Assignment 1 – CIS575

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A. Descriptive Statistics

By using KNIME this is what I illustrated

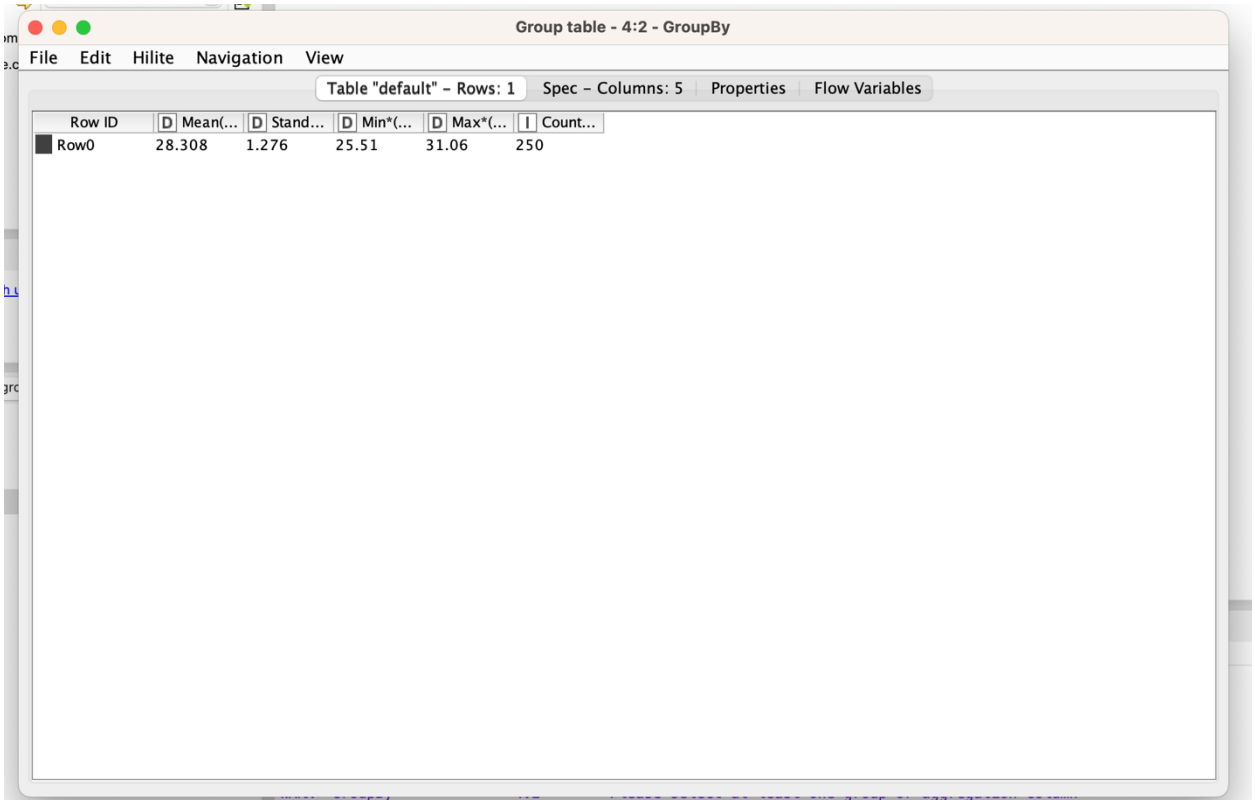
1.Overall: The mean diameter, SD, range for 250 pizzas are as follows

