TRANSFORM MENUS

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Next

Mengenal SPSS

SPSS (**Statistical Package for the Social Sciences** sekarang **Statistical Product Service Solutions**) dibuat pada tahun 1968 oleh Norman H. **Nie,** C. Hadlai (Tex) **Hull** dan Dale H. **Bent**,

SPSS sangat berguna bagi ilmu sosial di era tersebut, dan sekarang digunakan di berbagai bidang : analisis pasar, penelitian kesehatan, survey kesehatan, politik, dll. Program SPSS bekerja dengan membandingkan suatu data kedalam suatu paket hasil analisis

SPSS dilengkapi kemampuan untuk akses data, persiapan dan manajemen data, analisis data, serta dalam laporan hasil olahan

Program aplikasi untuk pengolahan data yang beredara saat ini sudah banyak macamnya antara lain *SHAZAM, Systant, Ecosim, Ecostat, Minitab, SAS, Statgraph, SPSS, Statistica*, dll.
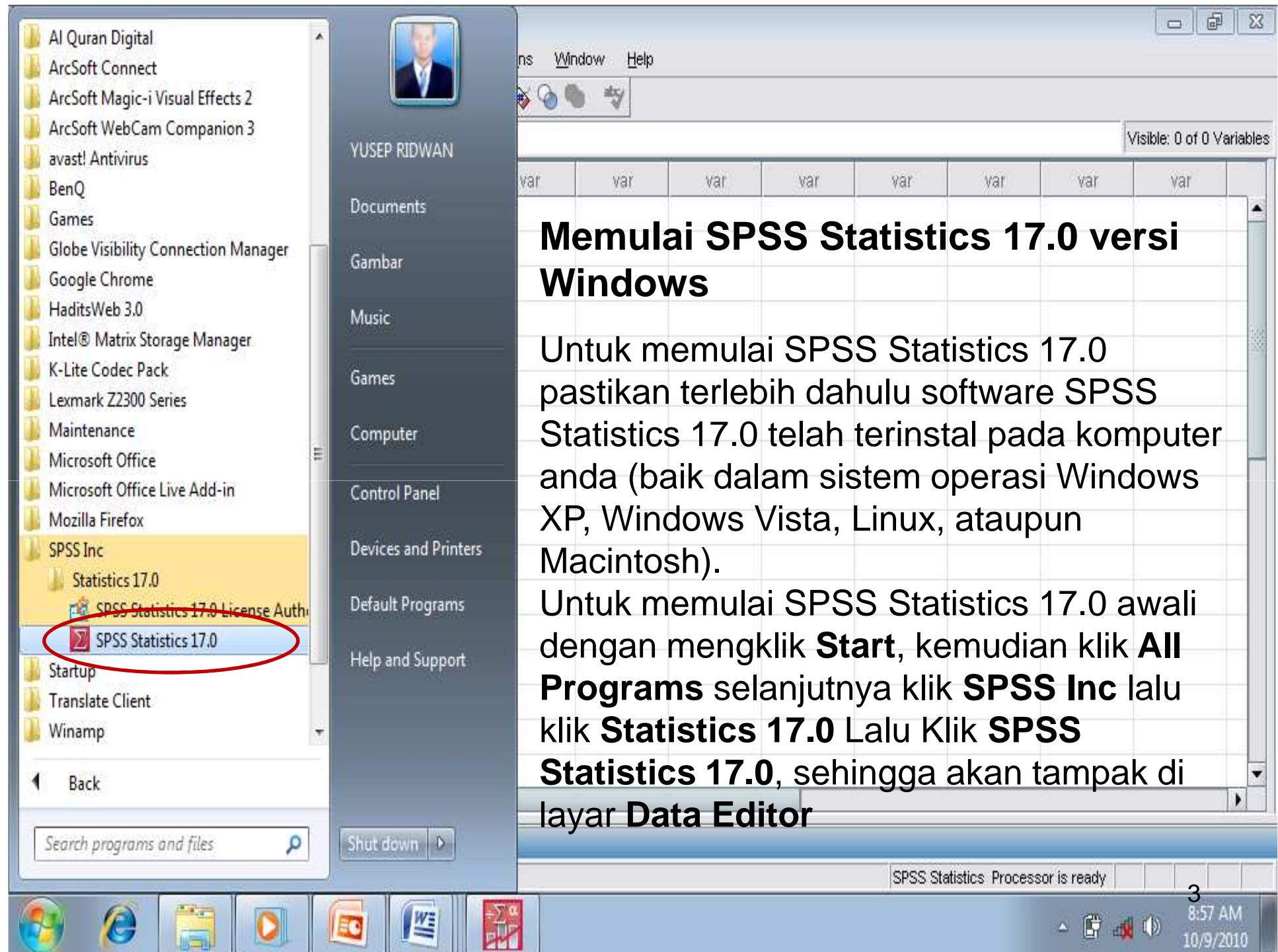
Memulai SPSS Statistics 17.0 versi Windows

Untuk memulai SPSS Statistics 17.0 pastikan terlebih dahulu software SPSS Statistics 17.0 telah terinstal pada komputer anda (baik dalam sistem operasi Windows XP, Windows Vista, Linux, ataupun Macintosh).

Untuk memulai SPSS Statistics 17.0 awali dengan mengklik **Start**, kemudian klik **All Programs** selanjutnya klik **SPSS Inc** lalu klik **Statistics 17.0** Lalu Klik **SPSS Statistics 17.0**, sehingga akan tampak di layar **Data Editor**

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Data editor mempunyai dua fungsi utama, yaitu:

1**. Input data** yang akan diolah oleh SPSS

2. **Proses data** yang telah diinput oleh prosedur statistic tertentu.

Data editor terdiri atas sebelas menu utama, yaitu : file, edit, view, data, transform, anlyze, graphs, utilities, Add-ons, windows, dan help

![SPSS Statistics Data Editor screenshot]

Untitled1 [DataSet0] - SPSS Statistics Data Editor

File   Edit   View   Data   Transform   Analyze   Graphs   Utilities   Add-ons   Window   Help

New ▶   Data
Open ▶   Syntax
Open Database ▶   Output
Read Text Data...   Script

Close   Ctrl-F4
Save   Ctrl-S
Save As...
Save All Data
Export to Database...
Mark File Read Only

Rename Dataset...
Display Data File Information ▶
Cache Data...
Stop Processor   Ctrl-Period
Switch Server...

Print Preview
Print...   Ctrl-P

Recently Used Data ▶
Recently Used Files ▶

Exit

Visible: 0 of 0 Variables

var   var   var   var   var   var   var   var   var

Data

SPSS Statistics Processor is ready

Menu file

Menu file terdiri dari:
1. New : Membuat **Lembar kerja Baru**
2. Open **: membuka file data** yang telah dibuat atau disimpan
3. Save & save as : untuk **menyimpan** data
4. Display data info : untuk mengetahui **karakteristik data**
5. Print : untuk **mencetak** data
6. Exit : untuk **keluar** dari program SPSS
7. dll,

5

9:19 AM
10/9/2010

Menu analyze

Menu analyze merupakan **jantung dari SPSS** karena dengan menu ini seluruh pengelolaan data dilakukan.

Menu analyze terdiri dari:

1. Reports
2. Descriptive statistic
3. Compare means
4. General linear model
5. Correlate
6. Regression
7. dll

6

Memasukkan Data pada SPSS 17.0

Untuk memulai memasukkan data pada program SPSS, kita mulai dengan mengklik **Variabel View**, yang akan terlihat kolom-kolom yang memuat beberapa variabel, seperti pada gambar ini:

Name, Type, Width, Decimals, Label, Values, dll

Name

Kolom name digunakan untuk memberikan nama variabel data dengan panjang maksimum 64 karakter. Untuk mengaktifkan kolon name, letakkan pointer di bawah kolom name, klik ganda, kemudian ketik nama variabel data.

Type

Kolom type menunjukkan tipe data yang digunakan. Untuk mengaktifkan kolom type, letakkan pointer di bawah kolom type baris 1, klik tanda sehingga akan Nampak seperti gambar berikut:

Terdapat 8 macam tipe data, yaitu:

Numeric (data yang digunakan bertipe numeric atau berupa angka/kuantitatif)

Comma, Dot, Scientific notation, Date, Dollar, Custom currency, String (data yang digunakan bertipe huruf/bukan angka).

