

2.3 More Quantitative Graphs

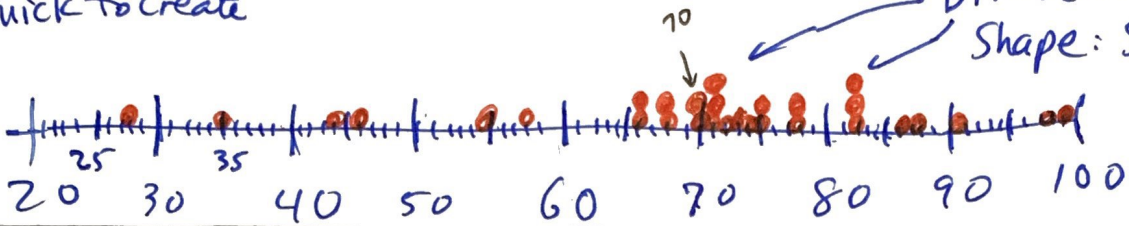
EX Final Exam Scores

Max: 99
- min: 28
range: 71 N=30

- Raw data: 99, 35, 98, 71, 82, 58, 66, 68, 78, 70, 74, 71, 72, 78, 82, 91, 73, 75, 46, 28, 88, 70, 87, 82, 68, 55, 44, 66, 75, 71

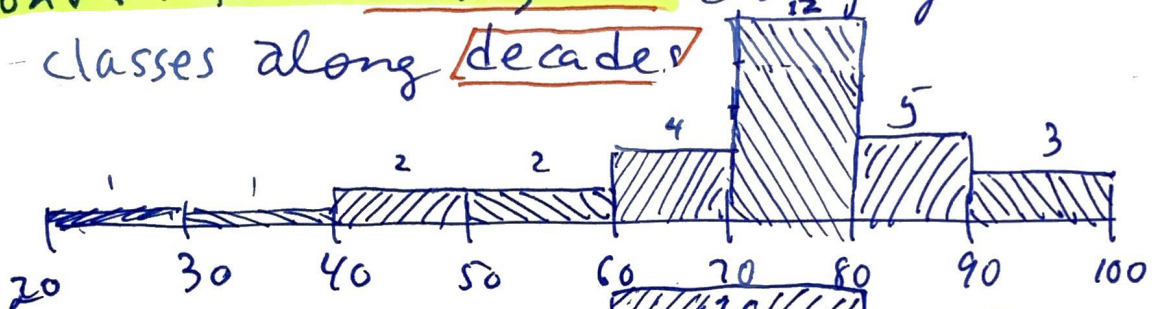
Dot Plot: dots on a number line
Quick to Create

Displays Highest Resolution



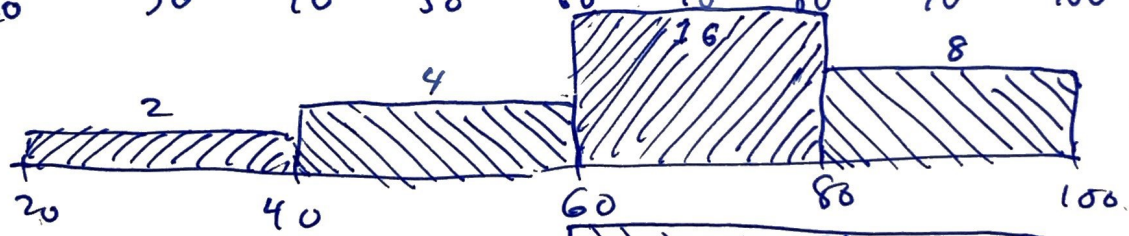
Convert to a histogram easily by making our classes along decades