Mean diameter = 28.31

Standard Deviation = 1.28

Range = 25.51 to 31.06

Count = 250



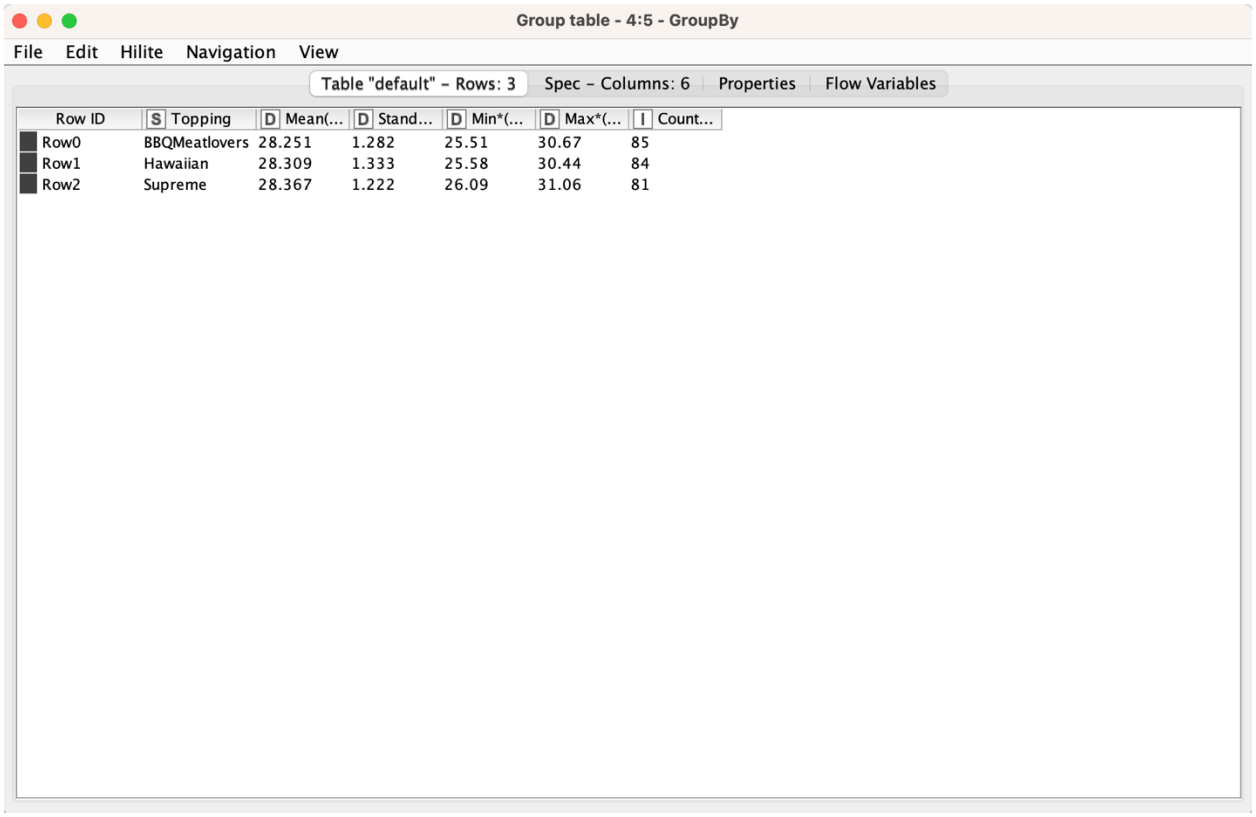
Appendix1

2.By topping

Supreme = Mean (28.37), SD (1.28)

Hawaiian = Mean (28.30), SD (1.33),

BBQ Meatlovers = Mean (28.25), SD (1.22)



