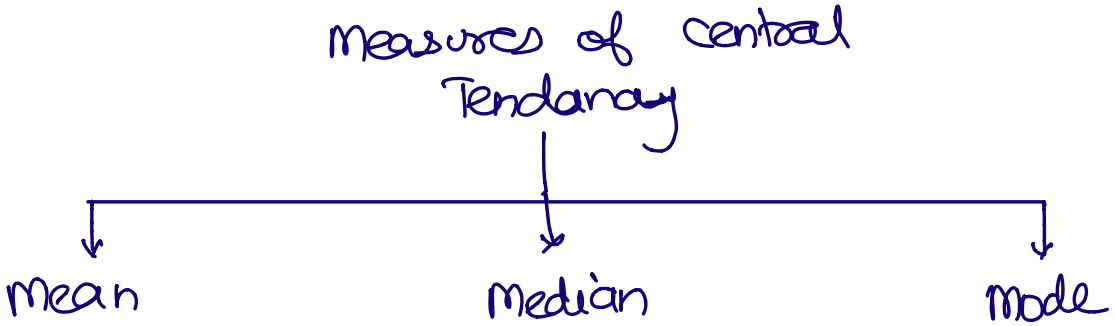
ⓑ Bar chart



Quantitative Data

1. Frequency Distribution Table

2. Visualization
   - a. Histograms ——— *
   - b. Stem and leaf
   - c. Dot plot



Supervised Learning

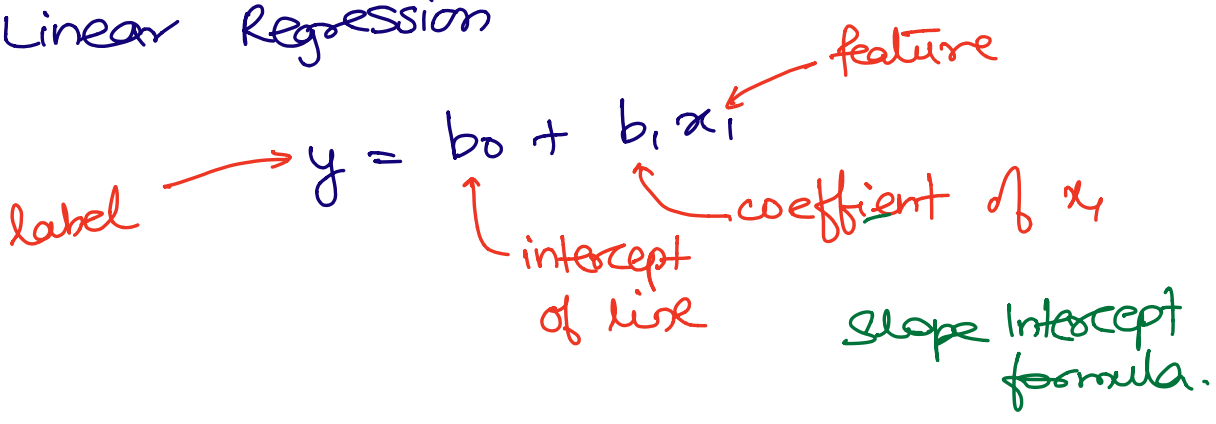
Regression

features → any type

label → numeric type

⇒ Linear Regression algo:

Linear Regression



Simple linear regression.

using → b_0, b_1 fit()

$$Salary = b_0 + b_1 (YearsExperience)$$

b_0 → intercept of line

b_1 → co-efficient of exp.

How random state works (initution)? seed

	No random state	random state = 1	random state = 2	= 3	= 4
1	1	2	7		
2	2	7	10		
3	3	3	3		
4	4	10			
5	5	5			
6	6	6			
7	7	1			
8	8	:			
9	9	:			
10	10	.			