Middle Resolution



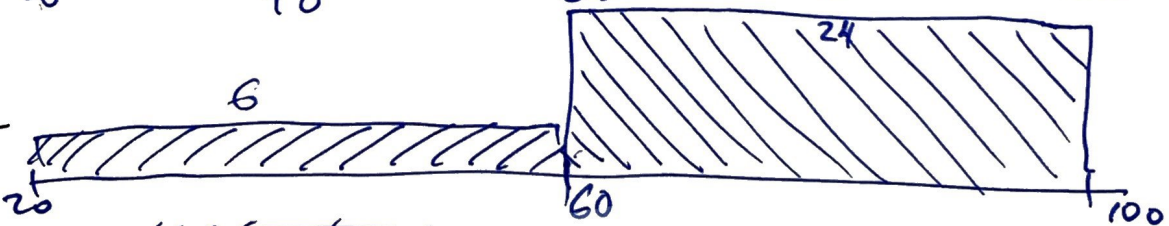
← Best

Lower Resolution

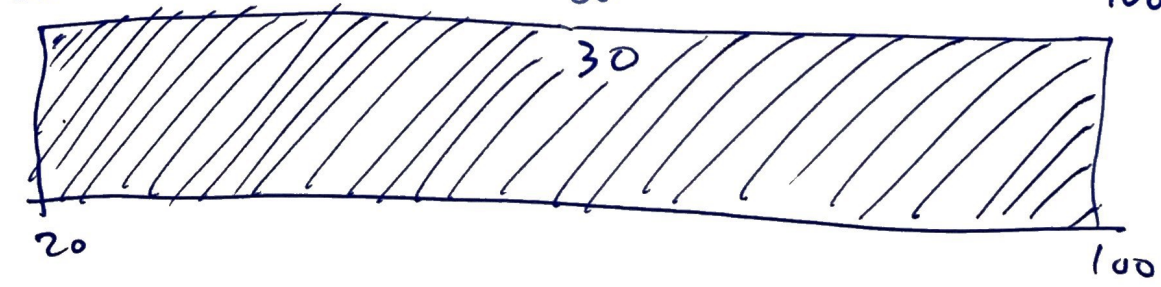


← Best

even lower resolution



lowest Resolution



⊕ stem-and-leaf with decimals

3

ex Raw data particulate emissions from cars @ lowalt

1.5	0.9	1.1	1.3	3.5	1.1	1.1	0.9	1.3	0.9	0.6	1.3	2.5
1.5	1.1	1.1	2.2	0.9	1.8	1.5	1.2	1.6	2.1	6.6	4.0	2.5
1.4	1.4	1.8	1.1	1.6	3.7	0.6	2.7	2.6	3.0	1.2	1.0	

max = 6.6 outlier?
min = 0.6

81620

0.9	9	9	6	9	6						
1.5	1	3	1	13	35	1	18	5	26	4	4
2.5	2	15	7	6							
3.5	7	0									
4.0											
5.											
6.6											

unimodal
skewed "down"
(right)

Higher Resolution View:

0.0 → 0.4 →
0.5 → 0.9 →

0.												
0.6	6	9	9	9	9							
1.0	1	1	1	1	1	2	2	3	3	3	4	4
1.5	5	5	6	6	8	8						
2.1	2											
2.5	5	6	7									
3.0												
3.5	7											
4.0												
4.												
5.												
5.												
6.												

⊗ Comparing Data Sets with Stem-and-Leaf (4)

EX

Lets add particulates for high-altitude cars

8.9	4.4	3.6	4.4	3.8	2.4	3.8	5.3	5.8	2.9	4.7	1.9	9.1
8.7	9.5	2.7	9.2	7.3	2.1	6.3	6.5	6.3	2.0	5.9	5.6	5.6
1.5	6.5	5.3	5.6	2.1	1.1	3.3	1.8	7.6				

We will reproduce the stem-and-leaf for the Low alt cars on the RHS of the stem, but add the data for the high alt. cars on the LHS.

High Altitude	stem	Low Altitude
	0	6 6 9 9 9 9
8 1 5 9	1	0 1 1 1 1 1 1 2 2 3 3 3 4 4 5 5
1 0 1 7 9 4	2	1 2 5 5 6 7
3 8 8 6	3	0 5 7
7 4 4	4	0
6 3 6 6 9 8 3	5	
5 3 5 3	6	6
6 3	7	
7 9	8	
2 5 1	9	