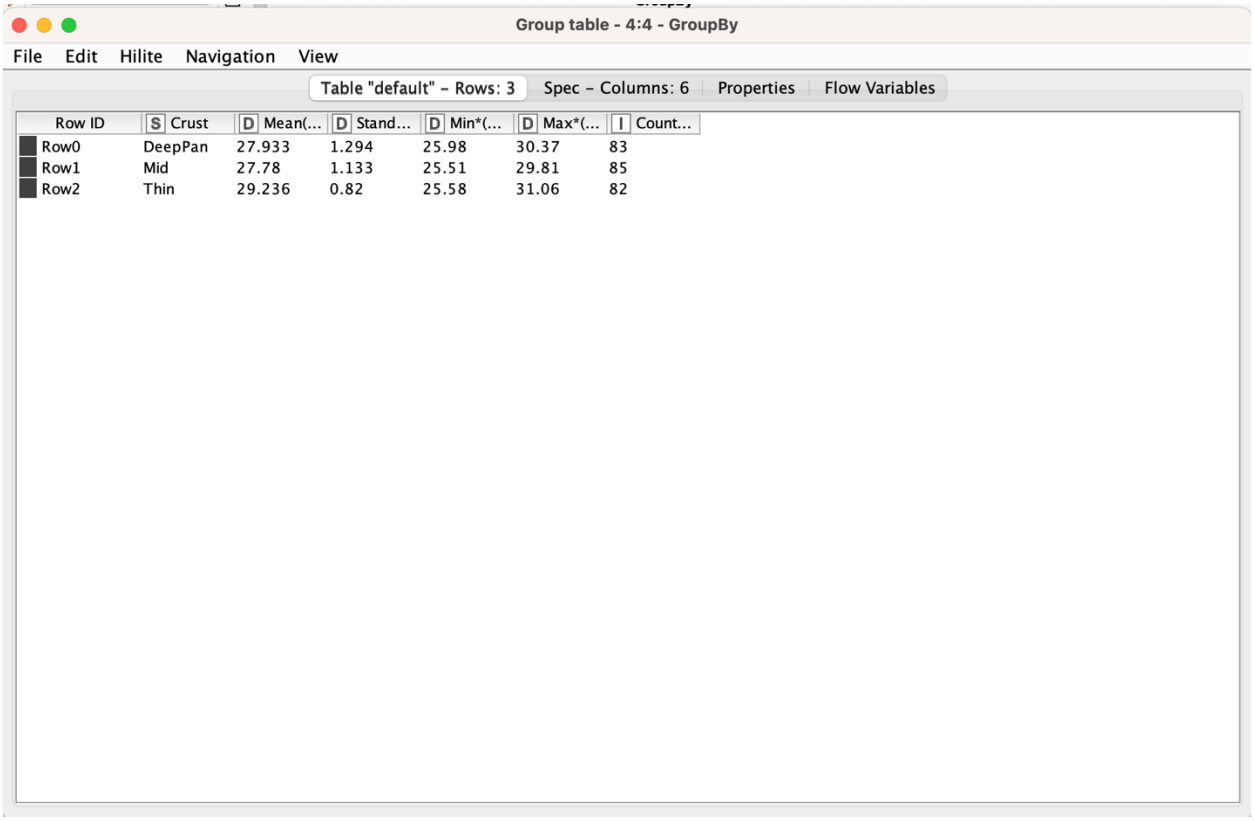
Appendix2

3.By Crust

Thin: 29.24 cm (largest).

Mid: 27.78 cm.

DeepPan: 27.93 cm.

