Introduction to Statistics and Data Science using *eStat*

Chapter 4 Data Summary Using Tables and Measures

4.1 Frequency Table for Single Variable

Jung Jin Lee
Professor of Soongsil University, Korea
Visiting Professor of ADA University, Azerbaijan

4.1 Frequency Table for Single Variable

- **Frequency table** is a summary of value frequency to summarize categorical data
  => frequency, percent, cumulative relative frequencies
  => bar chart, pie chart and band graph are drawn.

- Frequency table for qualitative data
- Frequency table for quantitative data

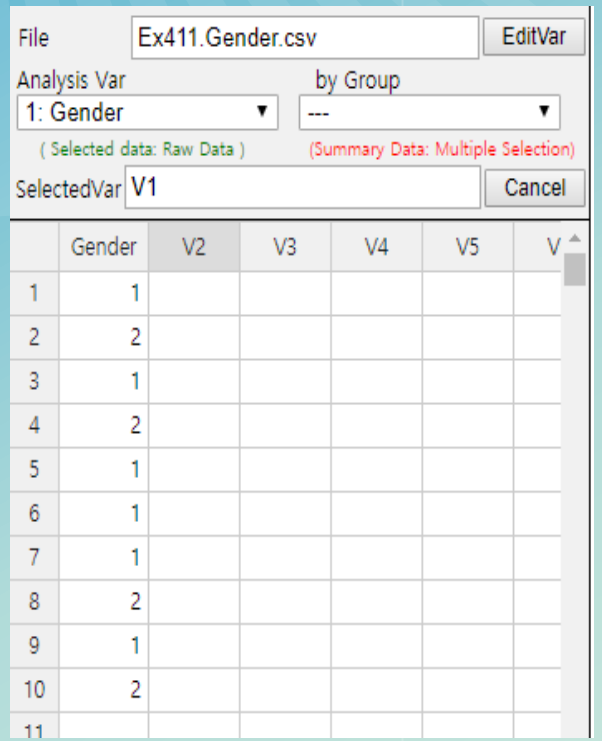
4.1 Frequency Table for Single Variable

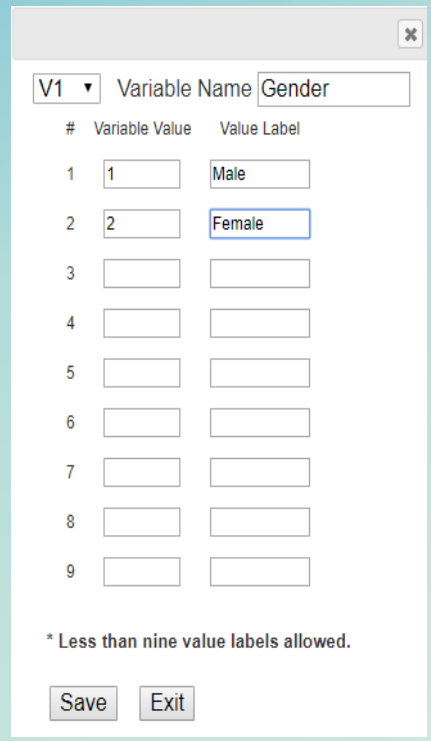
❖ Frequency Table for Qualitative Data

[EX 4.1.1] Using the following data(1:Male, 2:Female), create the frequency table using 『eStat』.

Gender
1
2
1
2
1
1
1
2
1
2

<Answer> Enter data, edit variable name, value label using 'EditVar'.