Width

Kolom width menunjukkan lebar digit data

Decimals

Kolom decimals menunjukkan angka decimal dari data/apabila ada (disarankan 0). Jika datanya berupa string, secara otomatis pada kotak dialog variabel type pilihan decimal menghilang digantikan oleh character.

Label

Kolom label **memberikan keterangan** tambahan pada nama variabel data. Kolom ini dapat juga diabaikan dengan tanpa mempengaruhi proses data.

Values

Kolom values digunakan untuk **memberi kode data** atau **mengkategorikan data** (jika ada).

File   Edit   View   Data   Transform   Analyze   Graphs   Utilities   Add-ons   Window   Help

17 :

Visible: 0 of 0 Variables

Memasukkan Data ke dalam Program SPSS

Contoh kasus:

Data berikut ini memuat daftar nama, jenis kelamin dan berat serta tinggi badan dari dari 15 mahasiswa S2 Gizi

No	Nama	Jenis Kelamin	Berat	Tinggi
1	Sule Sulaeman	Laki-laki	73	170
2	Entis Sutisna	Laki-laki	65	175
3	Nunung	Perempuan	79	169
4	Dono	Laki-laki	81	170
5	Kasino	Laki-laki	78	155
6	Welas	Perempuan	77	167
7	Luna Mayang	Perempuan	69	165
8	Titi Kamil	Perempuan	72	170
9	Bunga Cinta	Perempuan	75	165
10	Dewi Persib	Perempuan	74	160
11	Partok Patriok	Laki-laki	67	169
12	Olgah Saputri	Perempuan	71	172
13	Aya Soraya	Perempuan	78	167
14	Andrey Tauladan	Laki-laki	85	170
15	Dian Sastra	Perempuan	69	172

Data View   Variable View

SPSS Statistics Processor is ready

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4:51 PM
10/8/2010

Computing Variables

Computing Variables:
Introduction

According to SPSS Help, the Compute Variable command:

…computes values for a variable based on numeric transformations of other variables.

Next

Computing Variables:

Introduction

According to SPSS Help, using the Compute Variable command:

- You can compute values for numeric or string (alphanumeric) variables.

- You can create new variables or replace the values of existing variables. For new variables, you can also specify the variable type and label.

Next

Computing Variables:
Introduction

According to SPSS Help, using the Compute Variable command:

- You can compute values selectively for subsets of data based on logical conditions:
    - compute new values for numeric/string data
    - create new variables
    - replace the values of existing variables
    - use provided functions/formulae to change values

- You can use over 70 built-in functions, including arithmetic functions, statistical functions, distribution functions, and string functions.

Next

Computing Variables:
Introduction

The sections of this tutorial explain how to:

- Compute a new variable by assigning a value (setting it equal to zero)

- Use selective criteria to compute a value

- Compute a new variable by using a formula

Next

Computing Variables:
Introduction

To compute new data values based on numeric transformations of existing variables:

1. Select Compute from the Transform menu.

2. Enter the name of the target variable.

3. Enter the numeric expression.

4. You can paste variables from the source list...

5. Numbers and operators from the calculator pad...

6. And functions from the function list.

Next

Introduction

Example: tutorial to make dummy variable

- creates a new variable, fdummy, with a value of zero

- sets fdummy = 1 for "tingkat pendidikan tamat SD"

- creates a new (dummy) variable

Next

Computing a New Variable

To compute a new variable:

- In the menu, click
  Transform
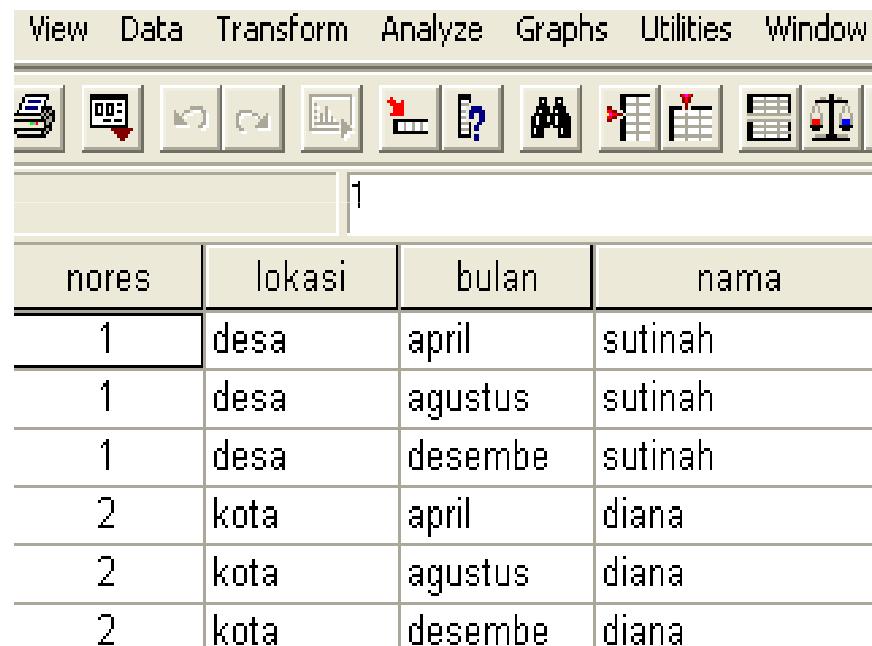
| View | Data | Transform | Analyze | Graphs | Utilities | Window |

| nores	lokasi	bulan	nama
1	desa	april	sutinah
1	desa	agustus	sutinah
1	desa	desembe	sutinah
2	kota	april	diana
2	kota	agustus	diana
2	kota	desembe	diana

Next

Computing a New Variable

To compute a variable:

- In the menu, click Transform

- Point to Compute…


Next

Computing a New Variable

To compute a variable:

- In the menu, click Transform

- Point to Compute…

…and **click**.

| Data	Transform	Analyze	Graphs	U
	Compute…			
	Random Number Seed…			
	Count…			
	Recode		▶	
	Categorize Variables…			
	Rank Cases…			
	Automatic Recode…			
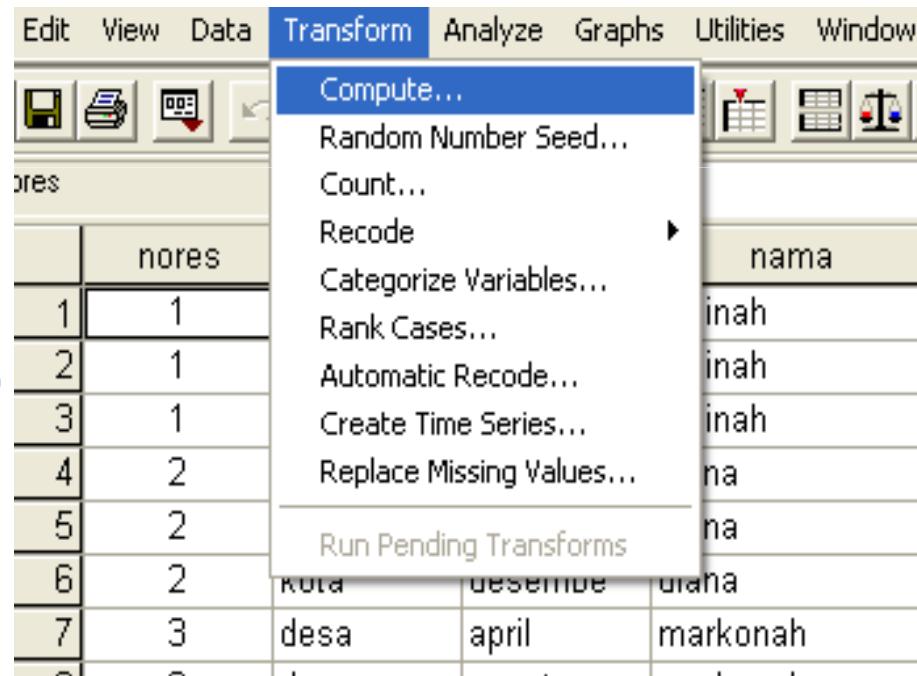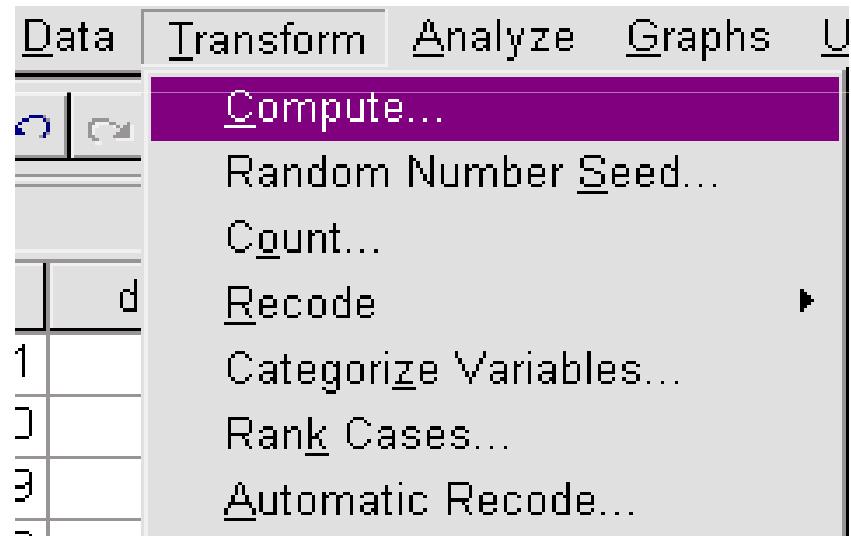
Next

