

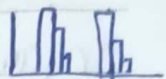
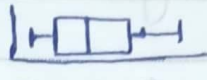
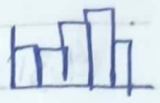
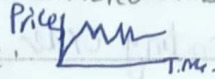
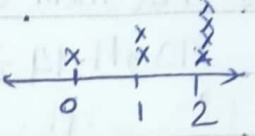


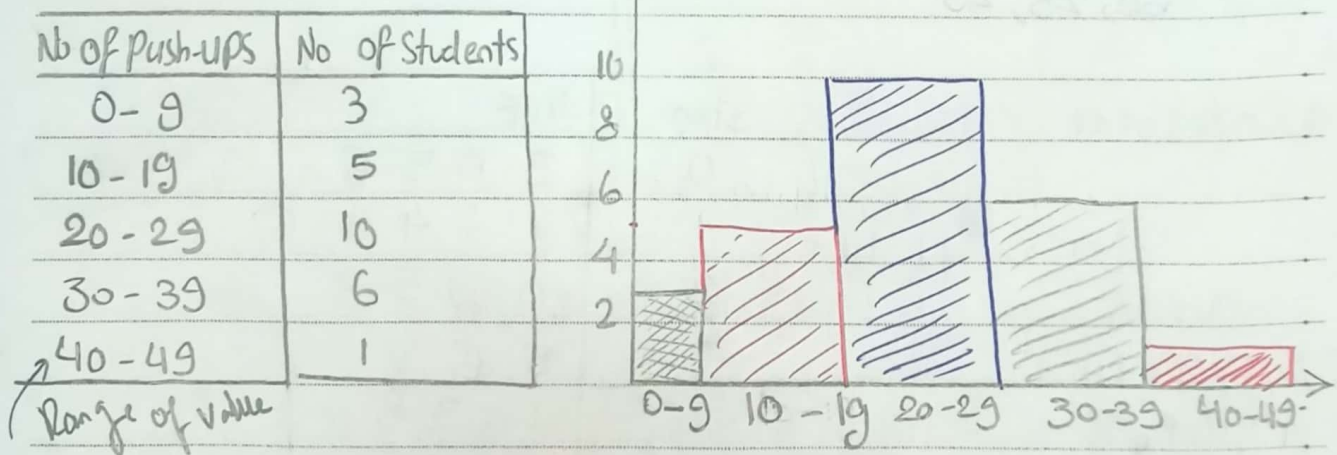
Video (1): Types of Graphs

- 1 Bar Graph: Shows number of categories 
- 2 Circle Graph: Compare parts of data to the whole 
- 3 double bar graph: Compare two or more sets of data 
- 4 Box whiskers plot: Show measure of variation 
- 5 Histogram: Show frequency of data divided into intervals 
- 6 Line graph: Show Change over Time 
- 7 Line plot: Show frequency data on a number line 

Histograms

It is a special type of graphs that shows us how different type of values occur in a set of data. (How many times something happens)

Ex: histogram to show how many pushups can students do.



(x axis represent Range of values) (y axis represent frequency)

note: bars of histogram always touch each other unless if a range has zero frequency

→ it is a great way to visualize data and see patterns

لأنه يسهل علينا فهم البيانات بطريقة واضحة
من أكثر وأقل وأكبر

البيانات

Lesson 3: How to Make a stem and leaf plot / Diagram

Stem and Plot

Stem and leaf Plot:-

Organizing data by using the Place values of Numbers

	tens	ones
Stem	Leaf	
1	0 1 4	least to greatest
2		
3	1 3	

14, 31, 10, 31, 33

① Put them on Ascending order

10, 11, 14, 31, 33

1|0, 1|1, 1|4, 3|1, 3|3

We Separate tens and ones (الألف والعشرات)

Example ①: Suzie collected data by doing survey on the ages of people getting ice cream at her favorite Creamery. Organize data She collected in a stem and leaf plot.

3, 28, 14, 6, 48, 62, 35, 26, 69, 14, 5, 16, 37, 53, 11, 43, 41, 36, 12, 60, 28, 25

Ascending order	Stem	leaf
3, 5, 5, 6	0	3 5 5 6
11, 12, 14, 14, 16	1	1 2 4 4 6
20, 23, 25, 28	2	0 3 5 8
35, 36, 37	3	5 6 7
41, 43, 48	4	1 3 8
60, 62, 69	5	0 2 9

مع ان 40 ليس
Is not 40

Key 1|4 = 14 Years old
I should write what this number represent

Some questions on My Stem and leaf plot

① How old My youngest customer? (top-left) $\rightarrow 3$

② " " " Oldest " ? (bottom-right) $\rightarrow 69$

③ How Many customers were in their 50's? look to row of 50's
None.

④ How Many " younger than 20's? 9

⑤ " " did I survey in all? 22

Count all leaves

\rightarrow How to Present 3 digit numbers in Stem and leaf Plot??