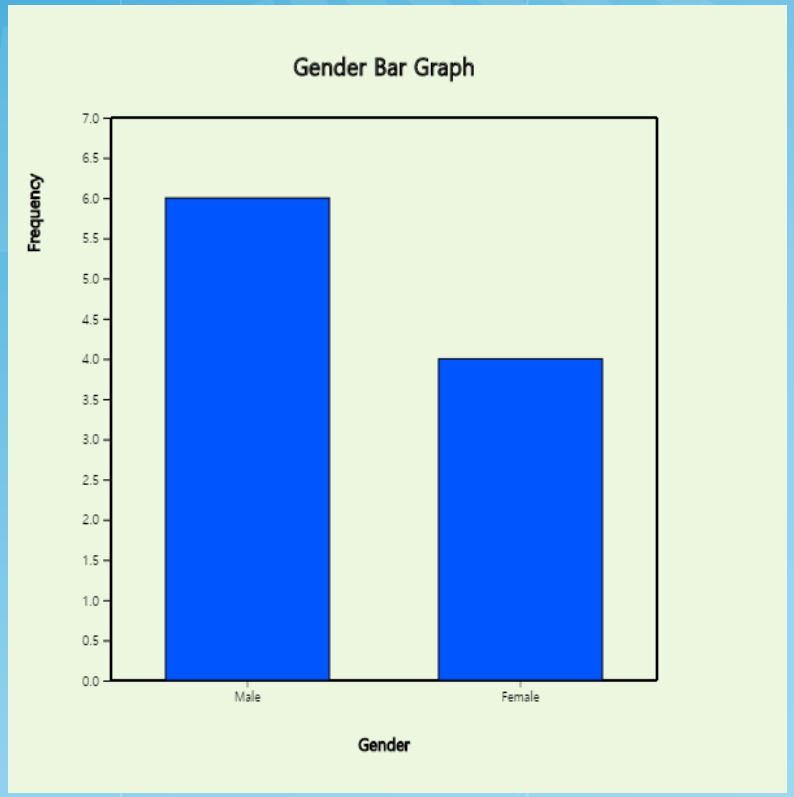




- **(Note) After editing variable value, data should be saved as a JSON format to reload it again.**

4.1 Frequency Table for Single Variable

- Select gender as 'Analysis Var', a bar chart of the gender is drawn
- Click ‘Frequency Table’ icon , the frequency table of the gender will appear in the log window



Frequency Table	Analysis Var	(Gender)		
Var Value	Value Label	Frequency	Relative Frequency (%)	Cumulated Relative Frequency (%)
1	Male	6	60.0	60.0
2	Female	4	40.0	100.0
Total		10	100.0	
	Missing Observations	0		

4.1 Frequency Table for Single Variable

❖ Frequency Table for Quantitative Data

- **Divide data into some intervals that do not overlap**
  => count frequency of each interval, create a frequency table.

- **Determining the number of intervals?**
  => Typically, the number of intervals is between 5 and 10 depending on the number of data.

4.1 Frequency Table for Single Variable

[Ex 4.1.2] The data of the otter length in 『eStat』

Ex ⇨ 02English ⇨031Continuous_OtterLength.csv.

Draw a histogram and frequency table of the otter length by using 『eStat』

<Answer>

- **Click the histogram icon and then select variable name 'OtterLength' to draw a histogram.**

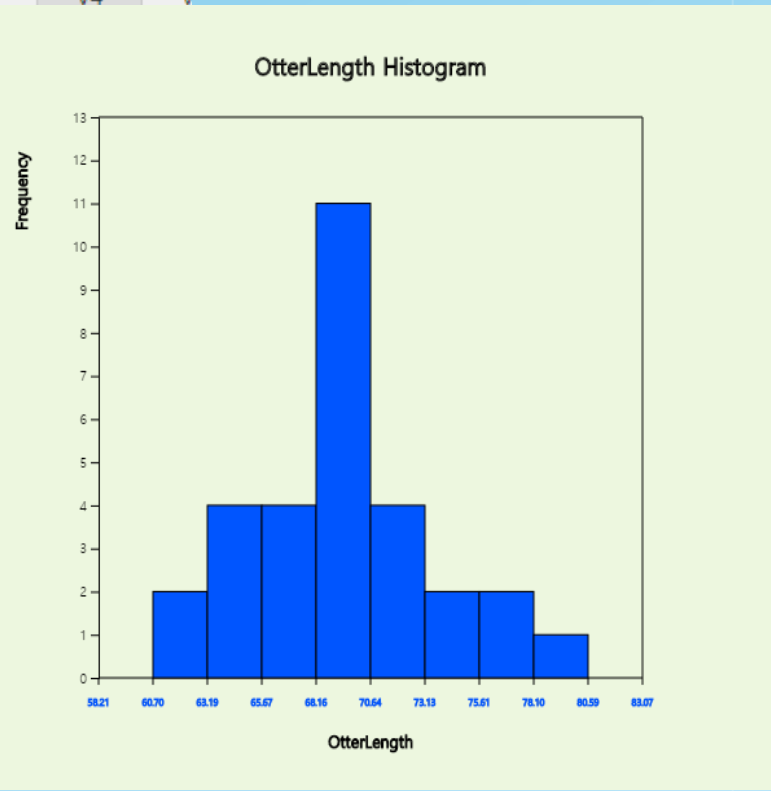
File: 031Continuous_OtterLength.csv

Analysis Var: 1: OtterLength | by Group: ---

(Selected data: Raw Data)

