Introduction to Statistics and Data Science using *eStat*

Chapter 3 Visualization of Quantitative Data

3.2 Visualization of Single Quantitative Variable

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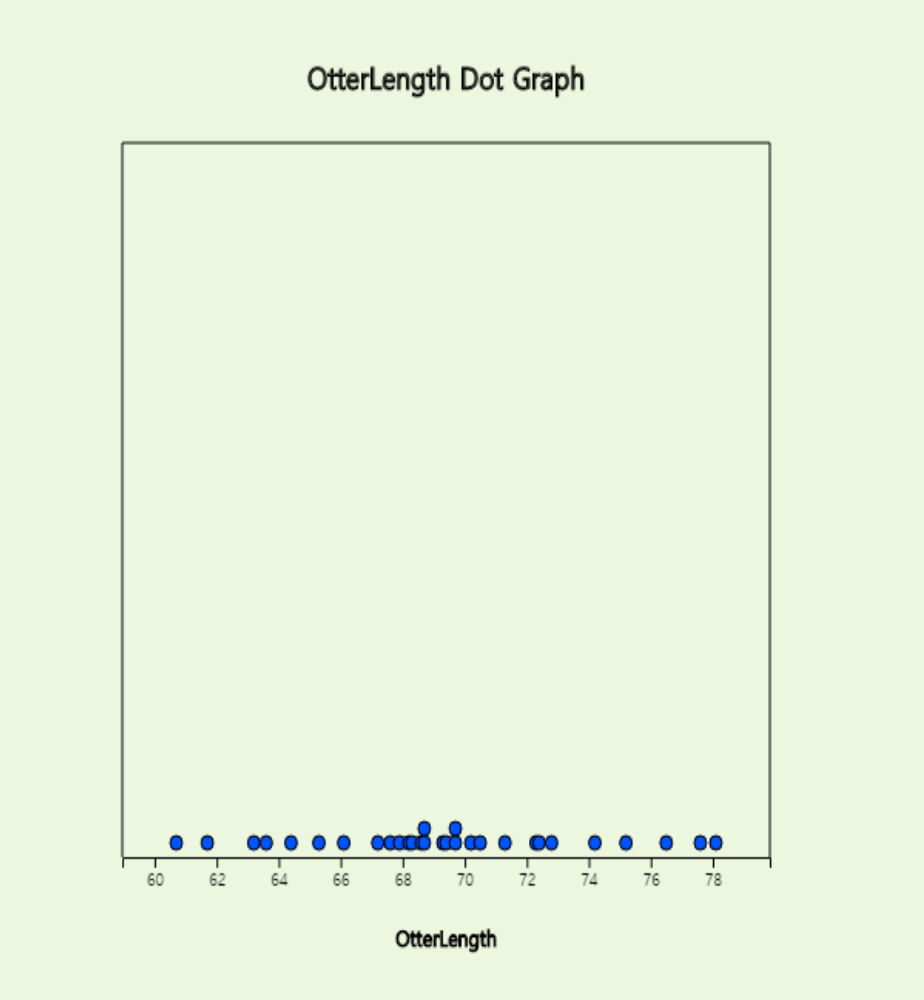
3.2 Visualization of Quantitative Data with Single Variable