Computing a New Variable:
Naming the New Variable
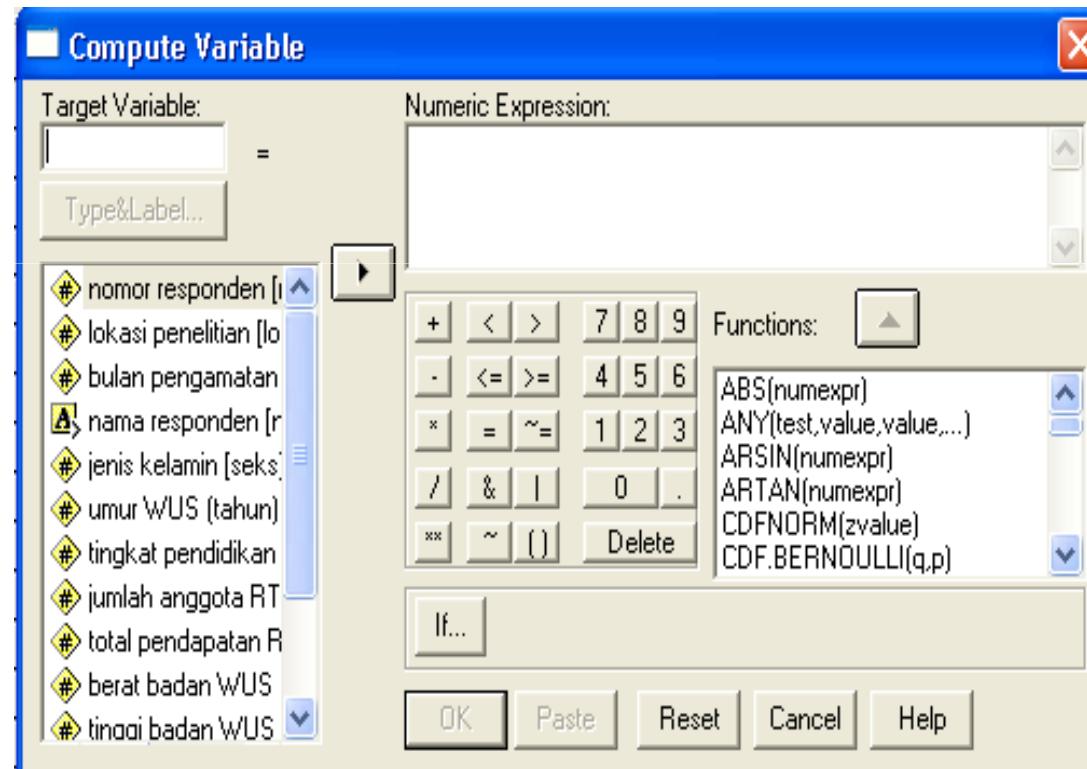
To assign a value to the variable, you must type the variable name in the box labeled Target Variable.

Next

Computing a New Variable:
Assigning a Value
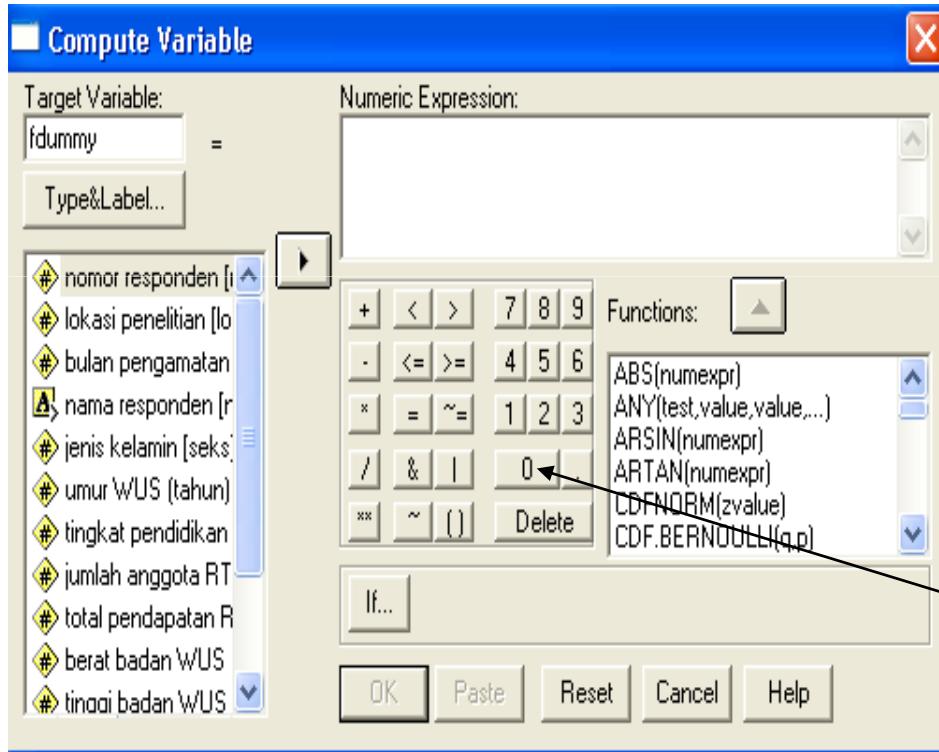
You can't type in this tutorial, so the name of the new variable (fdummy) has already been entered.

To set the value of fdummy to zero, click the 0 button.

Next

Computing a New Variable:
Assigning a Value
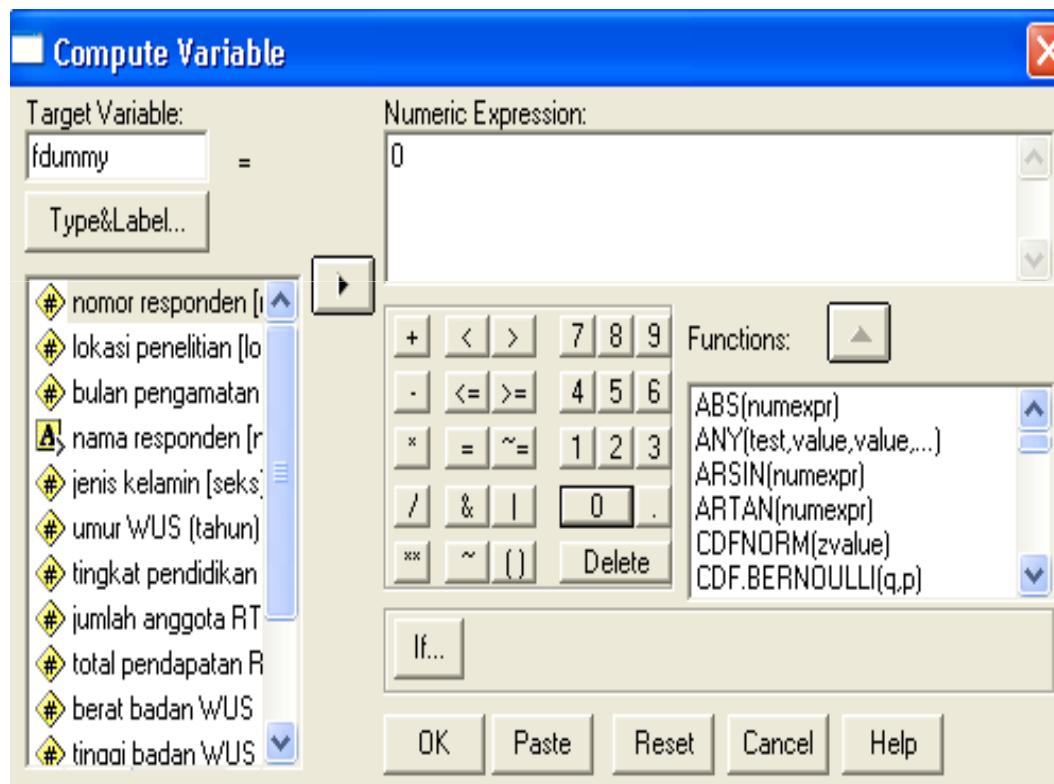
The zero appears in the box labeled Numeric Expression, resulting in the formula fdummy = 0.

