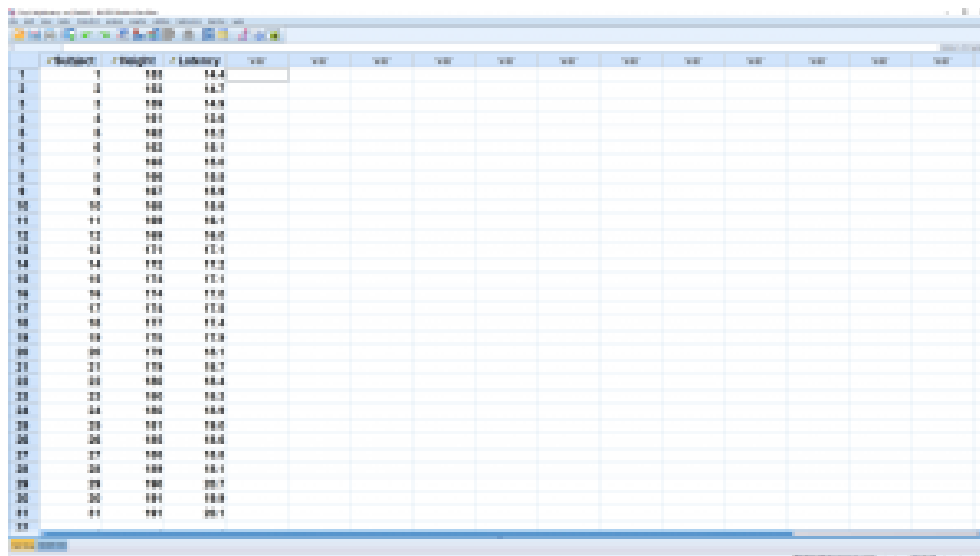


4.3: SPSS Lesson 3- Combining variables - advanced

In SPSS Lesson 2 we saw how we can take variables defined on a Lickert scale and add them together, reverse scaling if necessary, to produce a single, better, variable for analysis. This works because the Lickert scale variables all have the same “units” (number of answer choices). You can combine any variables that have the same units, like feet or years or whatever. But if the units are different, but the variables still measure the same thing, like, for example, number of diet days per week and calories eaten per meal both measure levels of healthy eating habits but it makes no sense to simply add two such variables. It is literally like adding apples and oranges. The solution is to z -transform the variables you want to add first. The z -transform converts whatever units the original variable has to the z -transformed variable’s units of standard deviation distance from the mean. So when you add two z -transformed variables you end up with another variable whose units are standard deviation distance from the mean.

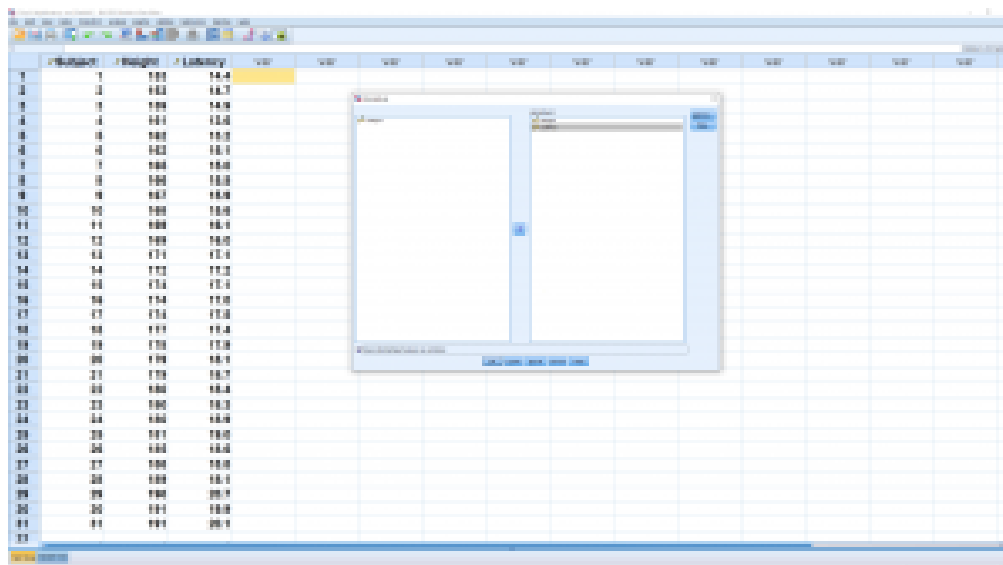
Let’s start by opening the file “HeightLatency.sav” from the [Data Sets](#). There are two variables in this file that we will combine into fewer variables. We begin by combining the variables Height and Latency into a new variable.