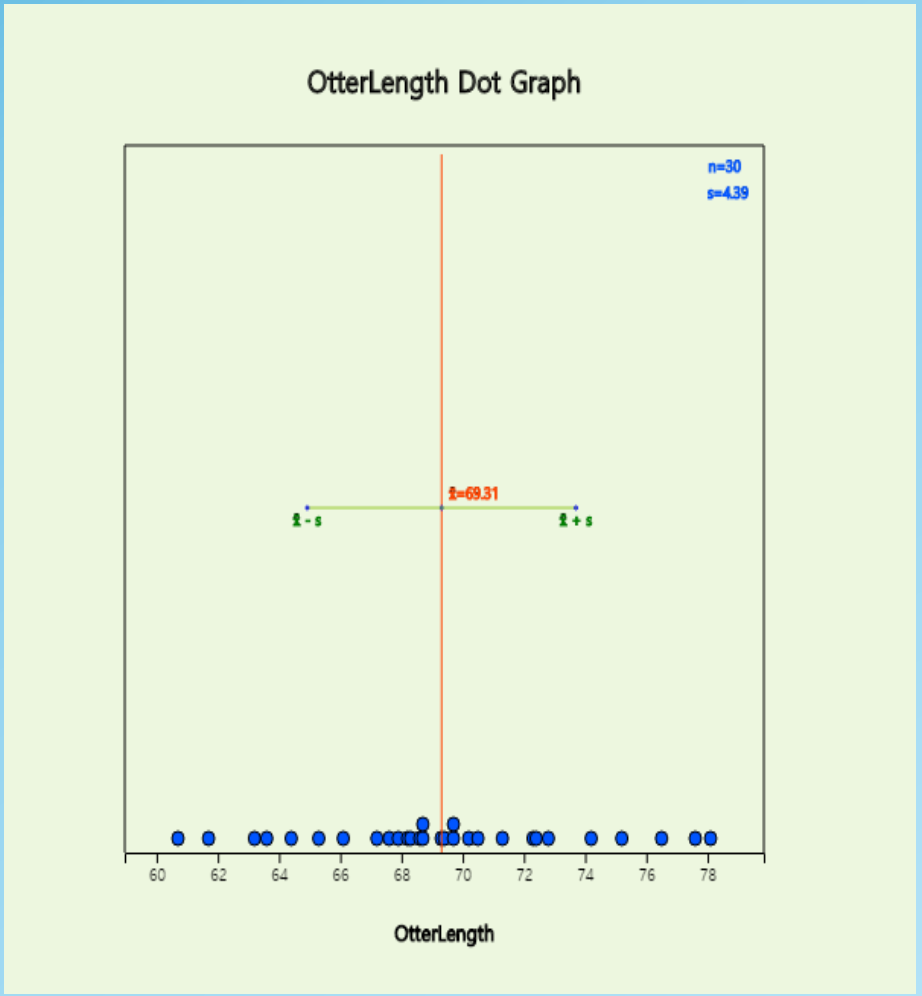
[Example 3.2.1] (Otter length – single quantitative variable)
The following data shows the length of 30 otters. Use 『eStat』 to draw a dot graph, histogram, stem and leaf plot.

63.2 65.3 67.6 68.7 69.7 60.7 72.4 75.2 64.4 76.5
68.3 69.3 70.2 71.3 74.2 63.6 66.1 67.9 68.7 70.5
72.3 72.8 77.6 78.1 69.7 69.4 68.6 68.2 67.2 61.7 (unit cm)

3.2 Visualization of Quantitative Data with Single Variable

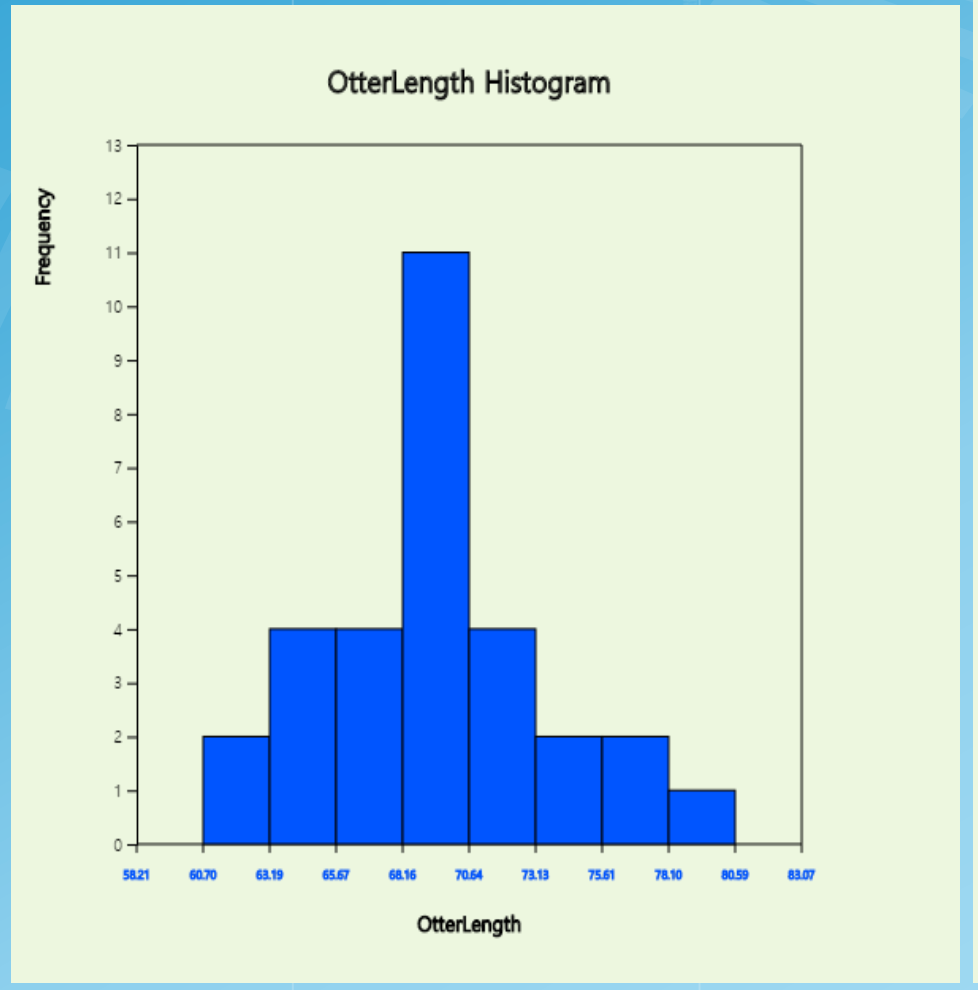
[Example 3.2.1] (Otter length – single quantitative variable)