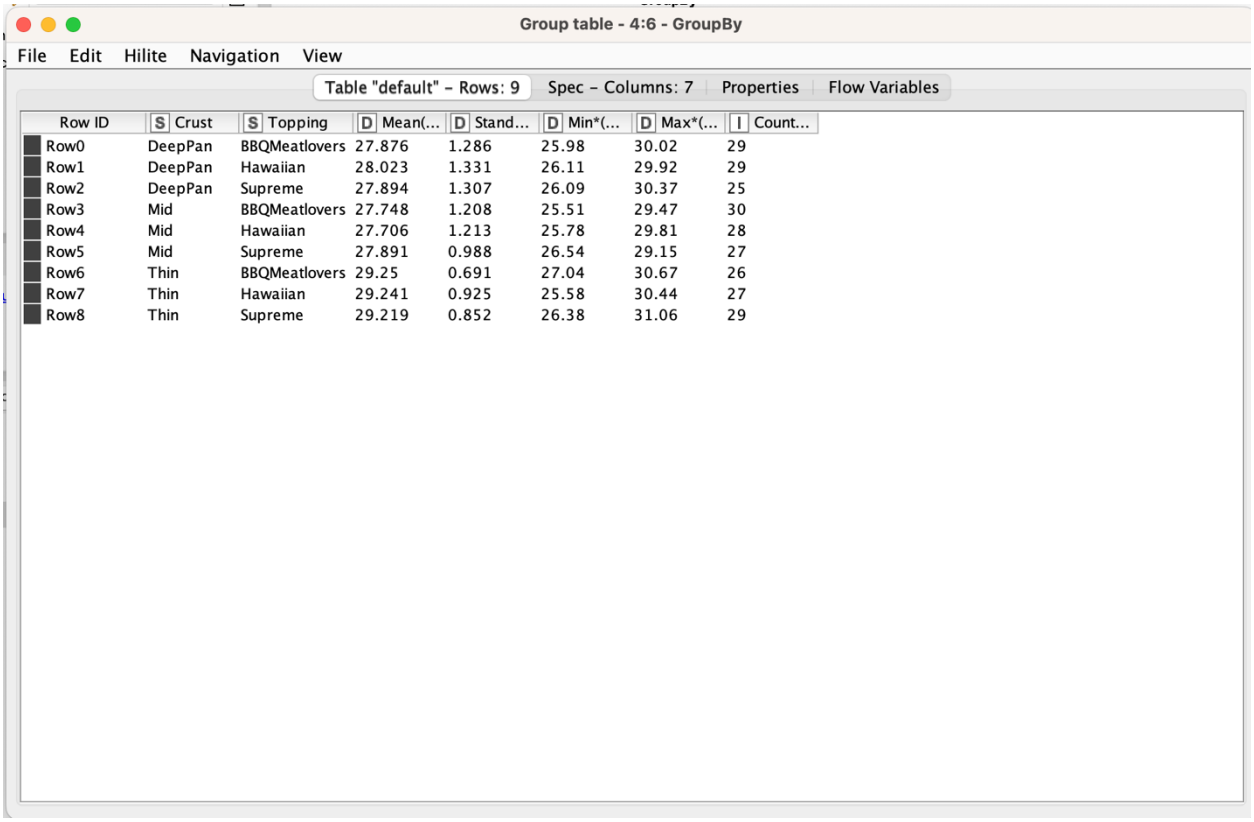


Row ID	Crust	Mean(...	Stand...	Min*(...	Max*(...	Count...
Row0	DeepPan	27.933	1.294	25.98	30.37	83
Row1	Mid	27.78	1.133	25.51	29.81	85
Row2	Thin	29.236	0.82	25.58	31.06	82

Appendix 3

4.By Crust & Toppings

Thin and Supreme combination gave the largest size



Row ID	Crust	Topping	Mean(...	Stand...	Min*(...	Max*(...	Count...
Row0	DeepPan	BBQMeatlovers	27.876	1.286	25.98	30.02	29
Row1	DeepPan	Hawaiian	28.023	1.331	26.11	29.92	29
Row2	DeepPan	Supreme	27.894	1.307	26.09	30.37	25
Row3	Mid	BBQMeatlovers	27.748	1.208	25.51	29.47	30
Row4	Mid	Hawaiian	27.706	1.213	25.78	29.81	28
Row5	Mid	Supreme	27.891	0.988	26.54	29.15	27
Row6	Thin	BBQMeatlovers	29.25	0.691	27.04	30.67	26
Row7	Thin	Hawaiian	29.241	0.925	25.58	30.44	27
Row8	Thin	Supreme	29.219	0.852	26.38	31.06	29

Appendix 4

I conclude that, pizza size depends more on the store and the crust type than on the topping. Eagle Boys and Thin crust pizzas are larger than Domino's and Mid/DeepPan crust pizzas.

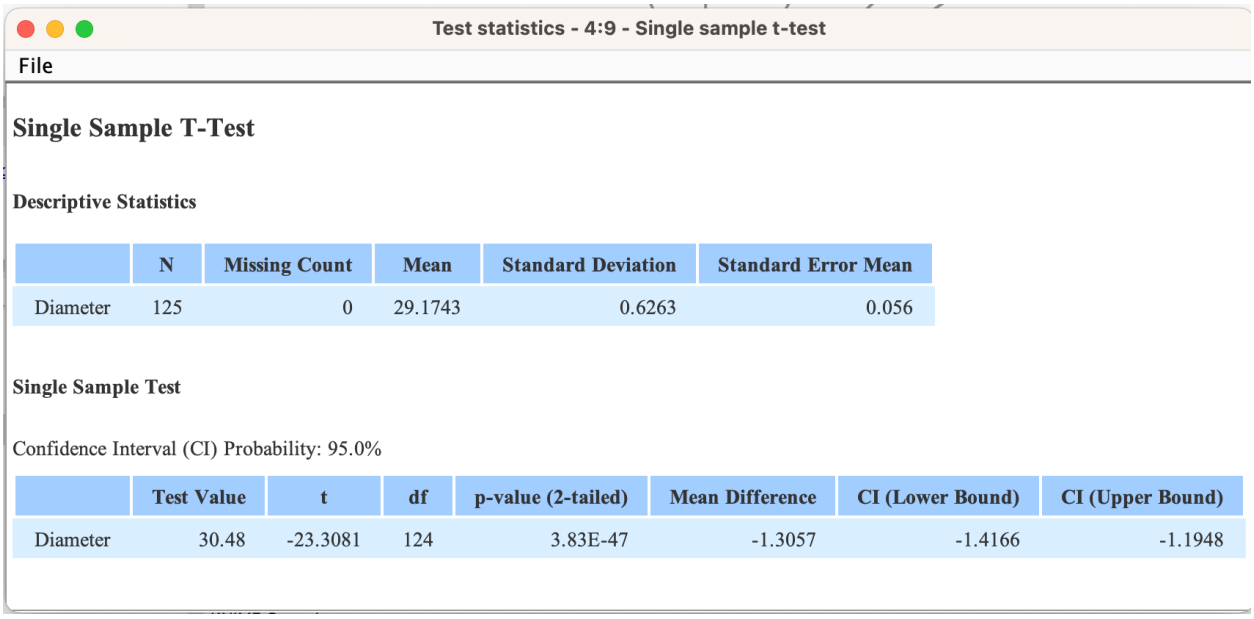
B. Hypothesis: Eagle Boys Pizzas are "Real 12-inch" (30.48 cm)