	Height	Latency
1	1	0.000
2	2	0.000
3	3	0.000
4	4	0.000
5	5	0.000
6	6	0.000
7	7	0.000
8	8	0.000
9	9	0.000
10	10	0.000
11	11	0.000
12	12	0.000
13	13	0.000
14	14	0.000
15	15	0.000
16	16	0.000
17	17	0.000
18	18	0.000
19	19	0.000
20	20	0.000
21	21	0.000
22	22	0.000
23	23	0.000
24	24	0.000
25	25	0.000
26	26	0.000
27	27	0.000
28	28	0.000
29	29	0.000
30	30	0.000

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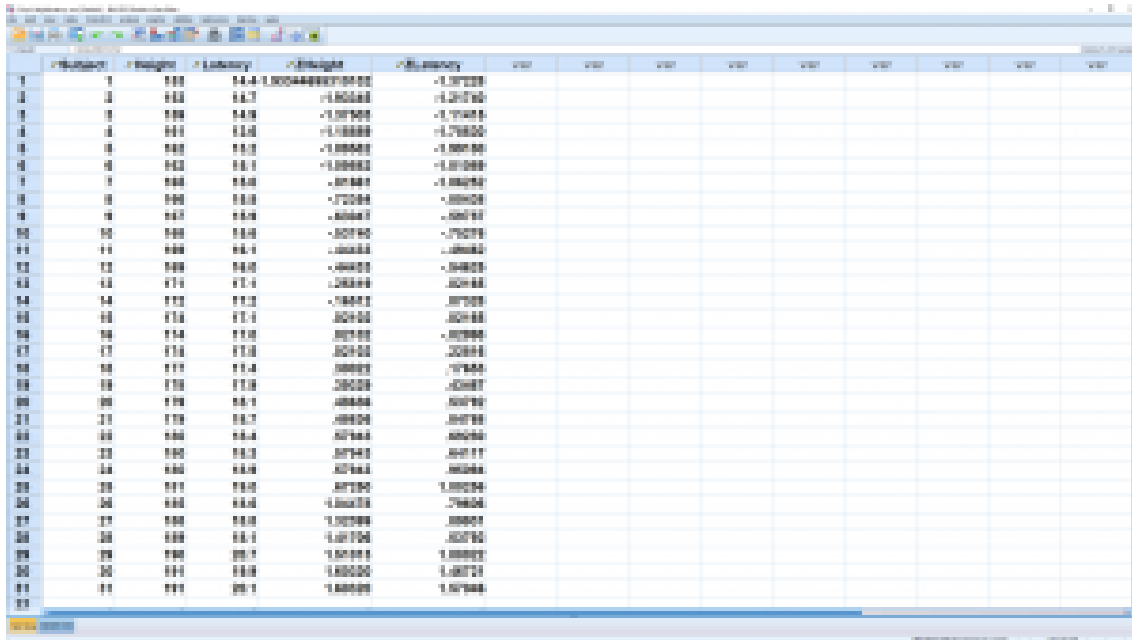
Since Height and Latency have different units, we need to z -transform them first by running a descriptive analysis, making sure you have the “Save standardized values as variables” box checked :



	Height	Latency
1	1	0.000
2	2	0.000
3	3	0.000
4	4	0.000
5	5	0.000
6	6	0.000
7	7	0.000
8	8	0.000
9	9	0.000
10	10	0.000
11	11	0.000
12	12	0.000
13	13	0.000
14	14	0.000
15	15	0.000
16	16	0.000
17	17	0.000
18	18	0.000
19	19	0.000
20	20	0.000
21	21	0.000
22	22	0.000
23	23	0.000
24	24	0.000
25	25	0.000
26	26	0.000
27	27	0.000
28	28	0.000
29	29	0.000
30	30	0.000

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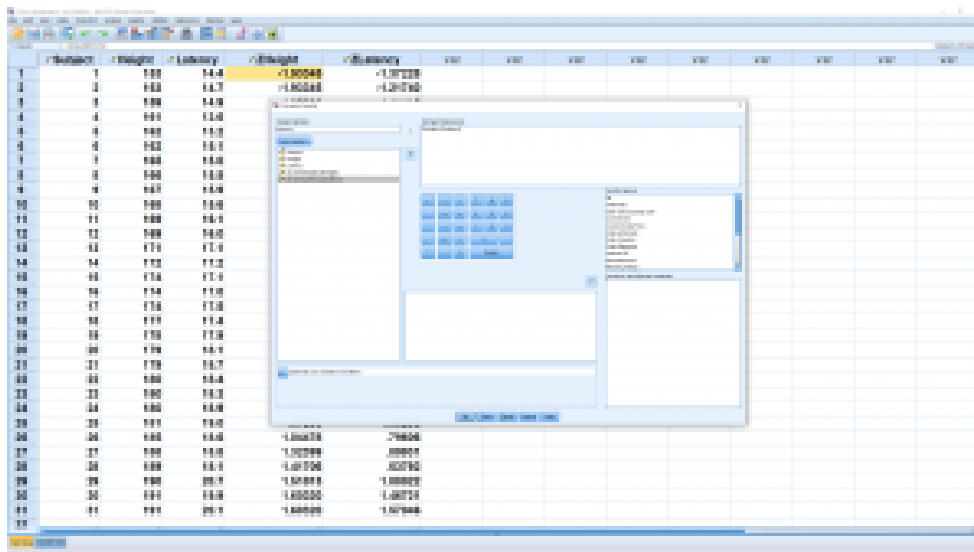
Hit Ok. This will produce two new variables, visible in the Data View window, called ZHeight and ZLatency. We don't care about the actual descriptive statistics output here. Now you can simply add the z -transforms to produce the required new variable :



