

Lecture 6 - R Software

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Stem and leaf plot

Suppose, the data is as follows:

$S = \{17, 21, 44, 45, 35, 40, 17, 20, 21, 05, 08, 42, 38, 41, 32, 36, 35, 37, 38, 37, 40\}$

Then, by stem and leaf plot, the elements will be divided as:

Stem	Leaf
<ul style="list-style-type: none"> • 10s, 100s and likewise digits • Starts from lower digit to higher digits vertically 	<ul style="list-style-type: none"> • 1s digits • Starts from lower digit to higher digits horizontally

Therefore, for the given data S , we have

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

Then, the median will be given by the middle term in ascending order:

Median = 10th term or 11th term = 35.

Examples: Compute some statistics for a set of exam scores.

```
> scores = scan()
1 : 81 81 96 77
5 : 95 98 73 83
9 : 92 79 82 93
13 : 80 86 89 60
17 : 79 62 74 60
21 :
```

Read 20 items

```
> stem(scores)
```

The decimal point is 1 digit(s) to the right of the |

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

Median = 10th term or 11th term = 81.

```
> stem(scores,scale=2)      # same plot stretched twice as long.
```

The decimal point is 1 digit(s) to the right of the |

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

Note: Here, `scale=2` in command divides the right hand side into two ranges, 0 – 4 and 5 – 9.

$$\text{Median (for 0 – 4)} = \frac{(80 + 81)}{2} = 80.5$$

$$\text{Median (for 5 – 9)} = \frac{(86 + 89)}{2} = 87.5$$