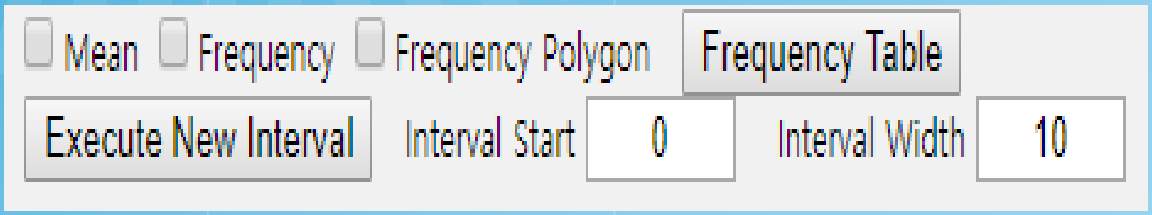
SelectedVar: V1

	OtterLen	V2	V3	V4	V
1	63.2				
2	65.3				
3	67.6				
4	68.7				
5	69.7				
6	60.7				
7	72.4				
8	75.2				
9	64.4				
10	76.5				
11	68.3				
12	69.3				
13	70.2				
14	71.3				
15	74.2				
16	63.6				



4.1 Frequency Table for Single Variable

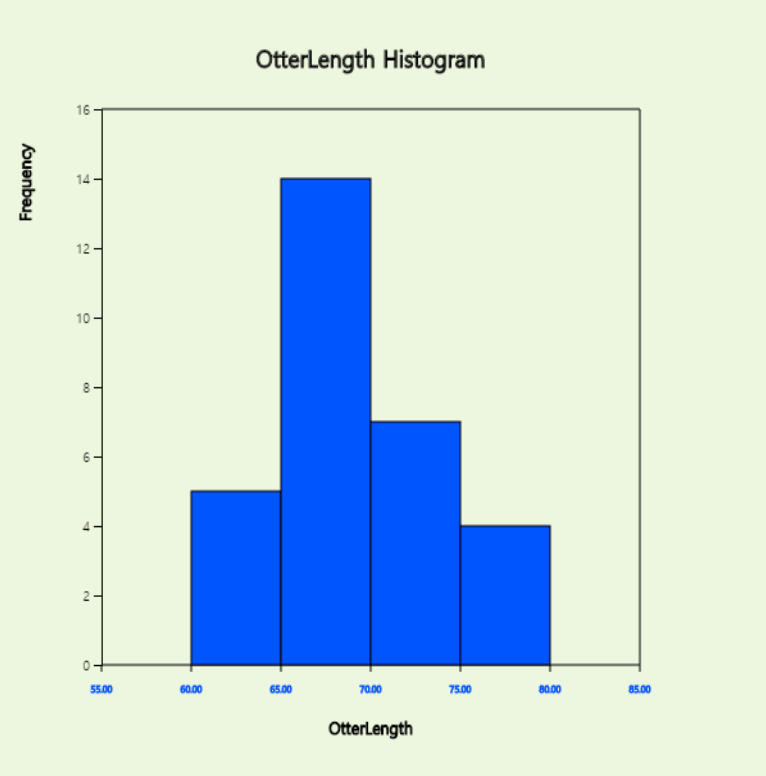
- **Click on the [Frequency Table] button in the options below the histogram.**
  => frequency table of the histogram intervals is shown in the log window.



Histogram Frequency Table	Group Name	0
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%)

4.1 Frequency Table for Single Variable

- To adjust the histogram interval from 60kg with interval length of 5kg,
  => set 'Interval Start' to 60 and 'Interval Width' to 5 in the options.
  => Click [Execute New Interval] to display the adjusted histogram.
  => Click on [Frequency Table] button to reveal the new frequency table.



Histogram Frequency Table	Group Name	()
Interval (OtterLength)	Group 1 (null)	Total
1 [60.00, 65.00)	5 (16.7%)	5 (16.7%)
2 [65.00, 70.00)	14 (46.7%)	14 (46.7%)
3 [70.00, 75.00)	7 (23.3%)	7 (23.3%)
4 [75.00, 80.00)	4 (13.3%)	4 (13.3%)
Total	30 (100%)	30 (100%)

Thank you