Ho mean = 30.48

Ha mean !=(not equals) 30.48

Alpha = 0.05

Confidence level = 95%



Test statistics - 4:9 - Single sample t-test

File

Single Sample T-Test

Descriptive Statistics

	N	Missing Count	Mean	Standard Deviation	Standard Error Mean
Diameter	125	0	29.1743	0.6263	0.056

Single Sample Test

Confidence Interval (CI) Probability: 95.0%

	Test Value	t	df	p-value (2-tailed)	Mean Difference	CI (Lower Bound)	CI (Upper Bound)
Diameter	30.48	-23.3081	124	3.83E-47	-1.3057	-1.4166	-1.1948

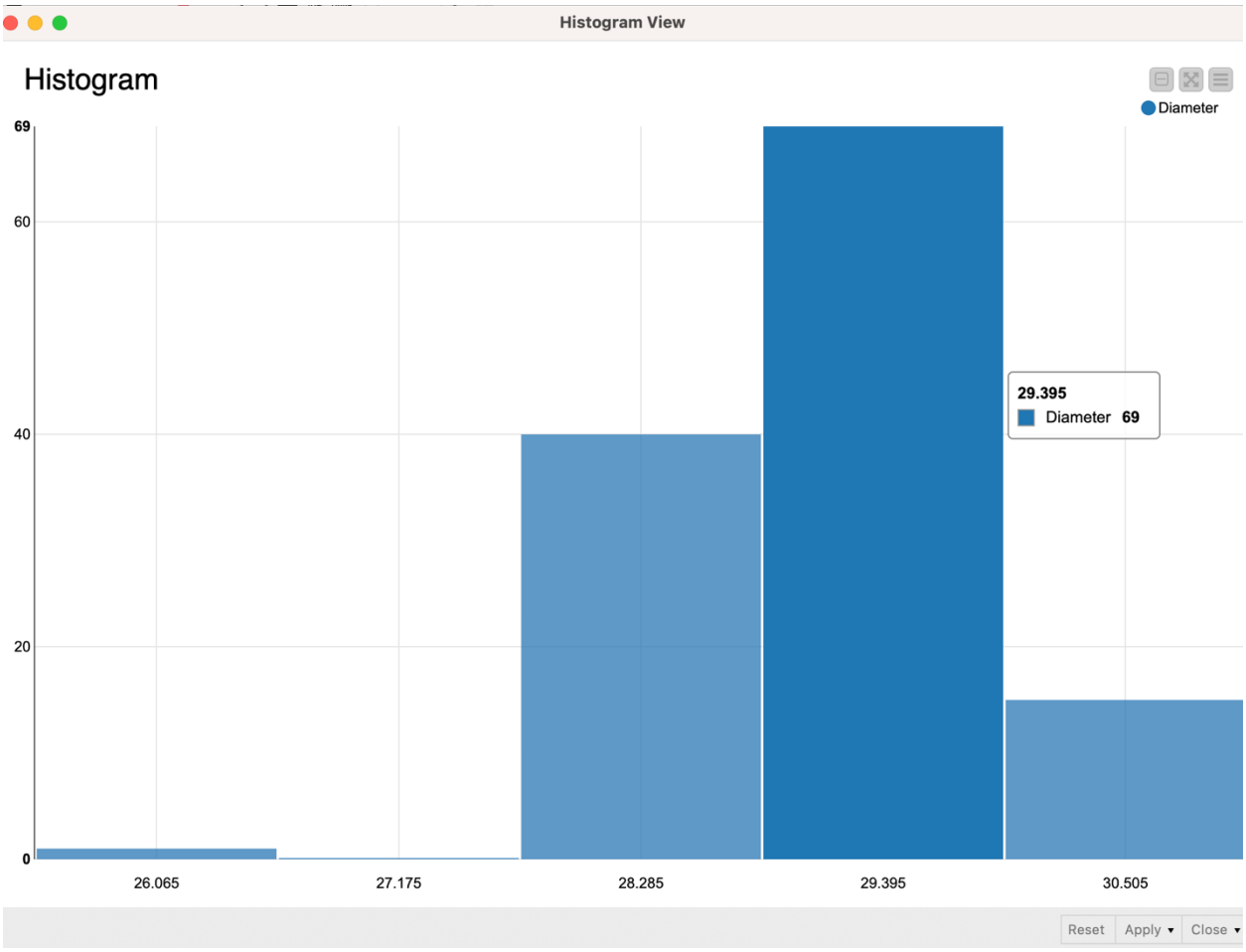