Dot plots - Again

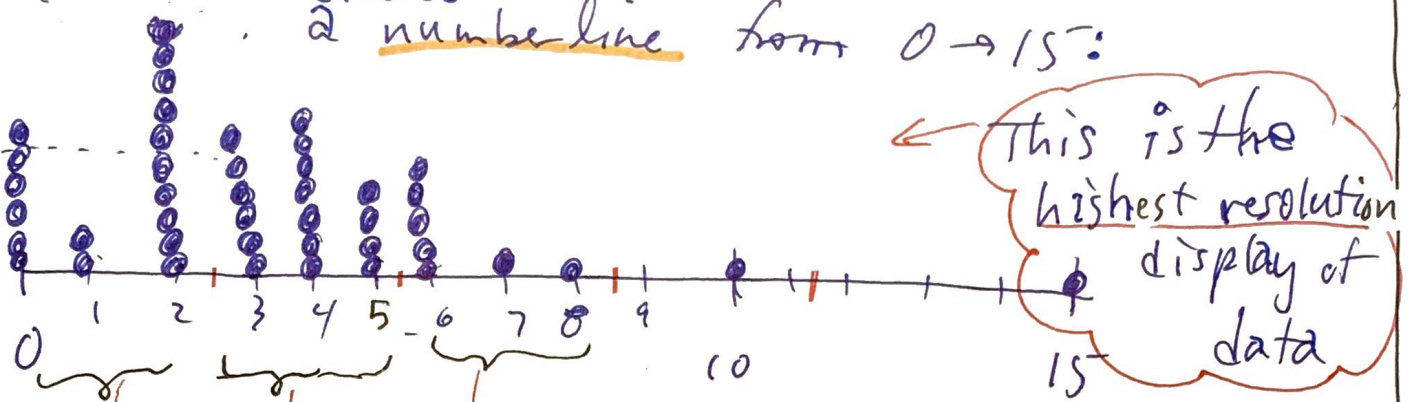
Ex Number of Children of U.S. Presidents and their Spouses

Raw Data

0, 2, 10, 2, 5, 3, 6, 2, 2, 4, 1
 5, 4, 15, 3, 4, 5, 3, 2, 3, 4, 2
 6, 0, 0, 0, 8, 3, 3, 6, 2, 4, 2
 0, 4, 6, 4, 7, 2, 0, 1, 2, 6, 5

max = 15, min = 0

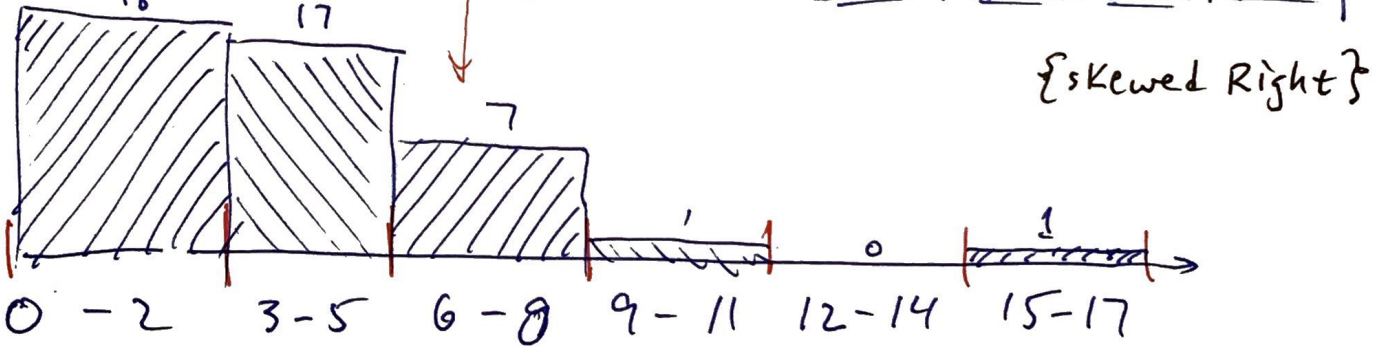
(i) Create a number line from 0 to 15:



(ii) place dots, above the associated number, for each data point in the table.

we can easily create histograms of lower-resolution

Ex Let's create ranges of 3 : 0,1,2 | 3,4,5 | 6,7,8 | 9,10,11 | ...



We see that 0-2 and 3-5 have about the same numbers of subjects (presidential couples)