What are some of the differences between the compute, create and shift values commands in SPSS?

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SPSS (Statistical Package for the Social Sciences) is a software used for statistical analysis and data management. It has various commands that allow users to manipulate and analyze data in different ways. Three commonly used commands in SPSS are compute, create, and shift values. Each of these commands has a specific purpose and understanding their differences is essential for efficient data analysis.

The compute command is used to create new variables by performing mathematical operations on existing variables. This allows users to manipulate data and create new variables based on specific calculations. On the other hand, the create command is used to define new variables without any calculations. This is useful when creating dummy variables or variables with a specific set of values.

The shift values command is used to rearrange the values of a variable. It allows users to change the order of values in a variable, which can be useful for re-coding data or creating categorical variables. However, this command does not create any new variables.

In summary, the main difference between compute, create, and shift values commands in SPSS is their purpose. While compute and create commands are used to create new variables, the shift values command is used to rearrange values within an existing variable. Understanding the differences between these commands is crucial for efficient and accurate data analysis in SPSS.

What are some of the differences between the compute, create and shift values commands? | SPSS FAQ

SPSS has several commands that allow users to generate new variables using functions. Among these are compute, create and shift values. Below we will show some of the similarities and differences between these commands, so that you can decide which command best suits your

needs.

All of our examples will use the hsb2.sav
dataset. Because these three commands only have two functions in common,
we will focus on these functions, lag and lead. However, the behavior of
the command in the different situations will be the same regardless of the
function used.

Introduction to the three commands

The compute command is perhaps the most commonly used command to
generate new variables. There are many functions that can be used with the
compute command, including arithmetic, statistical, random number, string
and date/time functions. The compute command does not produce
output or variable labels when it generates a new variable. Technically,
compute is not a command, but rather a transformation. This means that,

**unlike a command such as create or shift values, compute
does not read the active dataset. Rather, it is stored, pending execution
with the next command that reads the active dataset. This is why the
execute command is often used immediately after compute, but it is
not necessary after create or shift values.**

**The create command is often used with time-series data and has about a
dozen functions. The create command produces some output when it
generate new variables, and it labels those variables. For more
information on the create command, please see
What kinds of new
variables can I make with the create command? .**

**The shift values command was added in SPSS version 17 and has only
three functions: lag, lead and shift. If a positive value is given**

with the shift function, it acts like lead; if a negative value is given, it
acts like lag. The shift values command does not produce output
when it generates new variables, but those variables are labeled.

Making multiple variables in a single call to the command

Both the create and shift values commands can generate multiple
variables in a single call to the command; the compute command can not.
Note that in the shift values command, the variable subcommand cannot be shortened to var.

```
create cr1 = lag(read, 1).
```

Created Series

	Series Name	Case Number of Non-Missing Values		N of Valid Cases	Creating Function
		First	Last		
1	cr1	2	200	199	LAGS(read,1)

```
create cr2 to cr5 = lag(read, 2, 5).
```

Created Series

	Series Name	Case Number of Non-Missing Values		N of Valid Cases	Creating Function
		First	Last		
1	cr2	3	200	198	LAGS(read,2)
2	cr3	4	200	197	LAGS(read,3)
3	cr4	5	200	196	LAGS(read,4)
4	cr5	6	200	195	LAGS(read,5)

shift values variable = read result=sv1 lead = 1.
shift values variable = read result=sv2 lead = 2
/variable = read result=sv3 lag = 2
/variable = read result=sv4 lag = 3
/variable = read result=sv5 lag = 4.

User-defined missing

We do not have any user-defined missing values in our dataset, so we will
make some for this example.

if science gt 70 science = -9999.
missing values science (-9999).
exe.

The compute and create commands transform the user-

defined
missing into system missing values; only the shift values command retains
the user-defined missing.

