

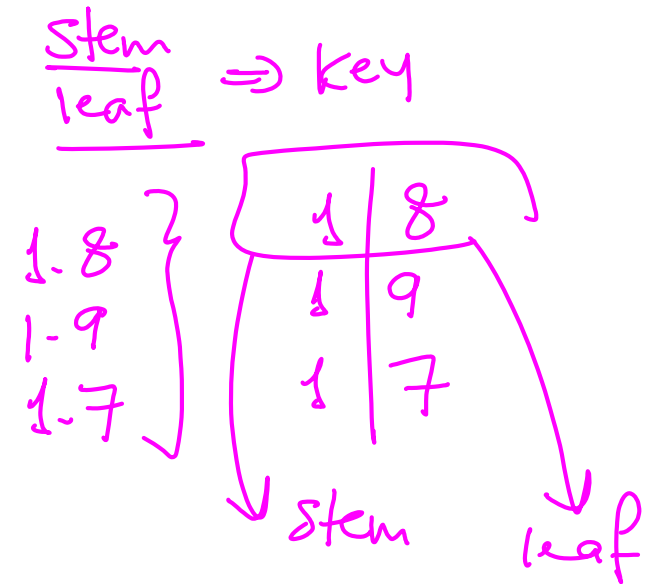
| Graphical Summaries

- The mean, median, and standard deviation are **numerical summaries** of a sample or of a population.
- Graphical summaries are used as well to help visualize a list of numbers

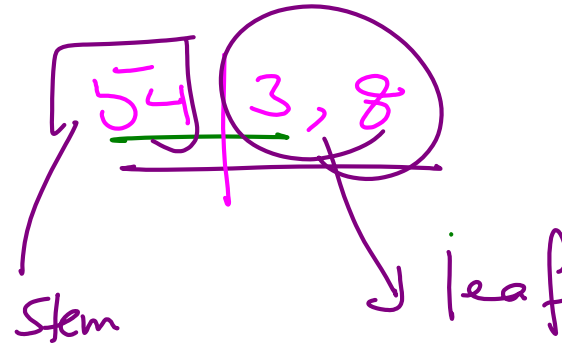
Stem-and-Leaf

الجزء - الورقة

- The **graphical summary** that we will discuss first is the stem-and-leaf plot.
- A **stem-and-leaf plot** is a simple way to summarize a data set.
- A stem and leaf plot displays numerical data by **splitting each data point** into a "**leaf**" (usually the **last digit**) and a "**stem**" (the **leading digit or digits**).



A **stem and leaf** is a table used to display data. The 'stem' is on the left displays the first digit or digits. The 'leaf' is on the right and displays the last digit. For example, 543 and 548 can be displayed together on a stem and leaf as 54 | 3,8



Consider the data in the table describing battery life for 40 similar car batteries in years

2.2	4.1	3.5	4.5	3.2	3.7	3.0	2.6
3.4	1.6	3.1	3.3	3.8	3.1	4.7	3.7
2.5	4.3	3.4	3.6	2.9	3.3	3.9	3.1
3.3	3.1	3.7	4.4	3.2	4.1	1.9	3.4
4.7	3.8	3.2	2.6	3.9	3.0	4.2	3.5

key

stem	leaf
2	2
3	8

How many batteries have fewer than 3 years?

⇒ 7 batteries

min = 1.6 year

max = 4.7 year

mode = 3.1

range = 4.7 - 1.6 = 3.1

category	freq	proportion
1	2	2/40
2	5	5/40
3	25	25/40
4	8	8/40

stem	leaf
1	6, 9
2	2, 5, 6, 6, 9
3	0, 0, 1, 1, 1, 1, 2, 2, 2, 3, 3, 3, 4, 4, 4, 5, 5, 6, 7, 7, 7, 8, 8, 9, 9
4	1, 1, 2, 3, 4, 5, 7, 7

A statistician for a basketball tracked the number of points that each of the 12 players on the team had in one game and then made a stem-and-leaf plot to show the data. How many points did the team score?

stem	leaf
0	0 0 2 4 7 7 9
1	<u>1</u> 1 3 8
2	0

- The stem contains the tens digit and usually, the leaf contains the rightmost digit "one's digit"
- Gives the kind of distribution of where the players were
- Most of the players scored points that started with 0
- Then a few more scored points that started with one
- And then one scored points started with 2

0 | 7 $\Rightarrow$ 7 point

1 | 4 $\Rightarrow$ 14 point

0
0
2
4
7
7
9
11
11
13
19
20

$\Rightarrow$ 102 points

The government created the following stem-and-leaf plot showing the number of turtles at each major zoo in the country:

0	4
1	1 4 6 6 7 8
2	3 3 6 9
3	1 2 4 5 7 8
4	
5	
6	

17 Zoos

How many zoos have fewer than 46 turtles?