	ZHeight	ZLatency	ZHeight	ZLatency									
1	1	0.00	1.44	-1.000000	-1.000000								
2	2	0.00	1.47	-1.000000	-1.000000								
3	3	0.00	1.49	-1.000000	-1.000000								
4	4	0.00	1.50	-1.000000	-1.000000								
5	5	0.00	1.51	-1.000000	-1.000000								
6	6	0.00	1.51	-1.000000	-1.000000								
7	7	0.00	1.51	-1.000000	-1.000000								
8	8	0.00	1.51	-1.000000	-1.000000								
9	9	0.00	1.51	-1.000000	-1.000000								
10	10	0.00	1.51	-1.000000	-1.000000								
11	11	0.00	1.51	-1.000000	-1.000000								
12	12	0.00	1.51	-1.000000	-1.000000								
13	13	0.00	1.51	-1.000000	-1.000000								
14	14	0.00	1.51	-1.000000	-1.000000								
15	15	0.00	1.51	-1.000000	-1.000000								
16	16	0.00	1.51	-1.000000	-1.000000								
17	17	0.00	1.51	-1.000000	-1.000000								
18	18	0.00	1.51	-1.000000	-1.000000								
19	19	0.00	1.51	-1.000000	-1.000000								
20	20	0.00	1.51	-1.000000	-1.000000								
21	21	0.00	1.51	-1.000000	-1.000000								
22	22	0.00	1.51	-1.000000	-1.000000								
23	23	0.00	1.51	-1.000000	-1.000000								
24	24	0.00	1.51	-1.000000	-1.000000								
25	25	0.00	1.51	-1.000000	-1.000000								
26	26	0.00	1.51	-1.000000	-1.000000								
27	27	0.00	1.51	-1.000000	-1.000000								
28	28	0.00	1.51	-1.000000	-1.000000								
29	29	0.00	1.51	-1.000000	-1.000000								
30	30	0.00	1.51	-1.000000	-1.000000								
31	31	0.00	1.51	-1.000000	-1.000000								
32	32	0.00	1.51	-1.000000	-1.000000								

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Now let's combine a couple of sets of variables that have compatible units. First add ZHeight to ZLatency (note the fancy new way to add) to produce a new variable Sub :