Appendix 5

Mean = 29.17

P < alpha

As p is less than alpha, I reject the null hypothesis. Eagle boy's pizzas are smaller than 12 inches.

And it is normally distributed as the count is 125 and the histogram image also depicts that it is normally distributed


Histogram View
Histogram
Diameter
69
60
40
20
0
29.395
Diameter 69
26.065
27.175
28.285
29.395
30.505
Reset
Apply
Close

Appendix 6

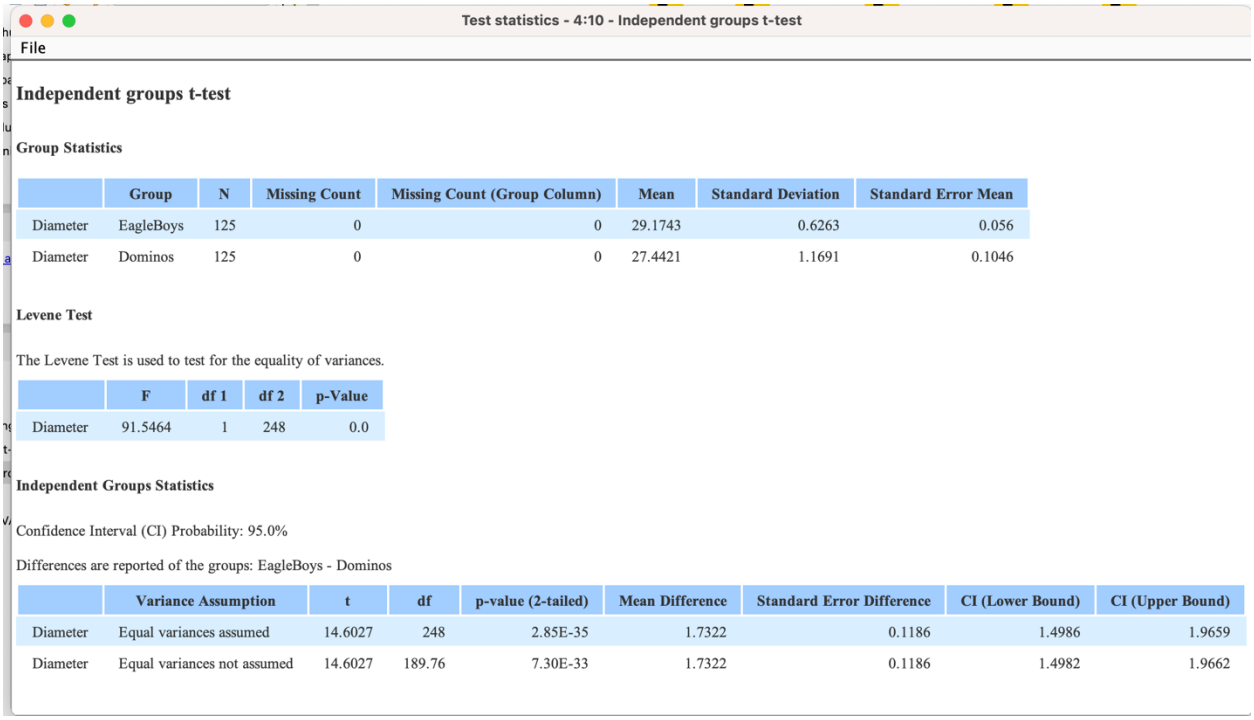
C. Hypothesis: Are EagleBoys pizzas the same size as Dominos pizzas?