Click the OK button to complete the transformation.

Next

Computing Variables Selectively

The preceding steps added the variable fdummy to the data file and assigned a value of zero (0) to all cases (records).

Next, the value of fdummy will be changed to one (1) for all "tingkat pendidikan tamat SD" in the dataset.

Next

Computing Variables Selectively

- In the menu, click Transform

- Point to Compute…

Next

Computing Variables Selectively

- In the menu, click Transform

- Point to Compute…

    …and **click**.

Data	Transform	Analyze	Graphs	U
	Compute…			
	Random Number Seed…			
	Count…			
d	Recode		▶	
1	Categorize Variables…			
0	Rank Cases…			
9	Automatic Recode…			
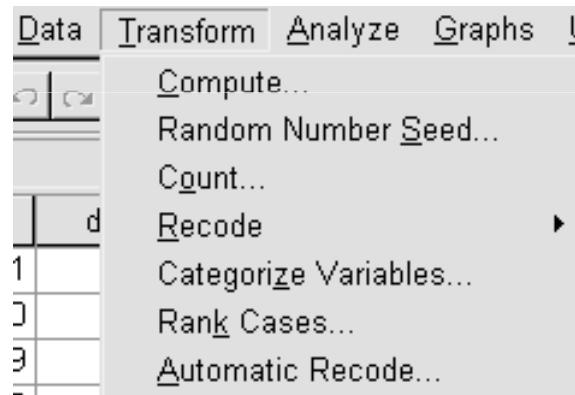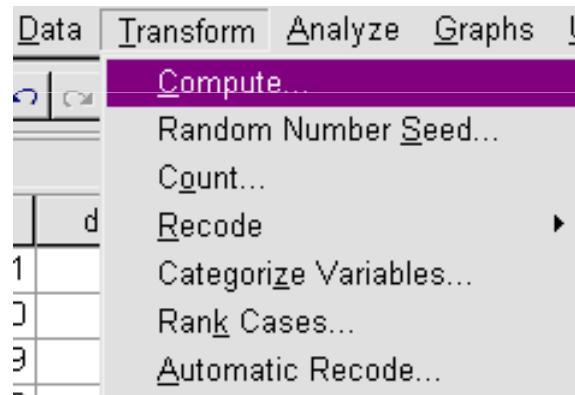
Next

Specifying the Target Variable
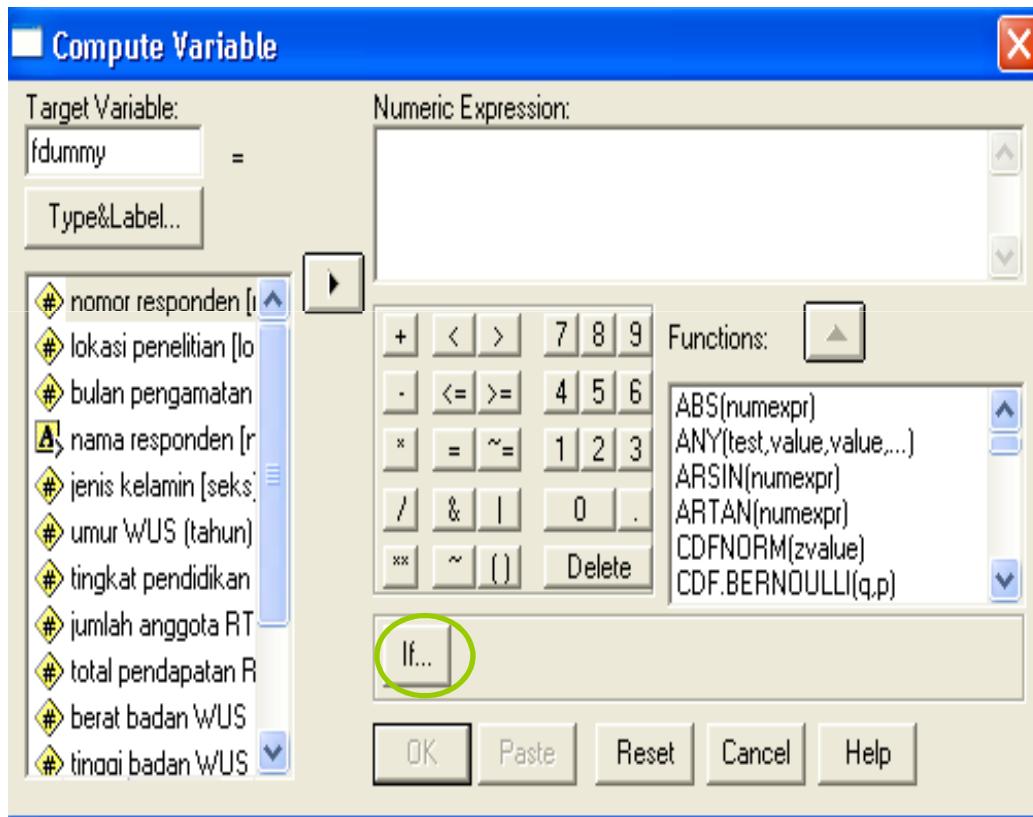

In this graphic, the name of the target variable (fdummy) has already been entered.

To change the value of fdummy for selected cases, click the If… button.

Next

# Computing Variables Selectively :
If Cases

To set the selection criteria, click the button labeled
Include if case satisfies condition:
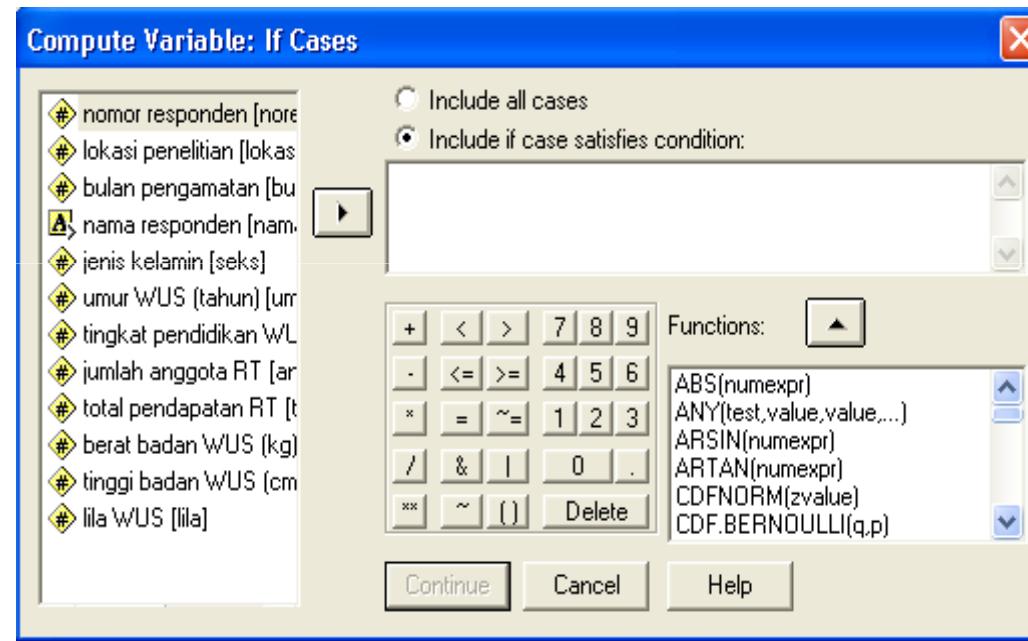
Next