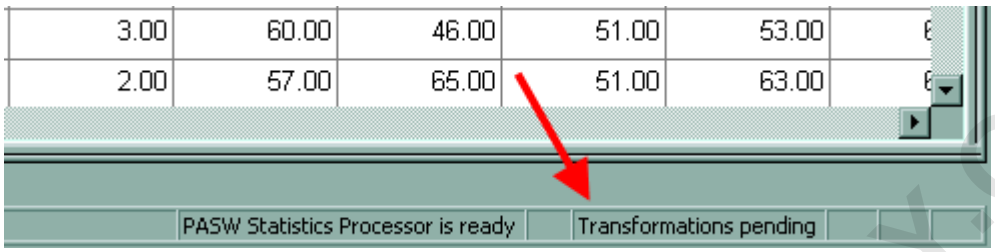
```
compute x41 = lag(science, 1).
create x42 = lag(science, 1).
shift values variable = science result = x43 lag = 1.
```

Name	Type	Width	Decimals	Label	Values	Missing
co6	Numeric	8	2		None	None
cr6	Numeric	9	2	LAGS(science,1)	None	None
sv6	Numeric	9	2	Lag(science,1)	None	-9999.00

Execute

There are two types of commands in SPSS: transformations and
procedures. Transformations include compute, if, recode
and count.
Transformations do not force SPSS to read through the dataset, and so nothing
happens until a procedure forces SPSS to read through the dataset. For

example, if you run a compute command by itself, you will see a message in the
lower left corner of the window a message that says "Transformations pending".



Procedures require SPSS to read through the dataset. The execute
command is an "empty" procedure; all it does is force SPSS to read through the
dataset. The commands create and shift values are procedures, so the execute command is not needed after them. However,
because the compute command is a transformation, some procedure, often
execute, must follow to allow compute to generate the new
variable. The execute command is often shortened to exe.
Both sets of commands below will generate the

variables cr7, sv7
and co7.

create cr7 = lag(write, 1).
shift values variable = write result = sv7 lag = 1.
compute co7 = lag(write, 1).
exe.

compute co7 = lag(write, 1).
create cr7 = lag(write, 1).
shift values variable = write result = sv7 lag = 1.

Temporary

The temporary command allows transformations to be in effect for the
next procedure. The compute command cannot be used with the lag
function after temporary, so we will generate a new variable by simply
adding 1 to the variable write. As expected, the variable co8
is available for use in the first call to the descriptives command
(shortened to desc) but not the second call. The shift

values

command does not respect the temporary command; hence, the variable

sv8 is available for use in both desc calls. The create command does not respect the temporary command either. However, it

does not generate the new variable because of the temporary command, as

the warning message indicates.

temporary.

compute co8 = write + 1.

desc var = co8.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
co8	200	32.00	68.00	53.7750	9.47859
Valid N (listwise)	200				

desc var = co8.

Warnings

Text: co8 Command: desc
An undefined variable name, or a scratch or system variable was specified in a variable list which accepts only standard variables. Check spelling and verify the existence of this variable.
Execution of this command stops.

No Variables subcommand.

```
temporary.
shift values variable = write result = sv8 lag= 1.
desc var = sv8.
```

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Lag(write,1)	199	31.00	67.00	52.7136	9.46249
Valid N (listwise)	199				

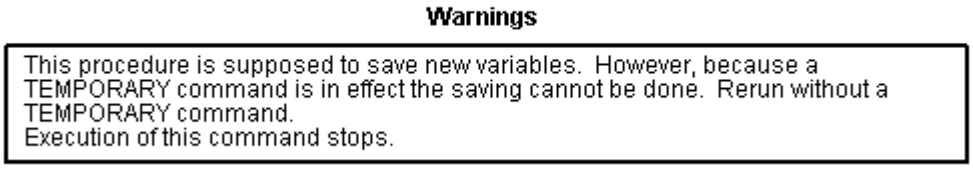
```
desc var = sv8.
```

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Lag(write,1)	199	31.00	67.00	52.7136	9.46249
Valid N (listwise)	199				

```
temporary.
create cr8 = lag(write, 1).
```

