

2.3 The stem-and-leaf Display : Exploratory data analysis:

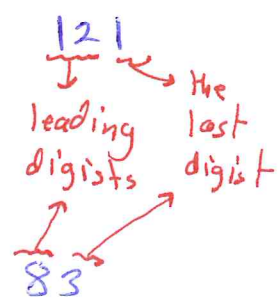
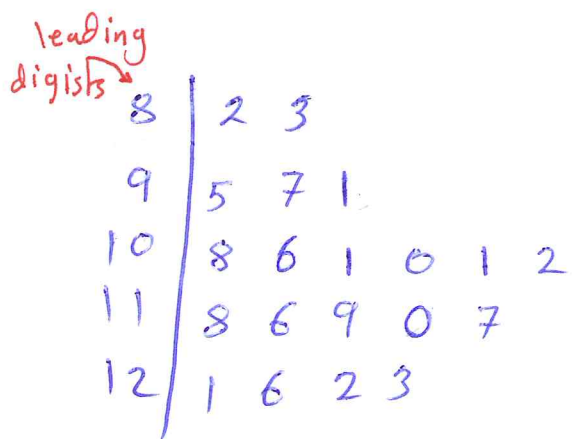
The stem-and-leaf display can be used to show the rank order and shape of a data set.

The stem-and-leaf display is an example of the exploratory data analysis (Methods that use simple arithmetic and easy to draw graphs to summarize data quickly).

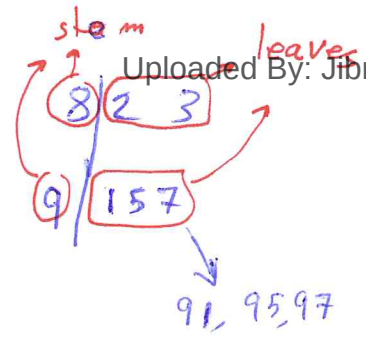
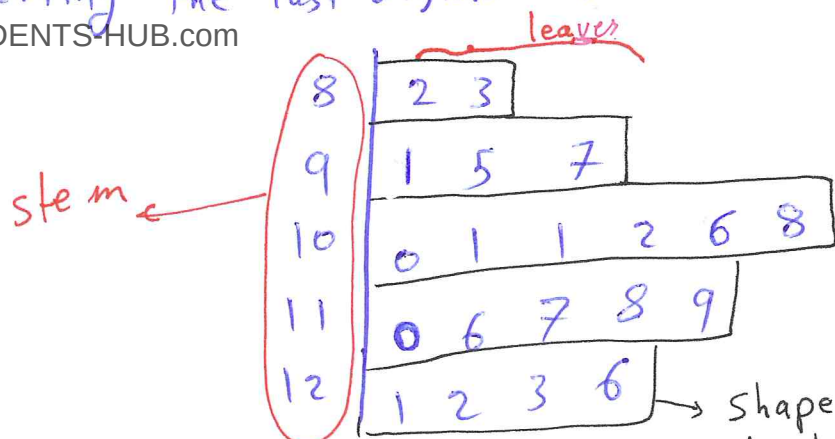
- We put the leading digits in a vertical line (to the left)
- We put the last digits of each data value to the right of the vertical line.

Example: Construct a stem-and-leaf display for the following data

108	83	97	101	110
118	95	100	126	117
121	106	116	91	123
82	101	119	122	102



STUDENTS-HUB.com sorting the last digits into rank order



Shape: rotating this counter-clockwise gives histogram with classes: 80-89, 90-99, 100-109, 110-119, 120-129

* The stem-and-leaf provides the same information as histogram. It has two advantages

- (1) The stem-and-leaf display is easier to construct by hand.
- (2) Within a class interval, the stem-and-leaf display provides more information than histogram because the stem-and-leaf shows the actual data.

stretched stem-and-leaf

* Whenever a stem value is stated twice, it means that the first value corresponds to leaf values of 0-4 and the second value corresponds to leaf values of 5-9

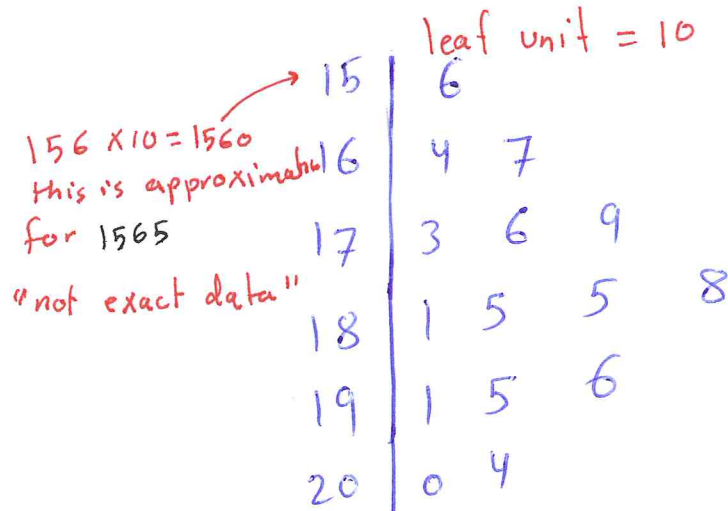
8	2	3
8		
9	1	
9	5	7
10	0	1 1 2
10	6	8
11	0	
11	6	7 8 9
12	1	2 3
12	6	

This is similar to a frequency distribution with intervals

80-84
85-89
90-94
95-99
⋮

Example: Construct a stem-and-leaf display for the following data. Use a leaf unit of 10. (19)

1565 1852 1644 1766 1888 1912 2044 1812
1790 1679 2008 1852 1967 1954 1733



- single digit used to defined each leaf
- The first 3 digits used in this stem-and-leaf display.
- leaf units can be 100, 10, 1, 0.1, ...
- if the leaf unit is not shown, then it is assumed to be 1.