Computing Variables Selectively :
If Cases

To set the selection criteria to tk_didik = 1 (tamat SD), click tingkat pendidikan [tk_didik] in the variable list.
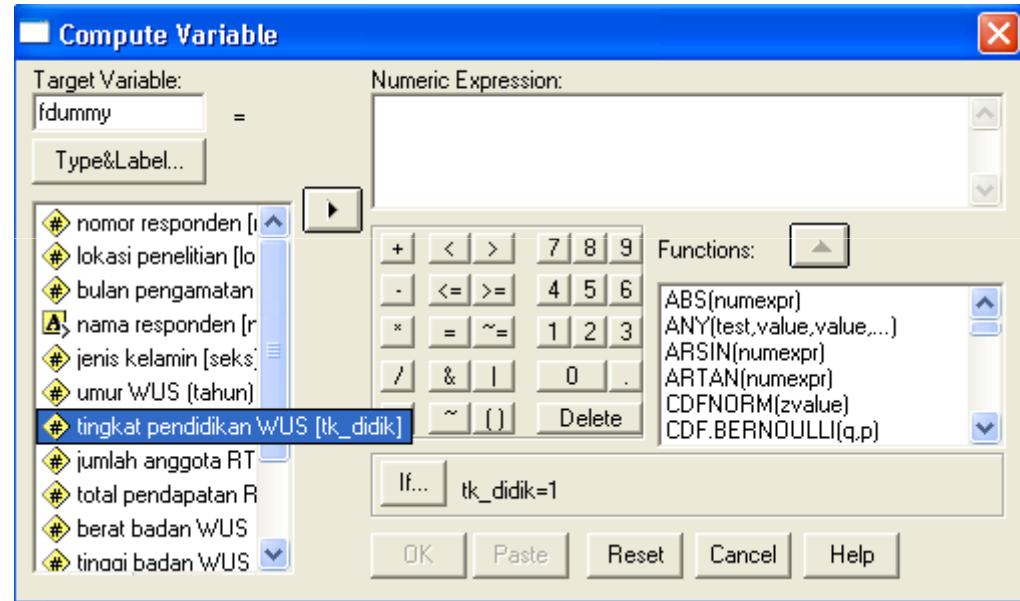
If Cases

Move tk_didik to the criteria box by clicking the arrow.

Click the button with the equal sign
Values will be changed only if
tk_didik = 1.
Click the Continue button.
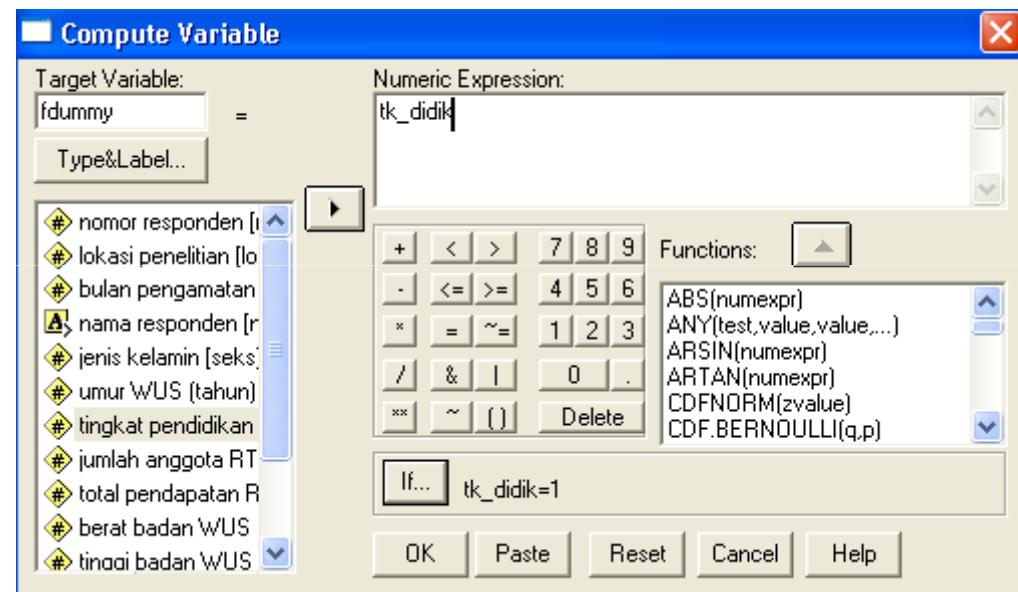
Next

Computing Variables Selectively :
Assigning a Value
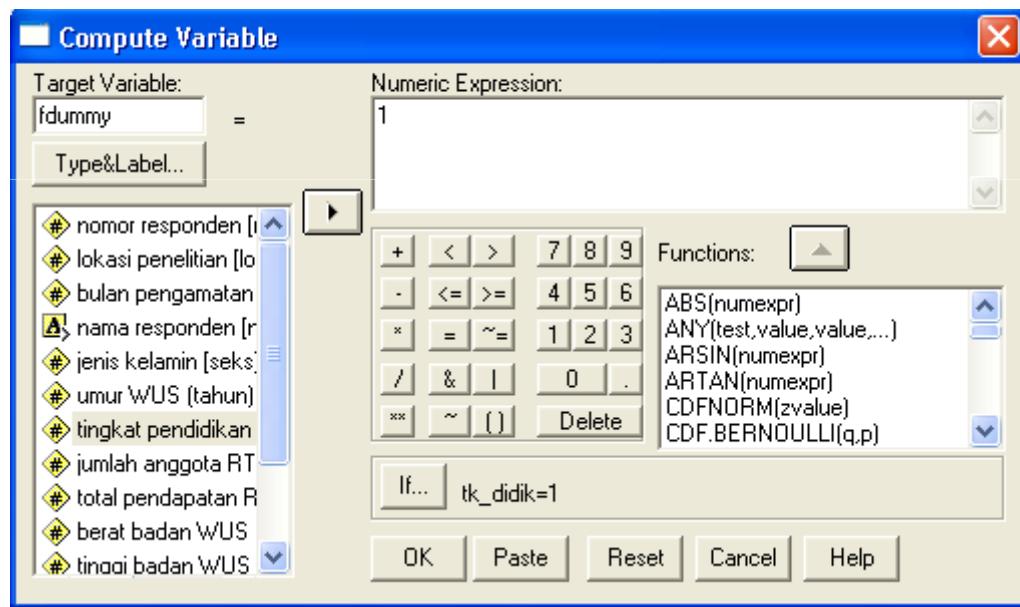
OR:

The 1 appears in the box labeled Numeric Expression.

Click the OK button to complete the transformation.

Assigning a Value
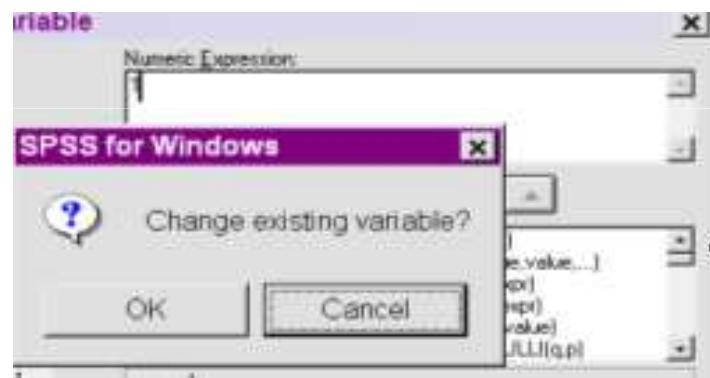
The dialog box warns that the value of fdummy will be changed.

Click the OK button permit the change.

Next

Using a Formula

The preceding steps:

1. Added the variable BMI to the data file (target variable)

2. Make Formula in the "numeric exprssion" :

   BMI = berat/((tinggi)x(tinggi))

        = kg / ((m) x (m))

Next

Computing a New Variable

To compute a variable:

- In the menu, click Transform

- Point to Compute…

…and **click**.

