

# Stem-and-Leaf Diagram

Course: Statistics 1

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# Stem-and-Leaf Diagram

- The techniques of data exploration involve simple statistics and easy-to-use graphs
- The stem-and-leaf display or diagram is a pictorial way of showing the data values, rank order, and shape of a data set simultaneously
  - **Data values**
  - **Rank order** of data set
  - **Shape of distribution** via a simple frequency graph

# Example Data Set

48	49	61	50	47	53	43	50	49	55
60	66	48	47	58	47	57	52	52	55
54	57	46	54	43	58	51	48	58	54
38	47	52	50	44	40	57	54	54	53
46	56	56	43	50	59	52	60	66	44
51	45	50	45	48	59	45	50	54	51
58	47	44	64	55	51	59	64	47	54
60	54	51	66	57	55	60	56	56	63
65	65	62	44	65	60	61	44	46	54
44	56	55	47	60	48	50	48	44	57

Confidence Index: From 38 to 66

# Frequency Stem-and-leaf

- Easy to construct by hand
- Provides more information about data distribution than histogram
  - *Shows the actual data values*

Frequency	Stem & Leaf
.00	3 .
1.00	3 . 8
1.00	4 . 0
3.00	4 . 333
10.00	4 . 444444555
10.00	4 . 6667777777
8.00	4 . 88888899
12.00	5 . 00000011111
6.00	5 . 222233
14.00	5 . 4444444455555
10.00	5 . 6666677777
7.00	5 . 8888999
8.00	6 . 0000011
2.00	6 . 23
5.00	6 . 44555
3.00	6 . 666

# Stem-and-Leaf How to – Step 1

- Step 1
  - Arrange leading digits for each data value to left of a vertical line
  - To the right of the vertical line, we record the last digit for each data value
    - e.g. First five data of table

4		7
4		8
4		9
5		0
6		1

## Stem-and-Leaf How to – Step 1 cont.

- Step 1 cont.
  - Could also group all last digits associated with the same leading digits on same row
  - For 47, 48, and 49 show last digits on row with leading digit of 4 to right of vertical line: 7, 8, 9

4		7	8	9
5		0		
6		1		

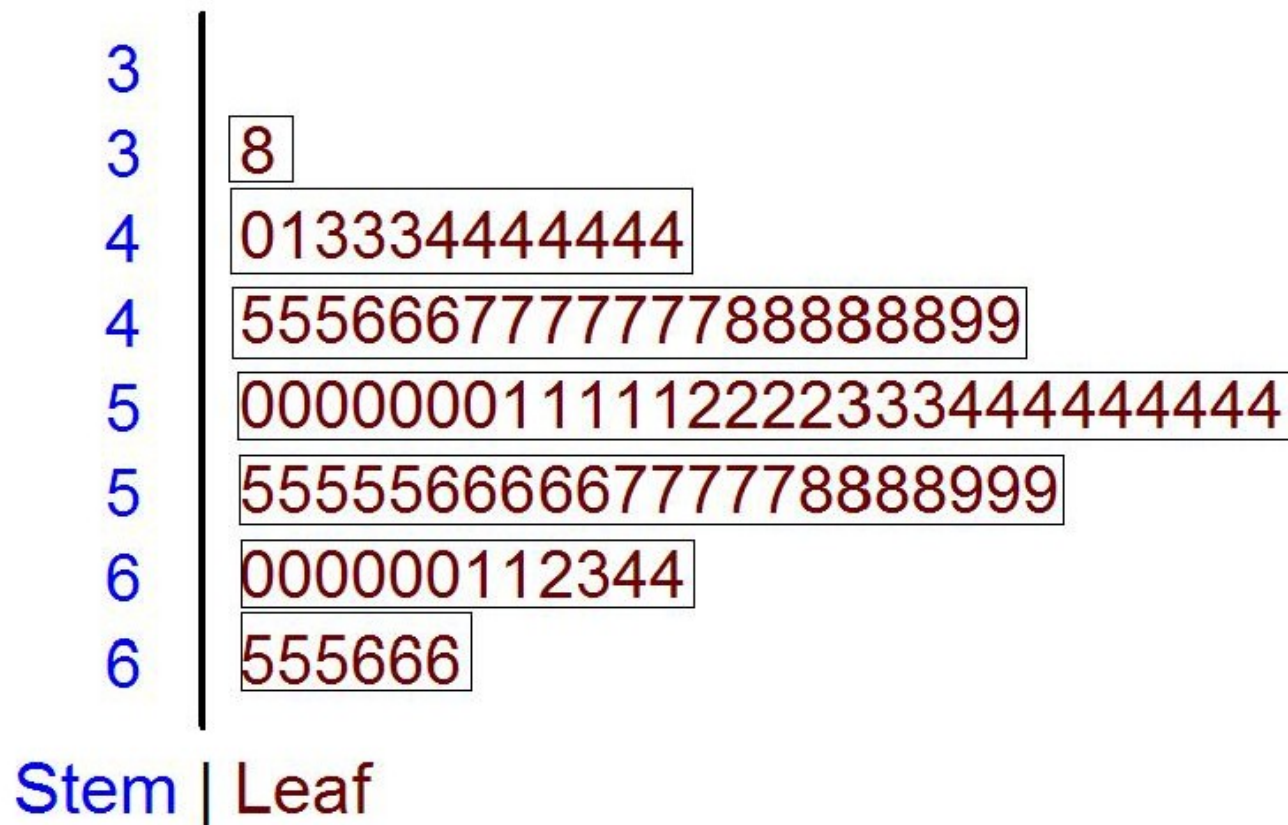
# Stem-and-Leaf How to – Step 2

- Step 2

- Continue to place last digit of each data to right of line on rows corresponding to leading digits
- This example the third row in any last digits between 0 and 4 with leading digit of 3
- **Rank order** result from displaying last digits in order on each row

3		
3		8
4		013334444444
4		555666777777788888899
5		000000111112222333444444444
5		5555566666777778888999
6		000000112344
6		555666

# Stem-and-Leaf Complete





# Frequency Histogram

*From Stem-and-Leaf Diagram*