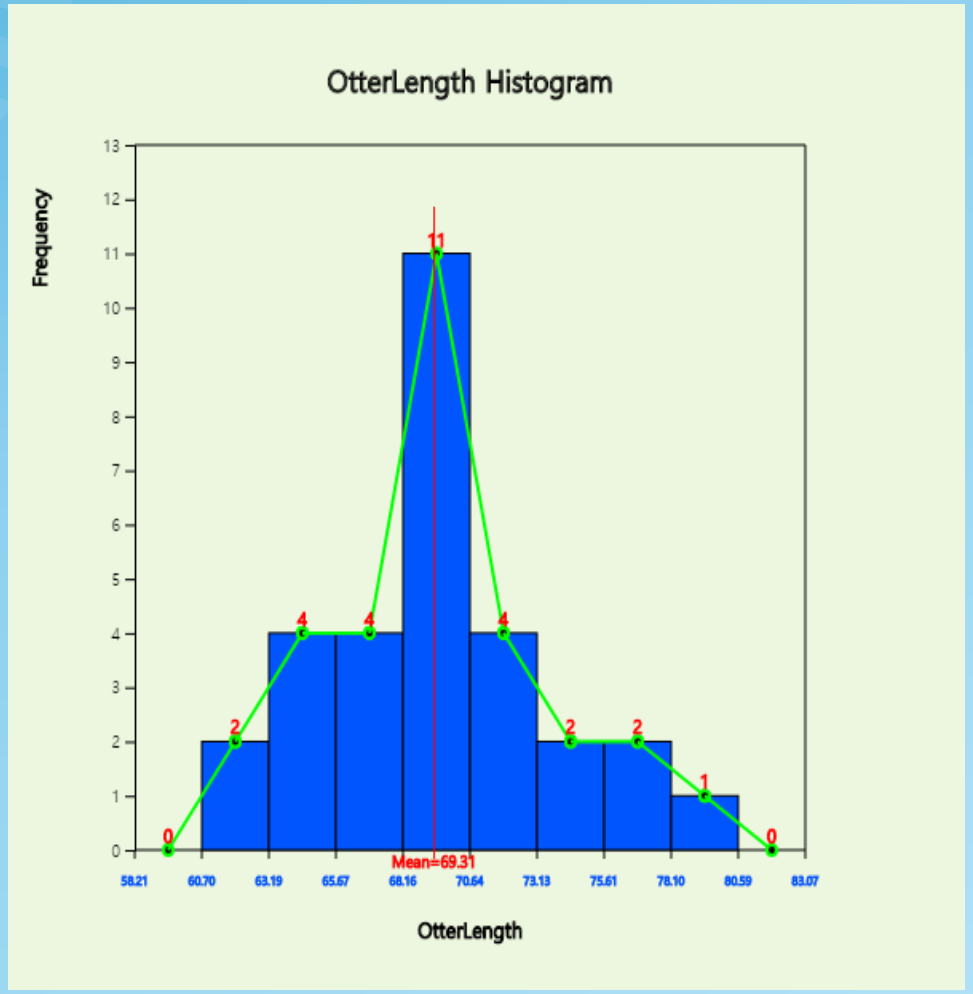




3.2 Visualization of Quantitative Data with Single Variable

[Example 3.2.1] (Otter length – single quantitative variable)