Next

Computing Variables Using a Formula :
Computing a New Variable

- Numbers and operators from the calculator pad
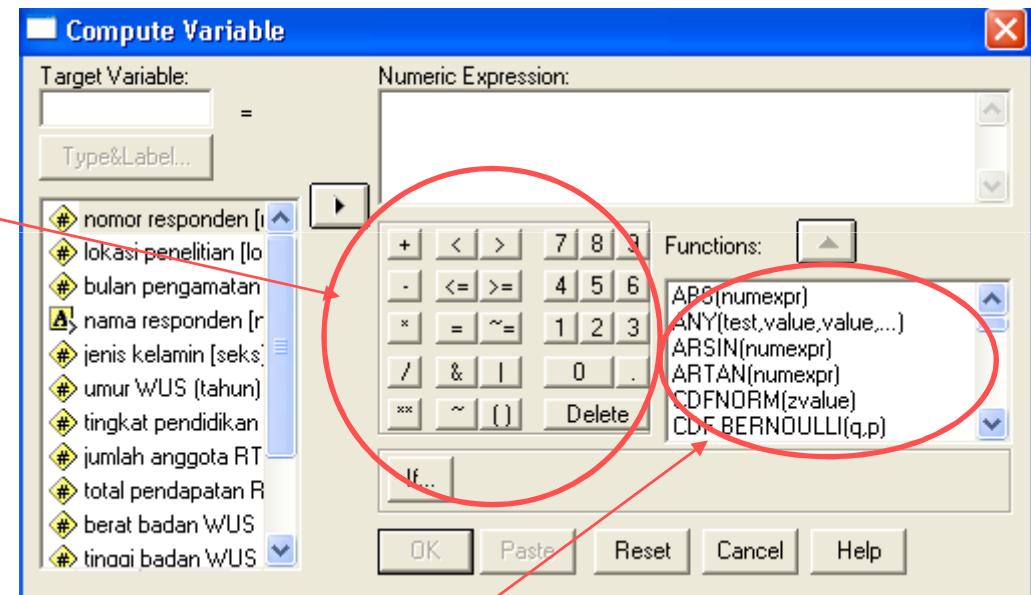
functions from the function list.

Next

Computing a New Variable Using a Formula :
Naming the New Variable
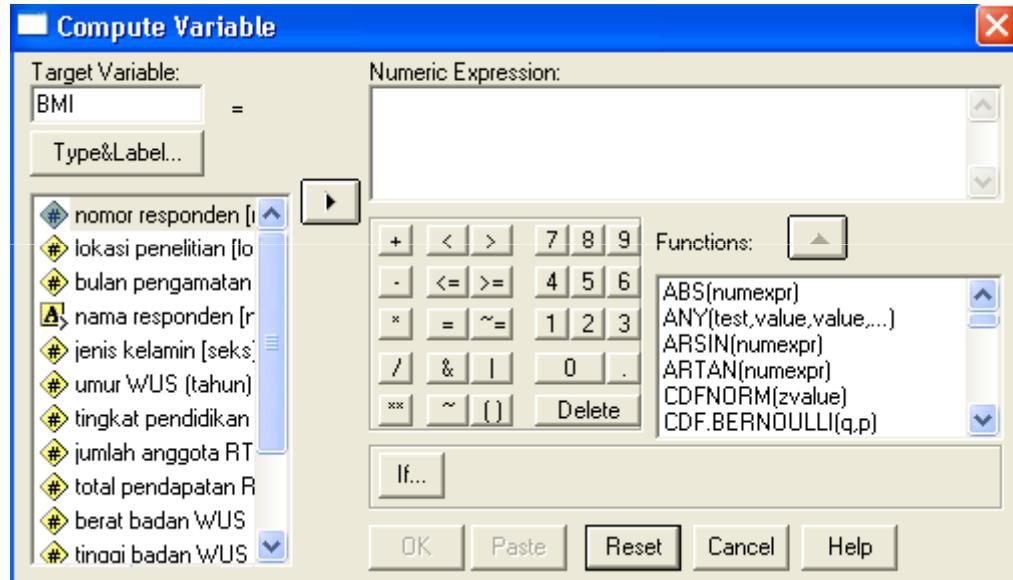
To assign a value to the variable, you must type the variable name in the box labeled Target Variable : BMI.

Next

Computing a New Variable Using a Formula :
Naming the New Variable
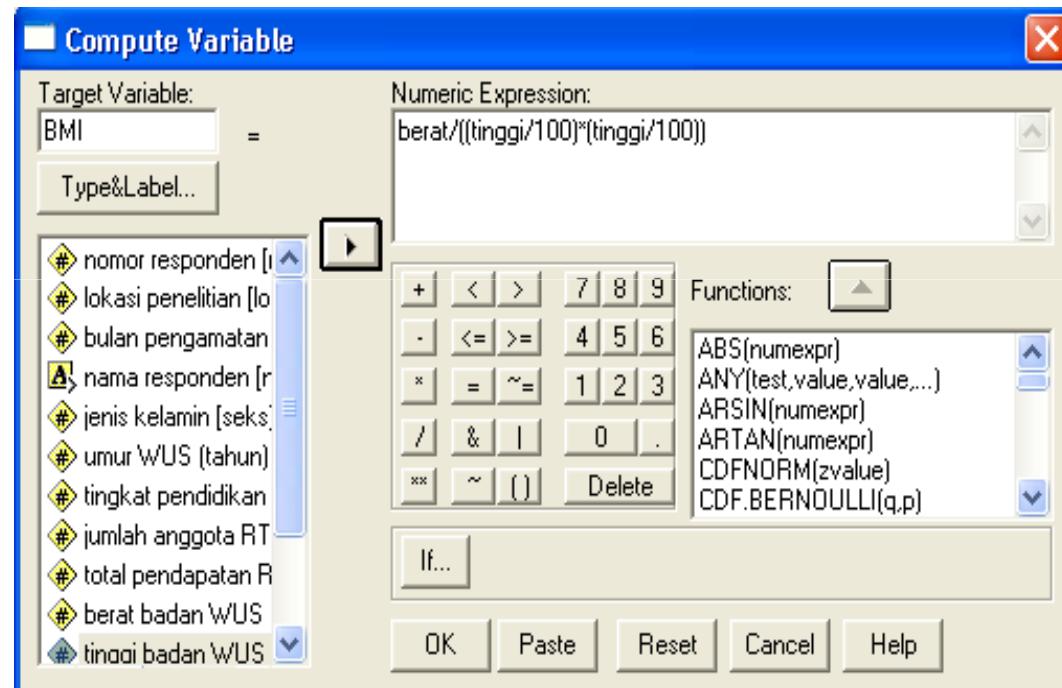
In this graphic, the name of the new variable (BMI) has already been entered.

The variable BMI will be calculated by berat devided by tinggi square

→berat/((tinggi)(tinggi))

NB: tinggi (cm) cover to tinggi (m) → tinggi/100

Next

DATA TRANSFORMATION

Data transformation

- If you want to caculate an ANOVA but your interval data is not normally distributed (i.e. skewed) you can use mathematical transformations
- The type of transformation depends on the *shape* of the sample distribution
- NOTE:
  - After transforming data, check the resulting distribution again for normality!
  - Note that your data becomes *ordinal* by transforming it!! (but you can do an ANOVA with it)

