Introduction to Statistics and Data Science using *eStat*

Chapter 3 Visualization of Quantitative Data

3.1 Graphs of Quantitative Data

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3.1 Graphs of Quantitative Data

- **Quantitative Data**
  => height, weight : possible values are real numbers

- **Single Quantitative Variable**
  => dot graph, histogram, stem and leaf plot

- **Two Quantitative Variables**
  => scatterplot

- **Dot graph** to visualize quantitative data with fewer data counts.

- First draw the horizontal line and set the scale so that all data can be displayed, then mark each data value in dots.

- Dot graph make it easy to see the distribution patterns and anomalies of the data.

OtterLength Dot Graph

OtterLength
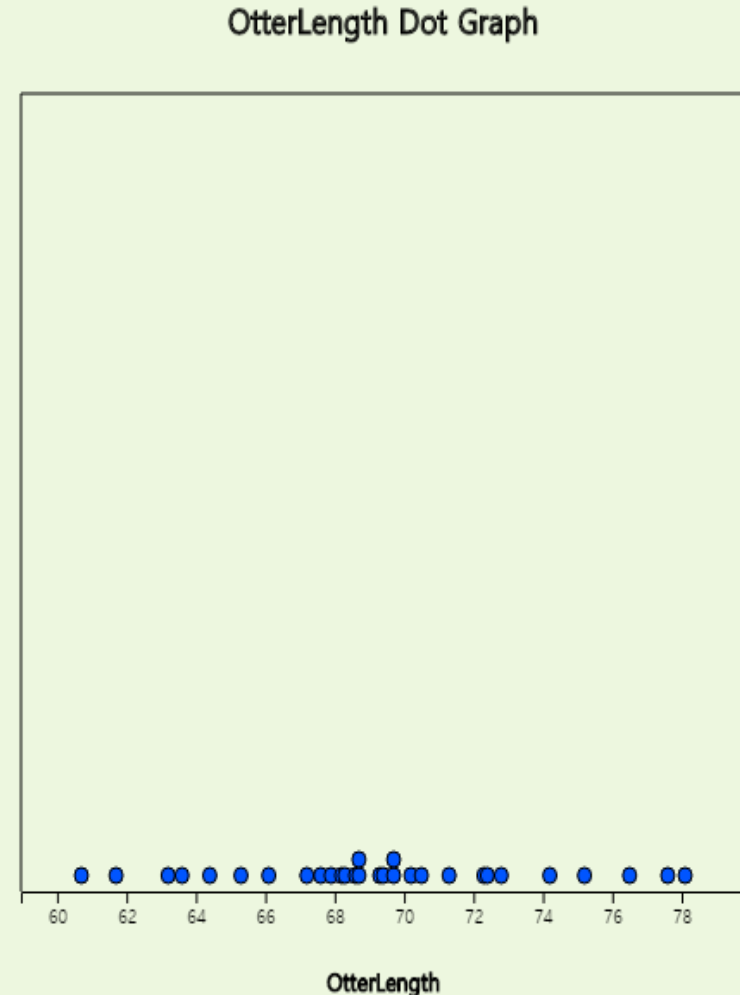
- **Histogram** to visualize quantitative data with many data counts.

- A bar chart (with no spacing between bars) is drawn after dividing several intervals.

- How many intervals do you prefer to have?