Histogram Frequency Table	Group Name	()
Interval (OtterLength)	Group 1 (null)	Total
1 [60.70, 63.19)	2 (6.7%)	2 (6.7%)
2 [63.19, 65.67)	4 (13.3%)	4 (13.3%)
3 [65.67, 68.16)	4 (13.3%)	4 (13.3%)
4 [68.16, 70.64)	11 (36.7%)	11 (36.7%)
5 [70.64, 73.13)	4 (13.3%)	4 (13.3%)
6 [73.13, 75.61)	2 (6.7%)	2 (6.7%)
7 [75.61, 78.10)	2 (6.7%)	2 (6.7%)
8 [78.10, 80.59)	1 (3.3%)	1 (3.3%)
Total	30 (100%)	30 (100%)

3.2 Visualization of Quantitative Data with Single Variable

[Example 3.2.1] (Otter length – single quantitative variable)

OtterLength Stem and Leaf Plot

Stem	Leaf
60	7
61	7
62	
63	26
64	4
65	3
66	1
67	269
68	23677
69	3477
70	25
71	3
72	348
73	
74	2
75	2
76	5
77	6
78	1

3.2 Visualization of Quantitative Data with Single Variable

[Example 3.2.2] (age – two group quantitative data)
The data on the gender and age of a middle school teacher is

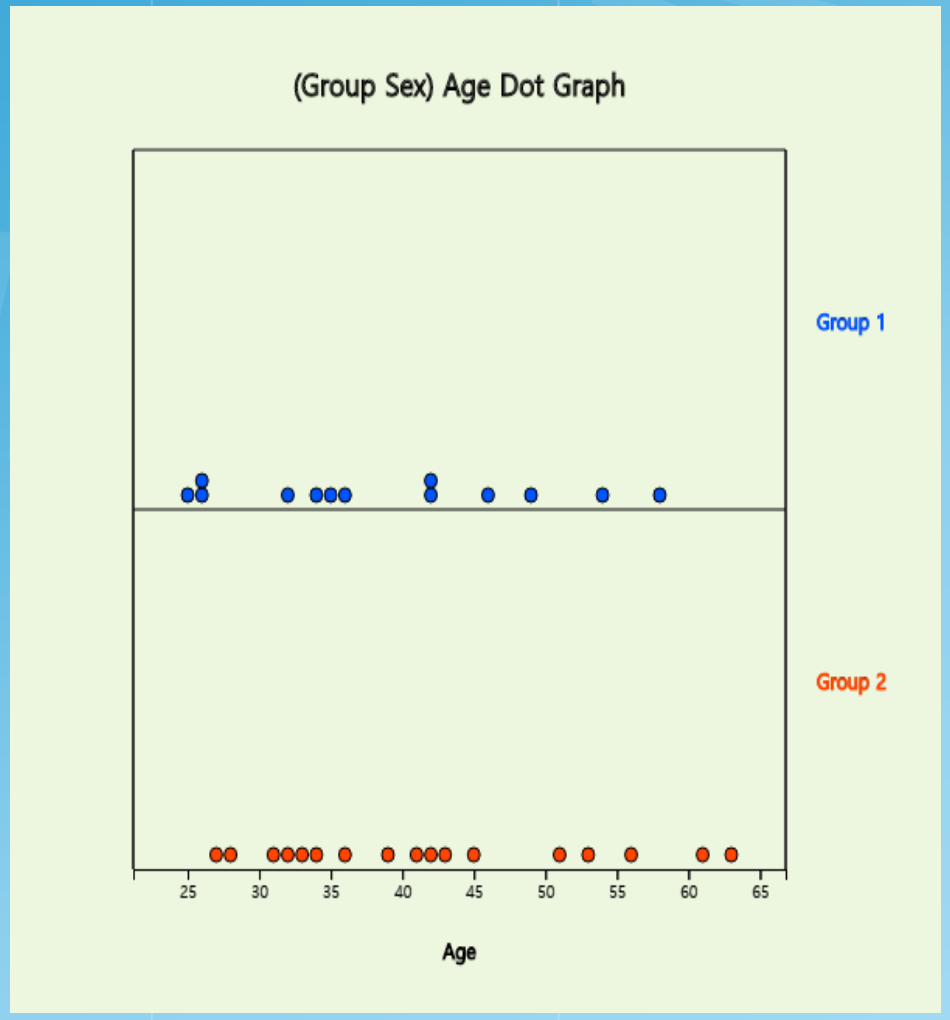
Ex ⇨ eBook ⇨ EX030202_Continuous_TeacherAgeByGender.csv.