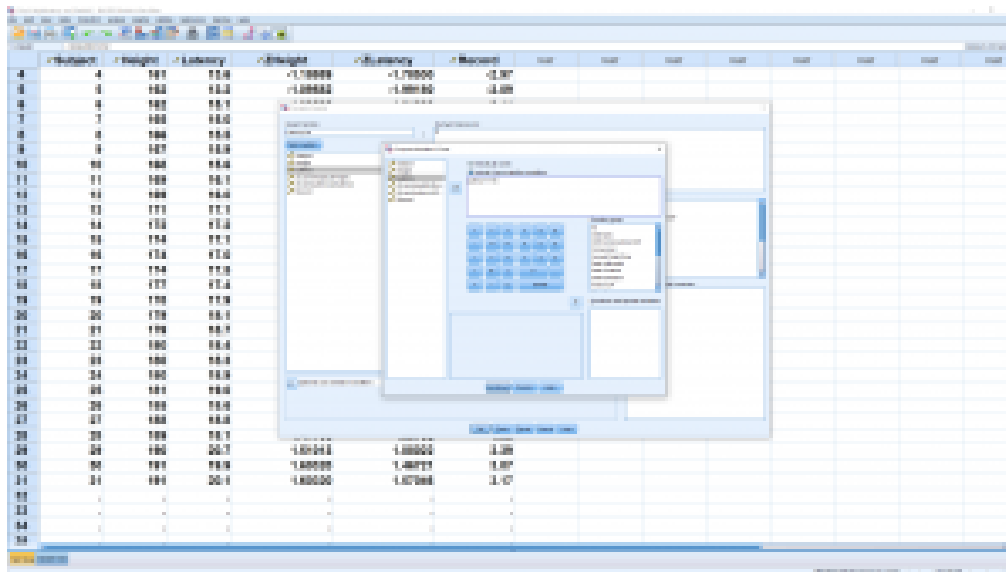
	ZHeight	ZLatency	ZHeight	ZLatency									
1	1	0.00	1.44	-1.000000	-1.000000								
2	2	0.00	1.47	-1.000000	-1.000000								
3	3	0.00	1.49	-1.000000	-1.000000								
4	4	0.00	1.50	-1.000000	-1.000000								
5	5	0.00	1.51	-1.000000	-1.000000								
6	6	0.00	1.51	-1.000000	-1.000000								
7	7	0.00	1.51	-1.000000	-1.000000								
8	8	0.00	1.51	-1.000000	-1.000000								
9	9	0.00	1.51	-1.000000	-1.000000								
10	10	0.00	1.51	-1.000000	-1.000000								
11	11	0.00	1.51	-1.000000	-1.000000								
12	12	0.00	1.51	-1.000000	-1.000000								
13	13	0.00	1.51	-1.000000	-1.000000								
14	14	0.00	1.51	-1.000000	-1.000000								
15	15	0.00	1.51	-1.000000	-1.000000								
16	16	0.00	1.51	-1.000000	-1.000000								
17	17	0.00	1.51	-1.000000	-1.000000								
18	18	0.00	1.51	-1.000000	-1.000000								
19	19	0.00	1.51	-1.000000	-1.000000								
20	20	0.00	1.51	-1.000000	-1.000000								
21	21	0.00	1.51	-1.000000	-1.000000								
22	22	0.00	1.51	-1.000000	-1.000000								
23	23	0.00	1.51	-1.000000	-1.000000								
24	24	0.00	1.51	-1.000000	-1.000000								
25	25	0.00	1.51	-1.000000	-1.000000								
26	26	0.00	1.51	-1.000000	-1.000000								
27	27	0.00	1.51	-1.000000	-1.000000								
28	28	0.00	1.51	-1.000000	-1.000000								
29	29	0.00	1.51	-1.000000	-1.000000								
30	30	0.00	1.51	-1.000000	-1.000000								
31	31	0.00	1.51	-1.000000	-1.000000								
32	32	0.00	1.51	-1.000000	-1.000000								

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The new variable shows clearly on SPSS sheet :

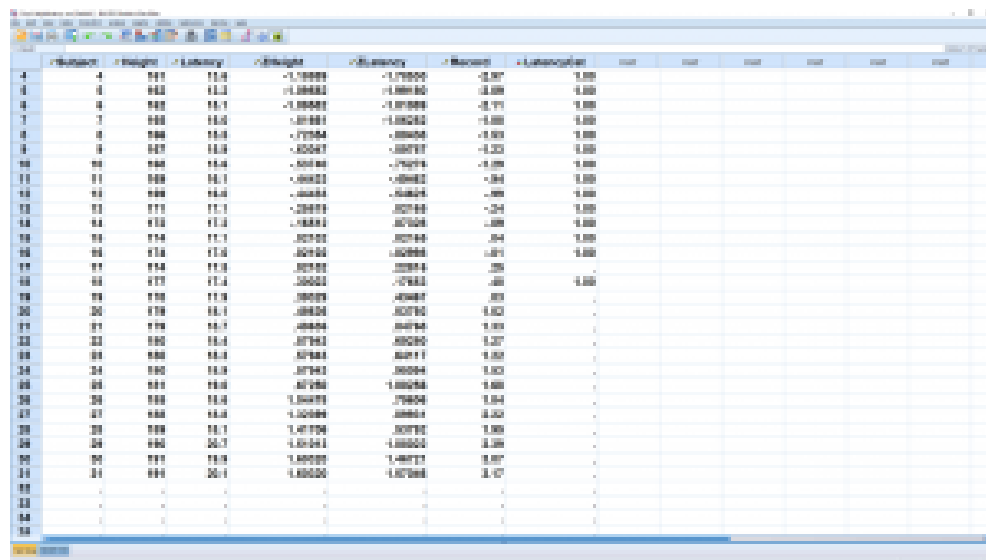
Next we will make a conversion from a quantitative variable to a qualitative variable essentially by dividing the data into classes. First a simple case. Create the new variable Life from the variable Latency as the following :

We'll need to do this in two steps. First pull up Transform → Compute Variable and set it up so that 1 is in the Numeric Expression box. Then hit the If... button at the bottom left hand of the menu window to bring up :



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Then click Continue, then hit OK. That will create the new LatencyCat variable, with missing values. Those values will be filled in the next step.



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Pull up Transform → Compute Variable again and, leaving LatencyCat where it is, put 2 in the Numeric Expression box, then hit the “If” button again and change the expression in the condition box, then hit Continue, then OK. Now LatencyCat is either 1 or 2 with no missing values :

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