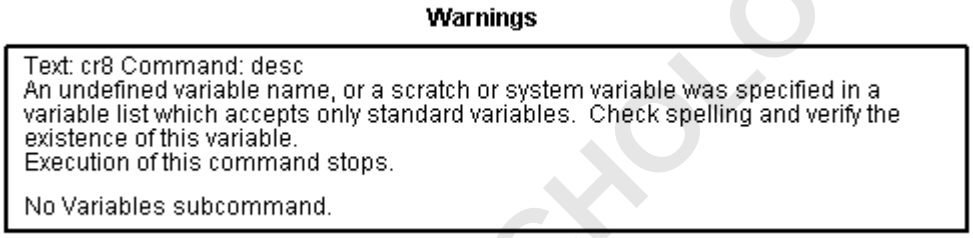
desc var = cr8.



Warnings

This procedure is supposed to save new variables. However, because a TEMPORARY command is in effect the saving cannot be done. Rerun without a TEMPORARY command.
Execution of this command stops.

desc var = cr8.



Warnings

Text: cr8 Command: desc
An undefined variable name, or a scratch or system variable was specified in a variable list which accepts only standard variables. Check spelling and verify the existence of this variable.
Execution of this command stops.

No Variables subcommand.

Filter

The compute, create and shift values commands do not respect the filter command; all cases (except the first case, of course)
are populated with the lagged value.

sort cases by female.
filter by female.
compute co9 = lag(write, 1).

create cr9 = lag(write, 1).
shift values variable = write result = sv9 lag = 1.
filter off.
list female write co9 cr9 sv9
/cases from 1 to 92.

female write co9 cr9 sv9

.00 52.00 . . .
.00 33.00 52.00 52.00 52.00
.00 44.00 33.00 33.00 33.00

< some output omitted >

.00 49.00 62.00 62.00 62.00
1.00 59.00 49.00 49.00 49.00

Number of cases read: 92 Number of cases listed: 92

Split file

The create and shift values commands respect the split file command.
However, compute does not. This is because the create and

shift values commands read the active dataset, so they "know" about the file
being split. However, compute is a transformation, meaning that it
does not read the active dataset. Rather, it is not executed until another
command reads the dataset.

```
sort cases by race.
split file by race.
compute co10 = lag(write, 1).
create cr10 = lag(write, 1).
shift values variable = write result = sv10 lag = 1.
split file off.
list race write co10 cr10 sv10
/cases from 1 to 40.
```

```
race write co10 cr10 sv10

1.00 46.00 . . .
1.00 52.00 46.00 46.00 46.00
1.00 44.00 52.00 52.00 52.00
1.00 31.00 44.00 44.00 44.00
1.00 54.00 31.00 31.00 31.00
```

1.00 44.00 54.00 54.00 54.00

1.00 39.00 44.00 44.00 44.00

1.00 39.00 39.00 39.00 39.00

1.00 49.00 39.00 39.00 39.00

1.00 33.00 49.00 49.00 49.00

1.00 40.00 33.00 33.00 33.00

1.00 41.00 40.00 40.00 40.00

1.00 65.00 41.00 41.00 41.00

1.00 44.00 65.00 65.00 65.00

1.00 44.00 44.00 44.00 44.00

1.00 50.00 44.00 44.00 44.00

1.00 61.00 50.00 50.00 50.00

1.00 54.00 61.00 61.00 61.00

1.00 41.00 54.00 54.00 54.00

1.00 46.00 41.00 41.00 41.00

1.00 57.00 46.00 46.00 46.00

1.00 41.00 57.00 57.00 57.00

1.00 54.00 41.00 41.00 41.00

1.00 46.00 54.00 54.00 54.00

2.00 44.00 46.00 . .