96, 99, 108, 115, 117, 130, 133, 139.

Stem	leaf
9	6 9
10	8
11	5 7
12	
13	0 3 9

key $10|8 = 108$

\rightarrow What about decimal numbers

5.6, 5.8, 6.2, 7.8, 7.8

Stem	Leaf
5	6 8
6	2
7	8 8

key is very important in My Example

key. $5|8 = 5.8$

Video 4: How to Make a box and our whisker

Some example 1 (ice cream)

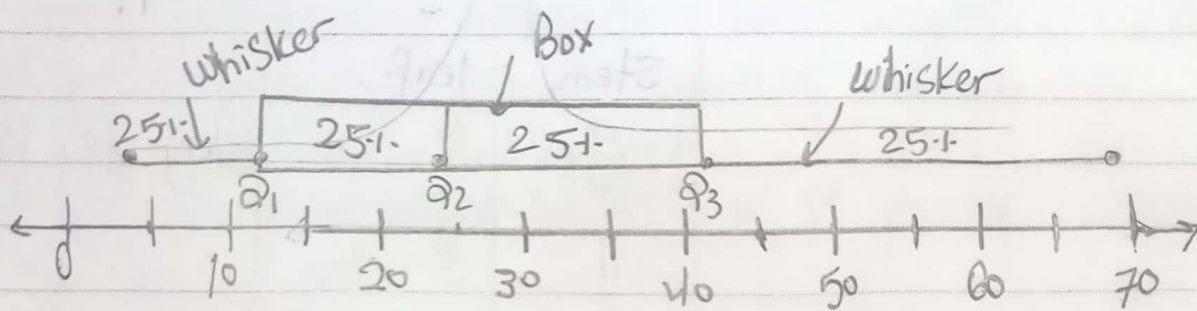
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3, 5, 5, 6, 11, 12, 14, 14, 16, 20, 23, 25, 28, 35, 36

37, 41, 43, 48, 60, 62, 69

Five number Summary

Maximum	69
Minimum	3
Median (Q_2)	24
Quartile 1 (Q_1)	12
Quartile 2 (Q_3)	41



My box \rightarrow contain My Quartiles (Q_1, Q_2, Q_3)
Line on Q_2 So My box divided equal

Some questions?

① What Percent of customers less than 12? 25%

② What fraction represents customers older than 41? $\frac{1}{4}$

③ What Percent of customers between 12 and 41 years? 50%

④ Are the ages more spread out the 1st quartile or above the 3rd quartile? Compare whiskers. (whisker above Q_3 is longer) So is more spread out above 3rd quartile

$$IQR = Q_3 - Q_1 = 41 - 12 = 29$$

CS CamScanner

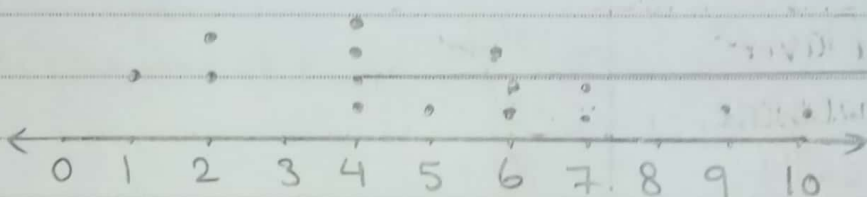
Can you describe how this data distributed?

Skewed right

Video 5: - How to Make a dot plot?

represent data in a simple way to understand. the more data points you have ~~the higher~~ at certain number the stack would be.

1, 2, 2, 4, 4, 4, 5, 7, 7, 7, 9, 10



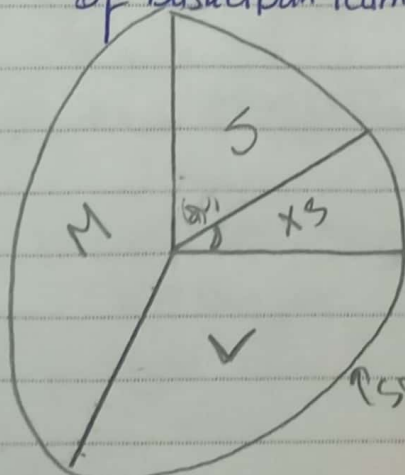
Why we use dot plots?

quickly spotting patterns and trends in data plus they are simple and easy to understand.

video 6: what is pie chart?

graph divided into Slices Like Pizza. Values represented as Percentages.

Example: Sizes of jackets of basketball team.



Sorry for the bad circle

Size	No of Players	degrees	Per
XS	5	30	8.3
S	10	60	17.1
M	26	156	44.2
L	19	114	32.3
	60	360	

Good!