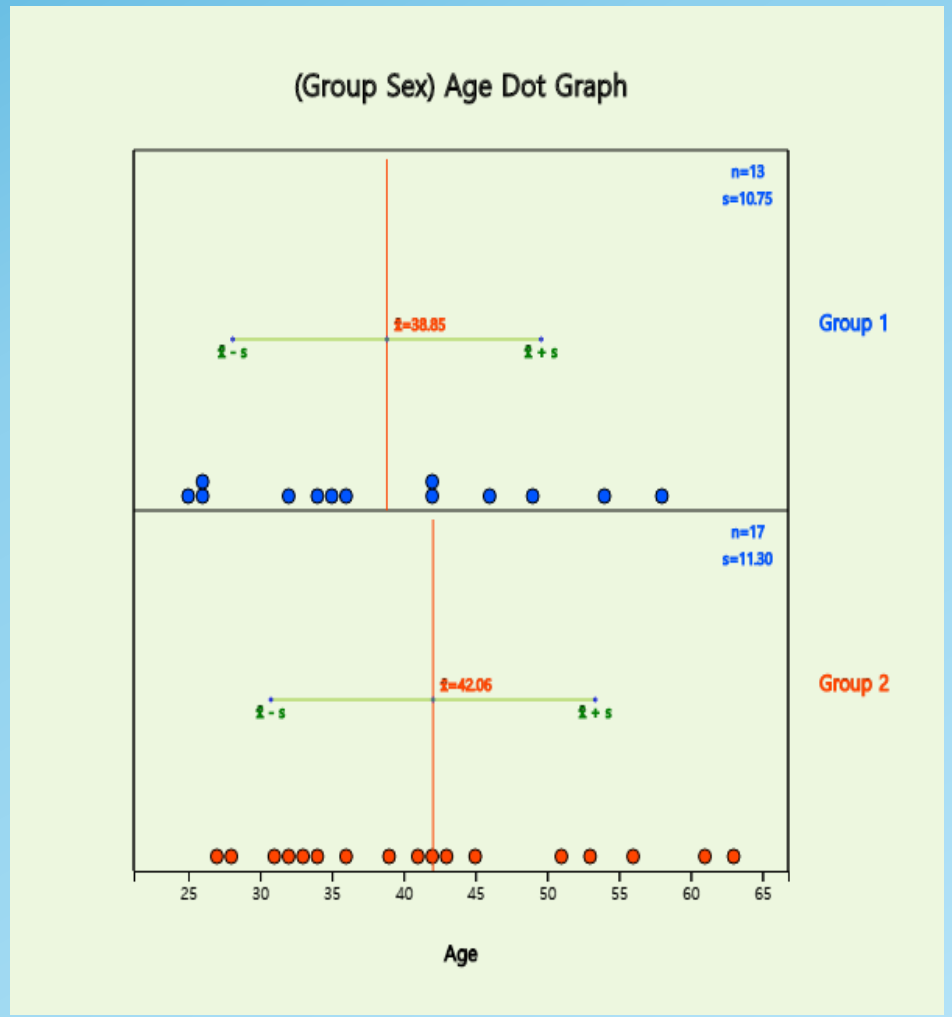
Use『eStat』to draw a dot graph, histogram, stem and leaf plot.