What kind of transformation?
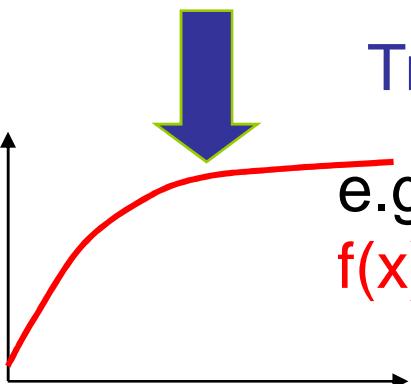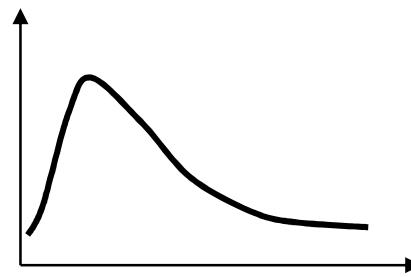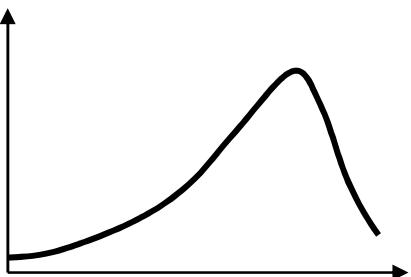
Transformation

e.g.
$f(x) = x^{1.5}$
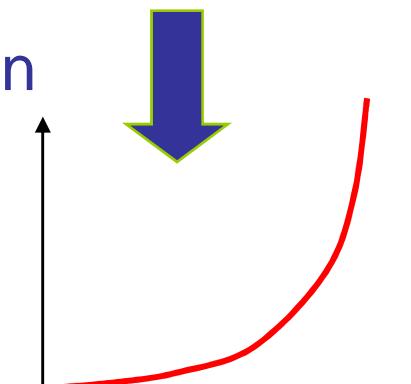
e.g.
$f(x) = \log(x)$
$f(x) = \mathrm{atan}(x)$
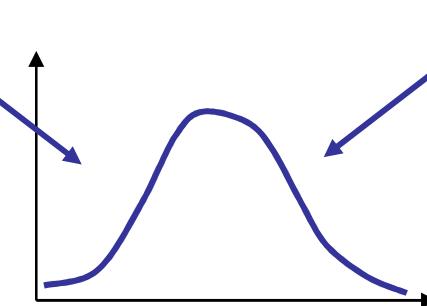
Next

Data transformations

- The following table shows the kinds of transforms that we can use
- They depend on the amount of skew in the data

	Moderate 1.96≤z≤2.33	Substantial 2.34≤z≤2.56	Severe z>2.56
Positive Skew	Square Root	Logarithm	Reciprocal
Negative Skew	Square Root (K-X)	Logarithm (K-X)	Reciprocal (K-X)

- Where K is the largest number in the data set plus 1

Testing skew by Z-score

- The simplest test we can use is a z-score. In the case of skew the z-score is given by:

$$z = \frac{skew - 0}{SE_{skew}}$$

- The standard error of skew is given by

$$SE_{skew} = \sqrt{6/N}$$

  – where N is the number of cases in the sample.

- If a z score associated with the skew is greater than |±1.96| then the sample is significantly different from normal.

- In other words, a value of skew which is significantly different from zero, would mean that we do not have normally distributed data

Cara menentukan nilai Z:

- pilih menu Analyze – Descriptive Statistics – Descriptives
- Masukkan Variabel pada kotak Variable(s)
- Aktifkan pilihan: Save standardized value as variable (akan ada tambahan variable baru di file yaitu nilai z)
- Klik pilihan Continue dan OK
- Distribusi Nilai Z (jika terletak antara – 1,96 sampai +1,96 pada taraf signifikansi 5 %)

Guide lines of transformation choice

Transformation	Slope value	Power value
Square	-1	2
Square root	0,5	0,5
Logarithm	1	0
Reciprocal of square root	1,5	- 0,5
Reciprocal	2	-1
No transformation	0	1

Computing a Slope and Power Estimation

- Open the file.
- In the menu, click Analyze
- Point to Descriptive Statistic
- …and **click explore**.
- Insert:
  - Dependent list : lila
  - Factor list : lokasi
  - Click Display Plots
  - Click Plots….
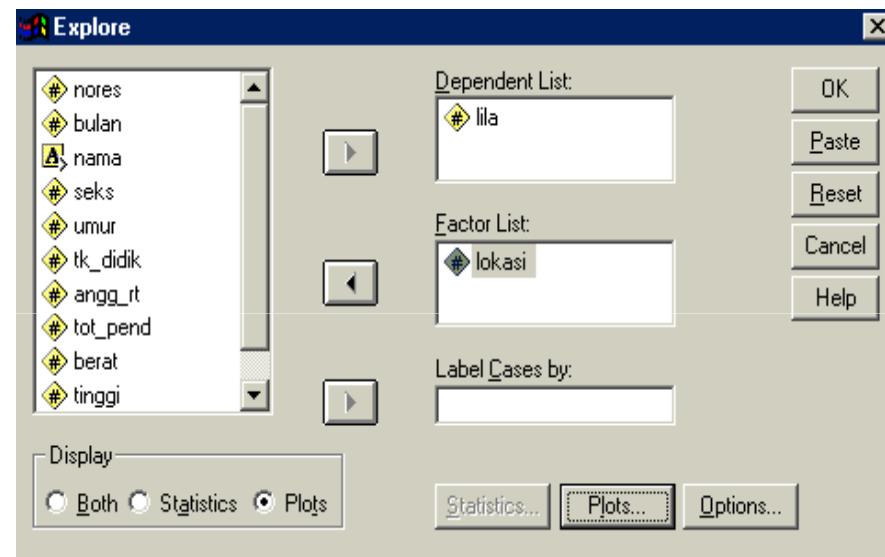
Computing a Slope and Power Estimation

- In the Plots…. :
  - Choose Box-plot None
  - Choose Spread vs Level with Levene Test : Power Estimation
- Enter: Continue and OK
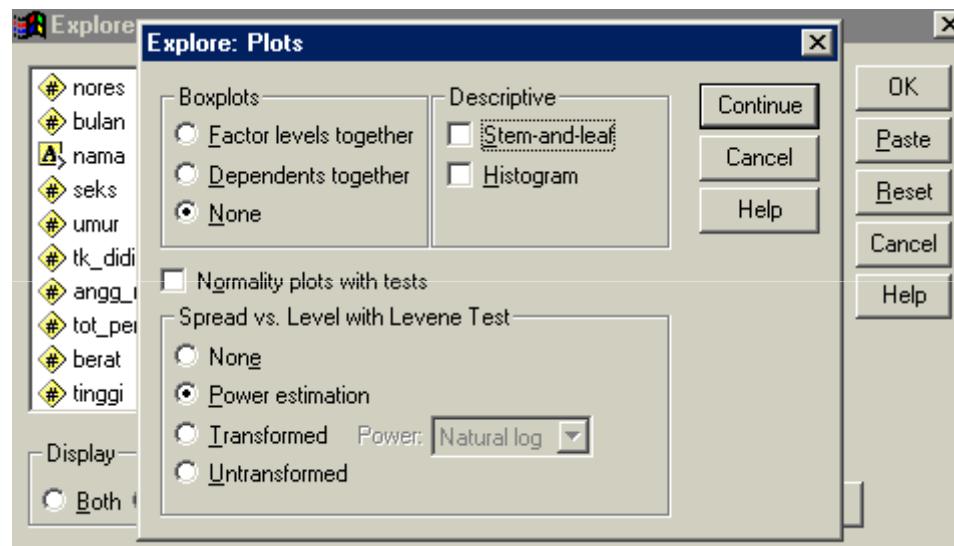
Computing a Transformation Data :