Ho = Eagle Boys pizzas are same size as Domino's Pizza

Ha = EagleBoys pizzas differ in size from Dominos pizzas.

Alpha = 0.05

Confidence level = 95%



Test statistics - 4:10 - Independent groups t-test

File

Independent groups t-test

Group Statistics

	Group	N	Missing Count	Missing Count (Group Column)	Mean	Standard Deviation	Standard Error Mean
Diameter	EagleBoys	125	0	0	29.1743	0.6263	0.056
Diameter	Dominos	125	0	0	27.4421	1.1691	0.1046

Levene Test

The Levene Test is used to test for the equality of variances.

	F	df 1	df 2	p-Value
Diameter	91.5464	1	248	0.0

Independent Groups Statistics

Confidence Interval (CI) Probability: 95.0%

Differences are reported of the groups: EagleBoys - Dominos

	Variance Assumption	t	df	p-value (2-tailed)	Mean Difference	Standard Error Difference	CI (Lower Bound)	CI (Upper Bound)
Diameter	Equal variances assumed	14.6027	248	2.85E-35	1.7322	0.1186	1.4986	1.9659
Diameter	Equal variances not assumed	14.6027	189.76	7.30E-33	1.7322	0.1186	1.4982	1.9662

Appendix 7

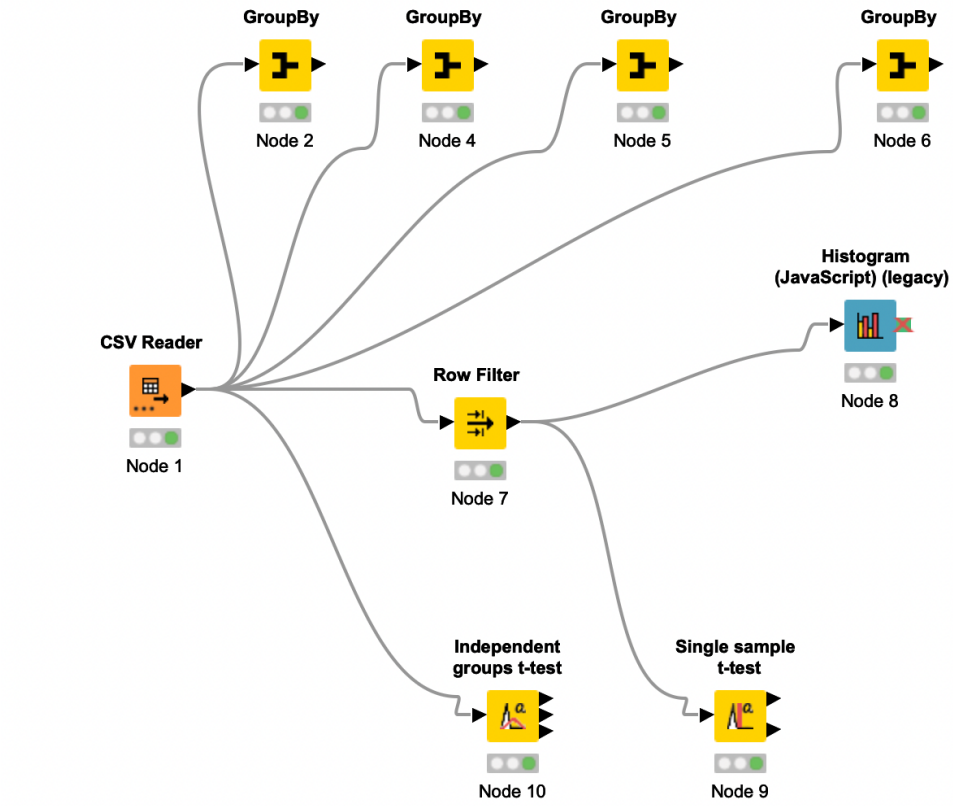
Mean of Eagle Boys pizza = 29.17

Mean of Domino's pizza = 27.44

P < alpha

As p is less than alpha, I reject null hypothesis. Eagle Boys pizzas are significantly larger than domino's pizza.

Workflow Screenshot from KNIME



Appendix 8