	Gender	Age
1	1	26
2	1	34
3	2	28
4	2	39
5	1	32
6	1	36
7	2	41
8	2	42
9	1	26
10	1	25
11	2	33
12	2	43
13	1	54
14	1	49
15	2	56
16	2	31
17	2	27
18	1	42
19	2	32
20	2	36
21	1	58
22	1	42
23	2	61
24	2	34
25	1	35

3.2 Visualization of Quantitative Data with Single Variable

[Example 3.2.2] (age – two group quantitative data)





3.2 Visualization of Quantitative Data with Single Variable

[Example 3.2.2] (age – two group quantitative data)

Histogram Frequency Table	Group Name	(Sex)	
Interval (Age)	Group 1 (Group 1)	Group 2 (Group 2)	Total
1 [25.00, 30.43)	3 (23.1%)	2 (11.8%)	5 (16.7%)
2 [30.43, 35.86)	3 (23.1%)	4 (23.5%)	7 (23.3%)
3 [35.86, 41.29)	1 (7.7%)	3 (17.6%)	4 (13.3%)
4 [41.29, 46.71)	3 (23.1%)	3 (17.6%)	6 (20.0%)
5 [46.71, 52.14)	1 (7.7%)	1 (5.9%)	2 (6.7%)
6 [52.14, 57.57)	1 (7.7%)	2 (11.8%)	3 (10.0%)
7 [57.57, 63.00)	1 (7.7%)	2 (11.8%)	3 (10.0%)
Total	13 (100%)	17 (100%)	30 (100%)

3.2 Visualization of Quantitative Data with Single Variable

[Example 3.2.2] (age – two group quantitative data)

(Group Sex) Age Stem and Leaf Plot

Stem	Group 1 Leaf
2	566
3	2456
4	2269
5	48
6	

Stem	Group 2 Leaf
2	78
3	123469
4	1235
5	136
6	13

(Group Sex) Age Stem and Leaf Plot

Group 1 Leaf	Stem	Group 2 Leaf
665	2	78
6542	3	123469
9622	4	1235
84	5	136
	6	13

3.2 Visualization of Quantitative Data with Single Variable

[Example 3.2.3] (Comparison Hotdog Calories – three group quantitative data)

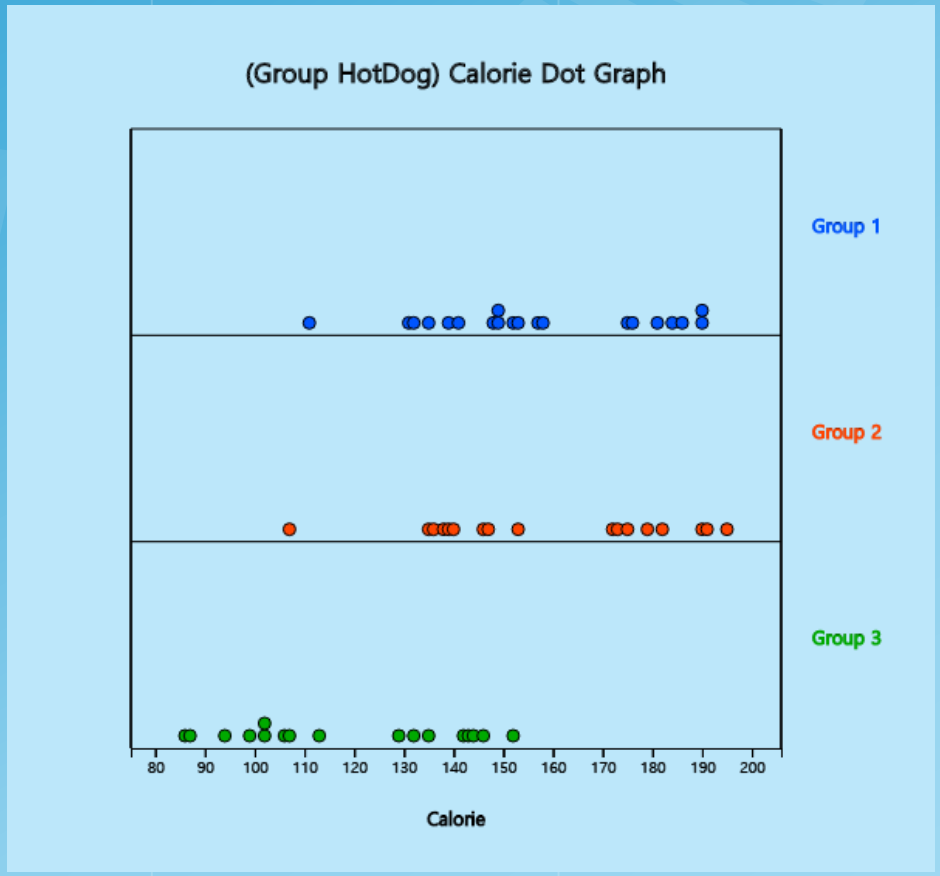
The calorie data of the hot dogs made by three ingredients (1: beef, 2: pork, 3: chicken) are surveyed and saved at the following location of 『eStat』.