OtterLength Histogram
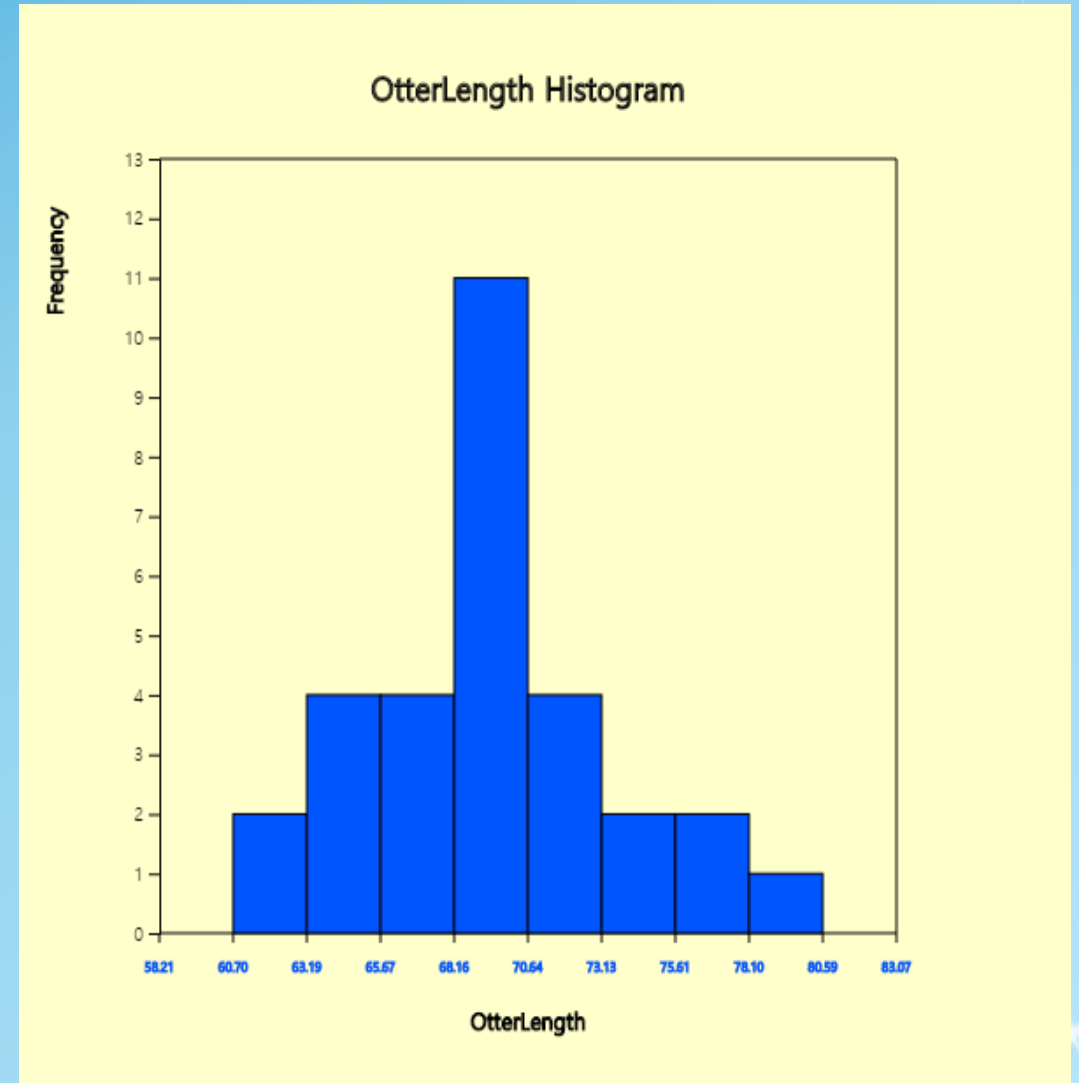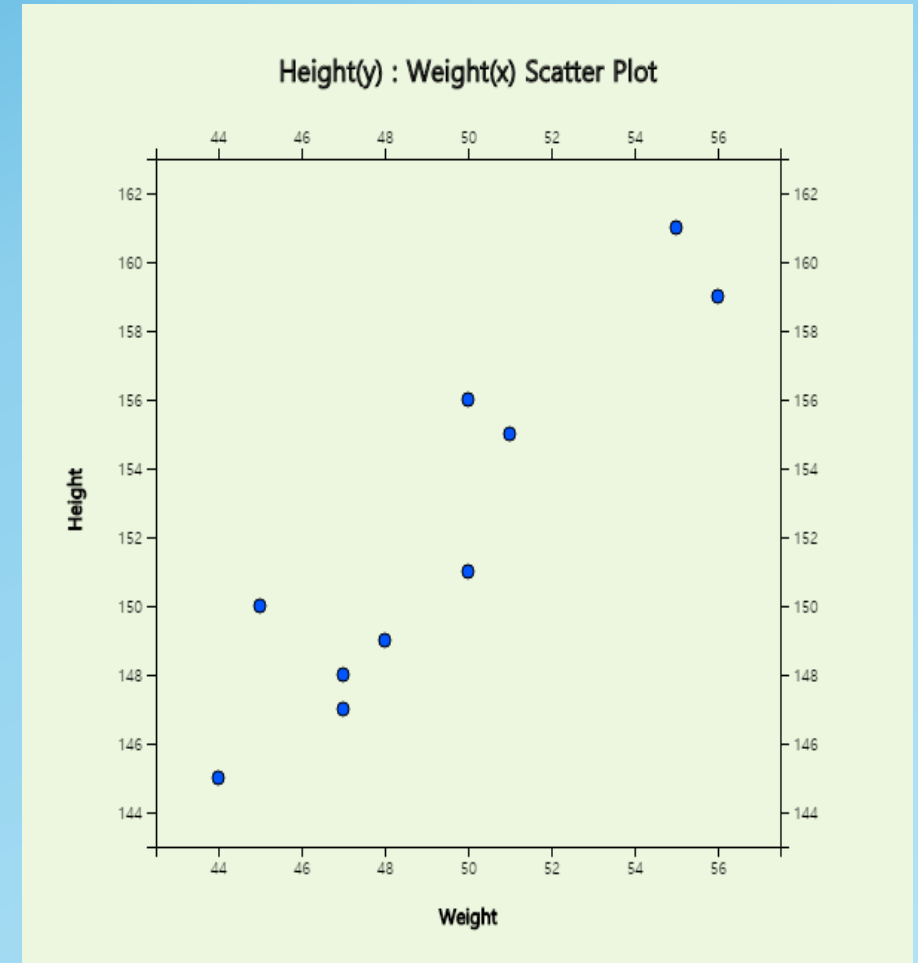
3.1 Graphs of Quantitative Data

- **Stem and leaf plot** can easily tell the range of observations, shape of distribution, and concentration.

- Stem and leaf plot shows the data in the form of stem and leaf by considering the digits of the data values,
  => first few digits are stem
       remaining digits are leaves.

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

- **Scatter plot** expresses data as a dot on the XY plane by using two variable values
  => one variable on the X-axis the other on the Y-axis

- An analysis of the relationship between two variables is very efficient by using the scatter plot.

Height(y) : Weight(x) Scatter Plot

Thank you