2.00 61.00 44.00 44.00 44.00

2.00 62.00 61.00 61.00 61.00

2.00 53.00 62.00 62.00 62.00

2.00 65.00 53.00 53.00 53.00

2.00 59.00 65.00 65.00 65.00
2.00 67.00 59.00 59.00 59.00
2.00 65.00 67.00 67.00 67.00
2.00 44.00 65.00 65.00 65.00
2.00 59.00 44.00 44.00 44.00
2.00 59.00 59.00 59.00 59.00
3.00 59.00 59.00 . .
3.00 55.00 59.00 59.00 59.00
3.00 57.00 55.00 55.00 55.00
3.00 40.00 57.00 57.00 57.00
3.00 37.00 40.00 40.00 40.00

Number of cases read: 40 Number of cases listed: 40

Use in a loop

Of the three commands considered here, only the compute command can be
used in a loop. It can be used to loop across variables or with the lag
function to loop down variables. However, the lead function cannot
be used in a loop. Consider how SPSS works. When a procedure (or a
data transformation) begins, SPSS reads the file from

the top down, row by row.
Since the lag function requires SPSS to "look up" one or more rows, this
function can be processed because SPSS has the information needed to process the
command; the lag function refers to information SPSS has already "seen".
To process a create or shift values command using the lead
function, SPSS has to hold the entire dataset in memory so that it can "look up"
and "look down" and write whatever needs to be written in a back-and-forth
manner. For this reason, these commands cannot be used in a loop or
a do repeat command.

In the first example, we will loop across cases. In the second example,
we will loop down cases.

```
* first example - looping across cases.
vector v(5).
loop i= 1 to 5.
```

compute v(i) =lag(socst)+i.

end loop.

exe.

delete variables i.

list socst v1 to v5

/cases from 1 to 10.

socst v1 v2 v3 v4 v5

36.00 . . . . .

61.00 37.00 38.00 39.00 40.00 41.00

46.00 62.00 63.00 64.00 65.00 66.00

36.00 47.00 48.00 49.00 50.00 51.00

51.00 37.00 38.00 39.00 40.00 41.00

46.00 52.00 53.00 54.00 55.00 56.00

42.00 47.00 48.00 49.00 50.00 51.00

46.00 43.00 44.00 45.00 46.00 47.00

51.00 47.00 48.00 49.00 50.00 51.00

36.00 52.00 53.00 54.00 55.00 56.00

Number of cases read: 10 Number of cases listed: 10

*** second example - looping down cases.**

set seed 95131257.

```
input program.
loop case_num=1 to 100.
compute q1=trunc(uniform(10)+1).
end case.
end loop.
end file.
end input program.
exe.

compute x = 0.
if q1=lag(Q1) x=1.
list case_num q1 x
/cases from 1 to 10.

case_num q1 x

1.00 8.00 .00
2.00 10.00 .00
3.00 9.00 .00
4.00 2.00 .00
5.00 7.00 .00
6.00 7.00 1.00
7.00 3.00 .00
8.00 10.00 .00
```

9.00 4.00 .00

10.00 8.00 .00

Number of cases read: 10 Number of cases listed: 10

frequencies var =q1 x.

Frequency Table

q1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	6	6.0	6.0	6.0
	2.00	14	14.0	14.0	20.0
	3.00	11	11.0	11.0	31.0
	4.00	7	7.0	7.0	38.0
	5.00	4	4.0	4.0	42.0
	6.00	10	10.0	10.0	52.0
	7.00	13	13.0	13.0	65.0
	8.00	12	12.0	12.0	77.0
	9.00	12	12.0	12.0	89.0
	10.00	11	11.0	11.0	100.0
	Total	100	100.0	100.0	

x

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	91	91.0	91.0	91.0
	1.00	9	9.0	9.0	100.0
	Total	100	100.0	100.0	

crosstabs

/tables = q1 by x.

q1 * x Crosstabulation

Count

		x		
		.00	1.00	Total
q1	1.00	6	0	6
	2.00	14	0	14
	3.00	11	0	11
	4.00	7	0	7
	5.00	4	0	4
	6.00	9	1	10
	7.00	9	4	13
	8.00	10	2	12
	9.00	10	2	12
	10.00	11	0	11
Total		91	9	100