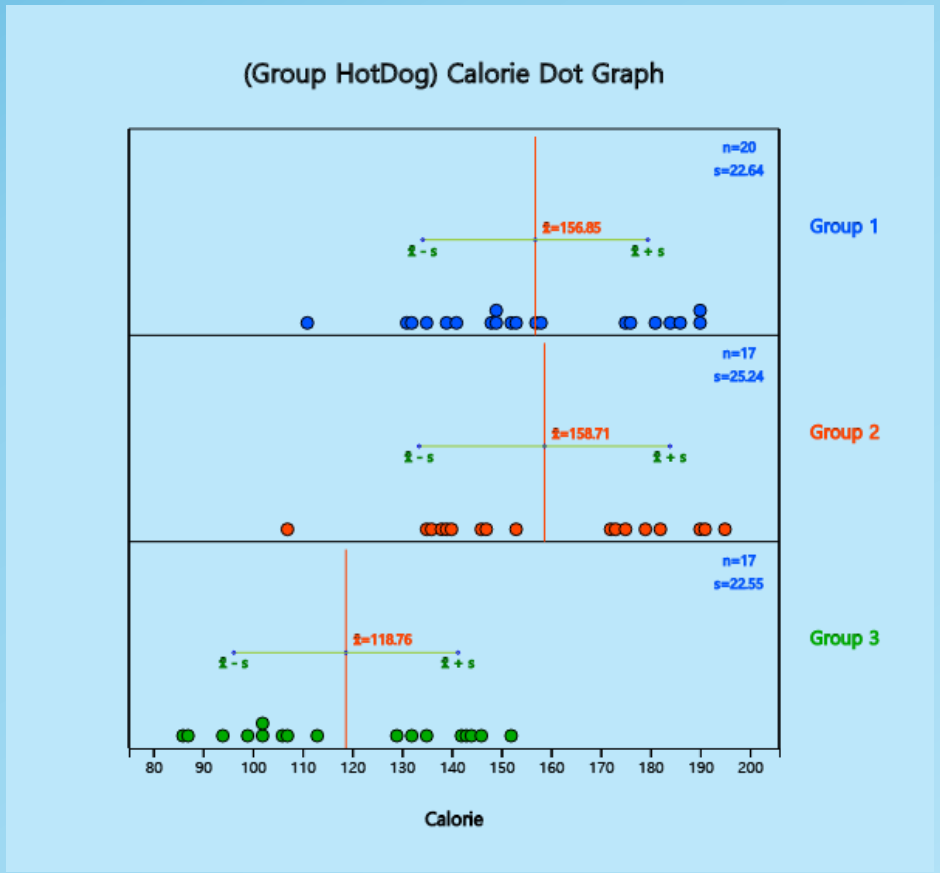
Ex ⇨ eBook ⇨ EX030203_Continuous_CalorieByHotdog.csv.

Use 『eStat』 to draw a dot graph, histogram, stem and leaf plot.

3.2 Visualization of Quantitative Data with Single Variable

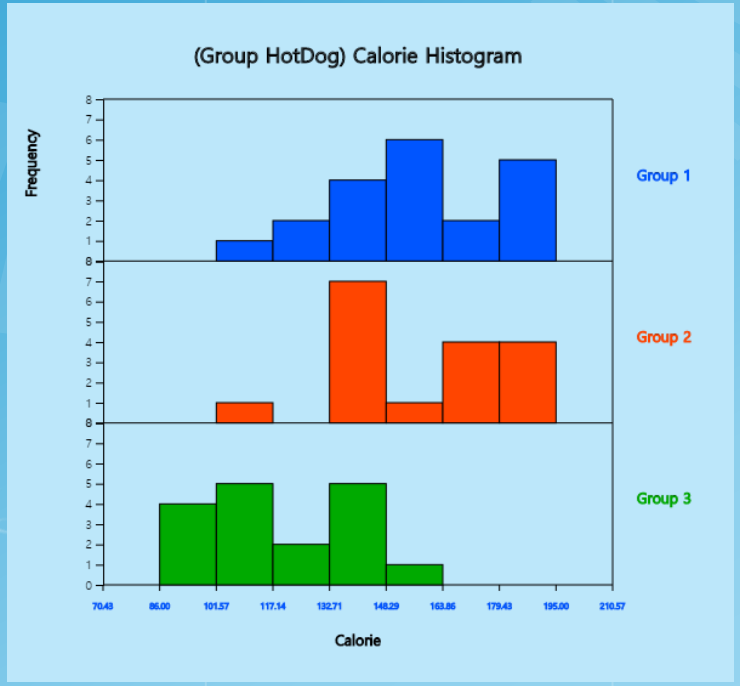
[Example 3.2.3] (comparison of calories – three groups)