(5)

Video 7 - What is Bar chart

used to compare different types of information

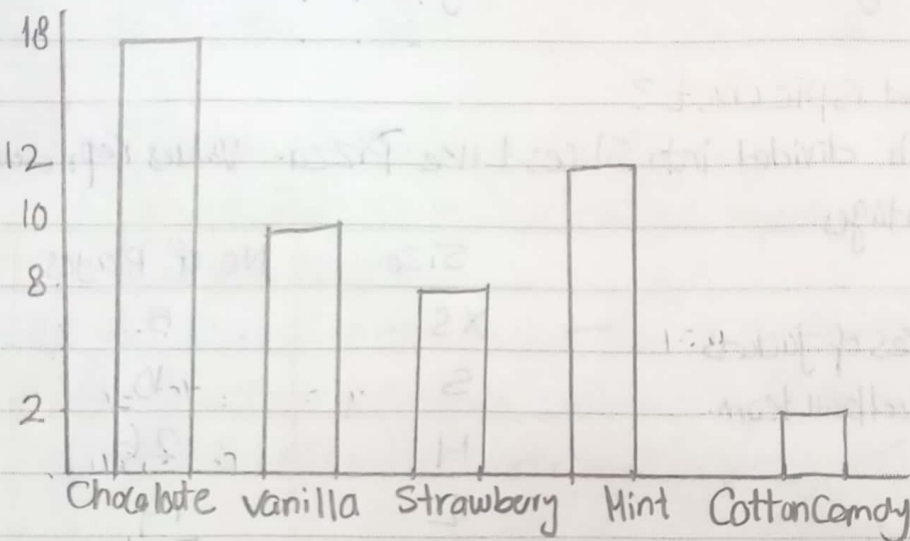
(X-axis) represent type of variable (Qualitative values)

(Y-axis) values that determine the height of each bar the numbers on (refers frequency)

→ note:

width of bars are the same as well as the space between each bar

Flavor	votes
Chocolate	18
Vanilla	10
Strawberry	8
Mint	12
Cotton Candy	2



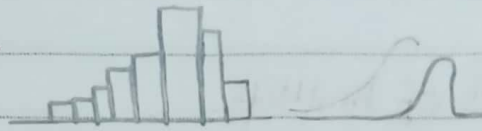
Video 8: Symmetry and Skewness :-

talking about Shape of distribution.

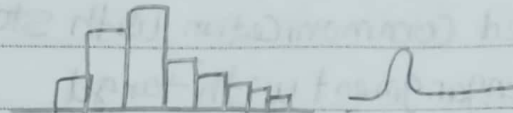
data is symmetrical if it can be divided into two equal sizes of the same shape.

Skewness \rightarrow Asymmetry.

① Skewed to the left



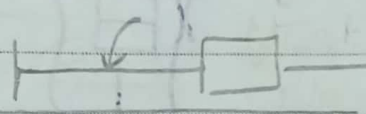
② Skewed to the right



① to know The skewness of a stem plot Flip it onto its Side.

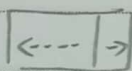
Smallest \rightarrow Largest

② Box Plot Skewness
Skewed to the left

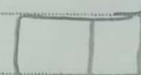


① unequal Boxes

② equal Boxes



Skewed to the left

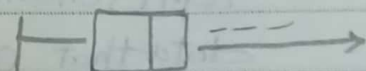


look to the
whiskers

distribution: Symmetrical
if

longer whisker determine
the skew

if mean = Median \rightarrow



skewed distribution

Skewed to the right

left skewed

Mean < Median

right skewed

Mean > Median

right

left

Video 9: What is heat Map

Graphical Representation of data where values are expressed as colours.

it allows for a large ~~number~~ volume of data to be communicated almost instantly.

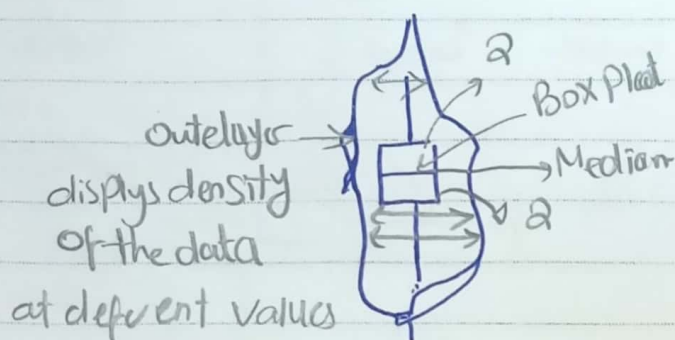
Benefits of heatMap:-

enhanced Communication with Stakeholders

High engagement with target

The Ability to derive valuable insights from vast Data sets.

Video 10: violin Plot:-



Wider section - More data density.

Why use a violin plot ~~box~~ and not a box?

is that in addition to showing statistics like the median and IQR and also provides a visual representation of the distribution and density of the data that can be particularly useful when you want to understand the shape of data.