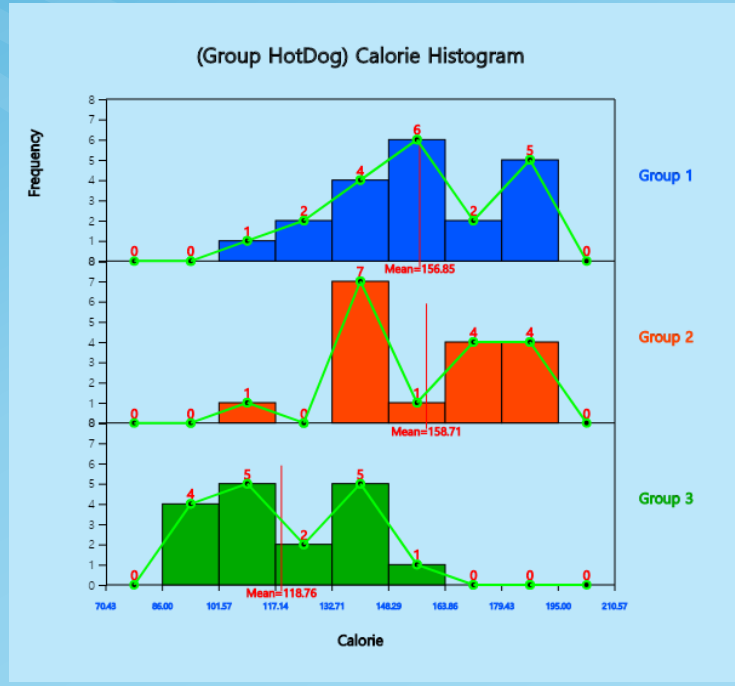




3.2 Visualization of Quantitative Data with Single Variable

[Example 3.2.3] (comparison of calories – three groups)





Histogram Frequency Table	Group Name	(HotDog)		
Interval (Calorie)	Group 1 (Group 1)	Group 2 (Group 2)	Group 3 (Group 3)	Total
1 [86.00, 101.57)	0 (0.0%)	0 (0.0%)	4 (23.5%)	4 (7.4%)
2 [101.57, 117.14)	1 (5.0%)	1 (5.9%)	5 (29.4%)	7 (13.0%)
3 [117.14, 132.71)	2 (10.0%)	0 (0.0%)	2 (11.8%)	4 (7.4%)
4 [132.71, 148.29)	4 (20.0%)	7 (41.2%)	5 (29.4%)	16 (29.6%)
5 [148.29, 163.86)	6 (30.0%)	1 (5.9%)	1 (5.9%)	8 (14.8%)
6 [163.86, 179.43)	2 (10.0%)	4 (23.5%)	0 (0.0%)	6 (11.1%)
7 [179.43, 195.00)	5 (25.0%)	4 (23.5%)	0 (0.0%)	9 (16.7%)
Total	20 (100%)	17 (100%)	17 (100%)	54 (100%)

3.2 Visualization of Quantitative Data with Single Variable

[Example 3.2.3] (comparison of calories – three groups)

(Group HotDog) Calorie Stem and Leaf Plot

Stem	Group 1 Leaf
8	
9	
10	
11	1
12	
13	1259
14	1899
15	2378
16	
17	56
18	146
19	00

Stem	Group 2 Leaf
8	
9	
10	7
11	
12	
13	5689
14	067
15	3
16	
17	2359
18	2
19	015

Stem	Group 3 Leaf

Thank you