To compute a variable transformation: Logarithm

- In the menu, click Transform

- Point to Compute…

…and **click**.
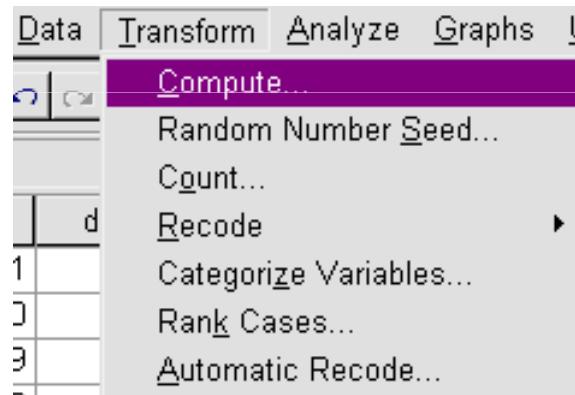
Next

Computing a Transformation Data : Naming variable and typing numeric expression
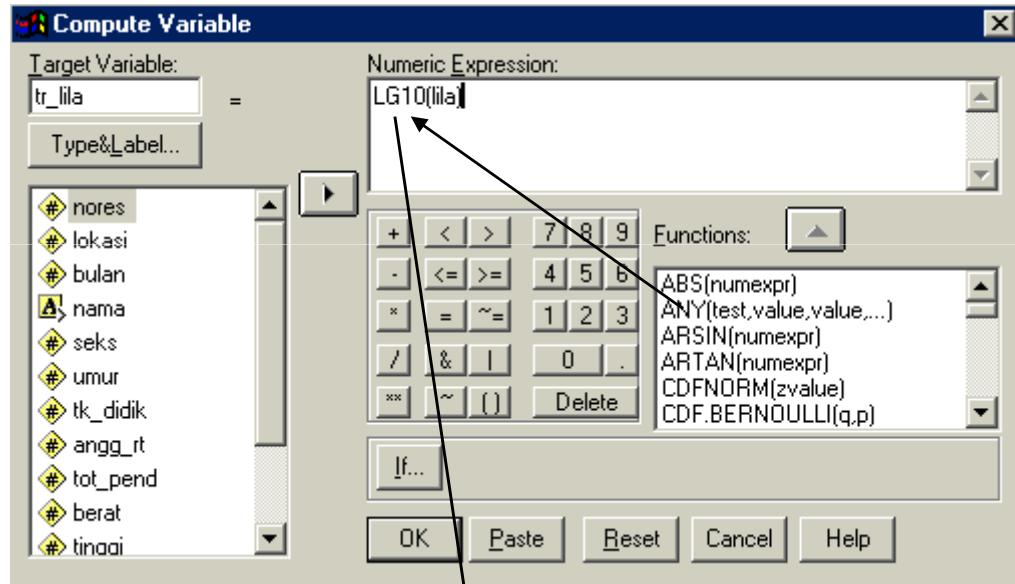
you must type the variable name in target variable: tr_lila

Insert in the numeric expression: LG10(lila)

Click : OK

Functions:
- Logarithm based 10 (log-10) → LG10(var)
- Ln → LN(Var)
- Square → SQRT(Var)

Next

Note: Ada 4 Pilihan Transformasi yang biasa dipakai:

a. **Log** Transformation –> berguna untuk memperbaiki data yang terdistribusi *Positive Skew* dan *Unequal Variances*

- syntax di SPSS: **LG10** ()

b. **Square root** transformation –> bahasa Indonesianya di-'akar pangkat dua', berguna untuk memperbaiki data yang terdistribusi *Positive Skew* dan *Unequal Variances*

- syntax di SPSS: **SQRT**()

c. **Reciprocal** transformation –> bahasa Indonesianya di-'1/X', berguna untuk memperbaiki data yang terdistribusi *Positive Skew* dan *Unequal Variances*

- syntax di SPSS: **1/()**

d. **Reverse score** transformation –> berguna untuk memperbaiki data yang terdistribusi *Negative Skew*

Reverse score transformation

Caranya: kita harus merubah nilai setiap data mentah kita dulu yakni membalik SEMUA data: yang besar jadi kecil, yang kecil jadi besar

Rumusnya: Nilai tertinggi – nilai yang akan ditranformasikan

– Contoh: Contoh: karena nilai data penerimaan pakai Likert 1- 7 maka data dengan nilai 5 akan berubah menjadi 2 (yakni 7-5=2), data dengan nilai 7 menjadi 0, data dengan nilai 1 menjadi 6.

Rumus lain: **(Nilai tertinggi+1) – nilai yang akan ditranformasikan** $\rightarrow$ agar nilai terendahnya tetap 1
Jadi Nilai 5 akan berubah menjadi 3 (yakni 8-5=3), nilai 7 menjadi 1, nilai 1 menjadi 7

- syntax di SPSS**: 8 – ()**

- Catatan:

Jika **data kita ada yang bernilai 0**, maka tidak ada ada nilai untuk Log 0 dan 1/0, maka untuk mentransformasikan variable itu, variable syntax data kita kita tambah konstanta misal 1.

– Contoh: COMPUTE logA = LG10 (day1 **+ 1**)

COMPUTE recA= 1/ (day1 **+ 1**)

DATA RECODE

Recode :

- can change data values and recode the data into the same or different variables

Steps:

• In the menu, click Transform

• Point to : Recode…

• Choose:

  • Into Same Variables

  • Into Different Variables

  …and **click**.
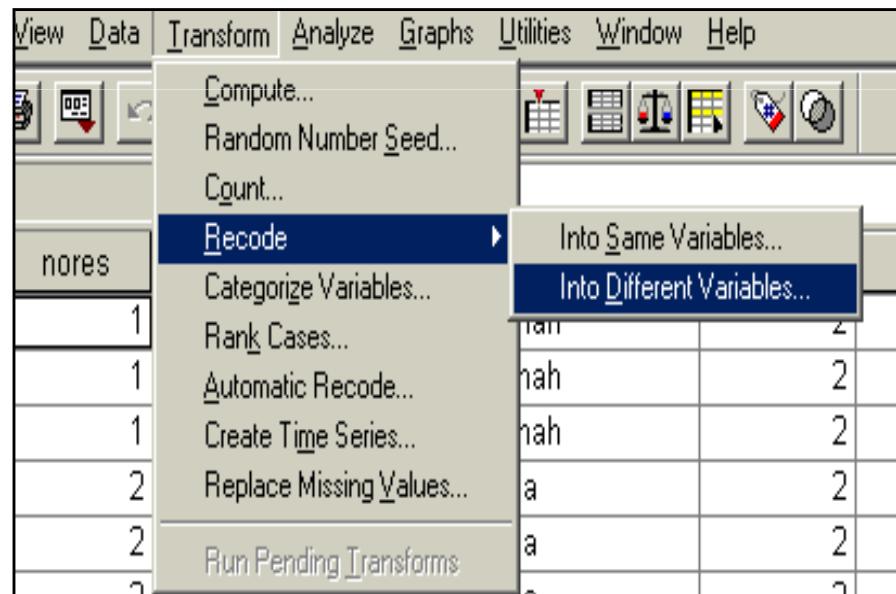
Computing a Recode Data :

- Move lila to the criteria box by clicking the arrow.

- Type output Variable: KEK

- Type Label: Status KEK

- Click : Change

- Point to : Old and New Value

**Recode into Different Variables: Old and New Values**

Old Value
- Value:
- System-missing
- System- or user-missing
- Range:
  [ ] through [ ]
- (•) Range:
  Lowest through 23.49
- Range:
  [ ] through highest
- All other values

New Value
- (•) Value: 0   ← Type new value
- Copy old value(s)
- System-missing

Old --> New:

Add
Change
Remove

[ ] Output variables are strings   Width: 8
[ ] Convert numeric strings to numbers ('5'->5)

Continue   Cancel   Help
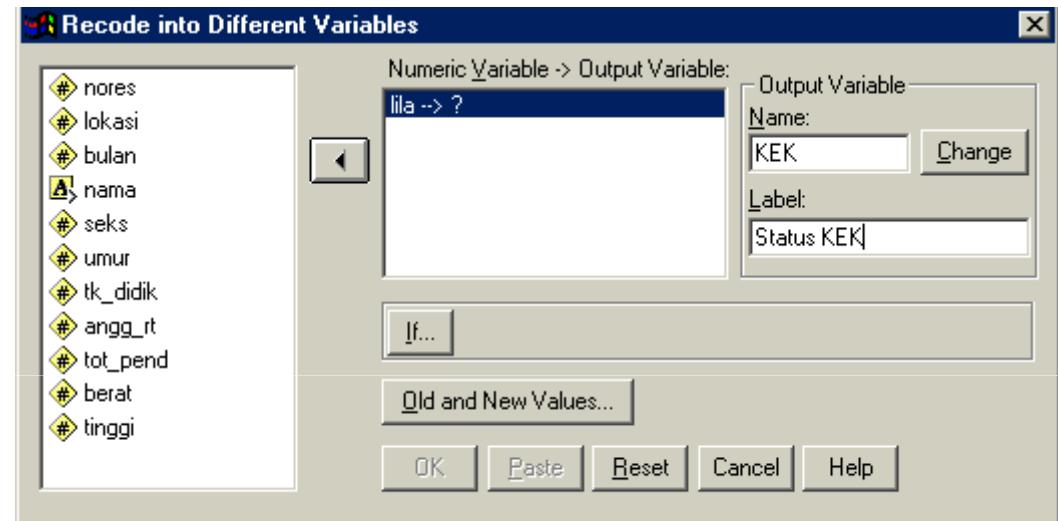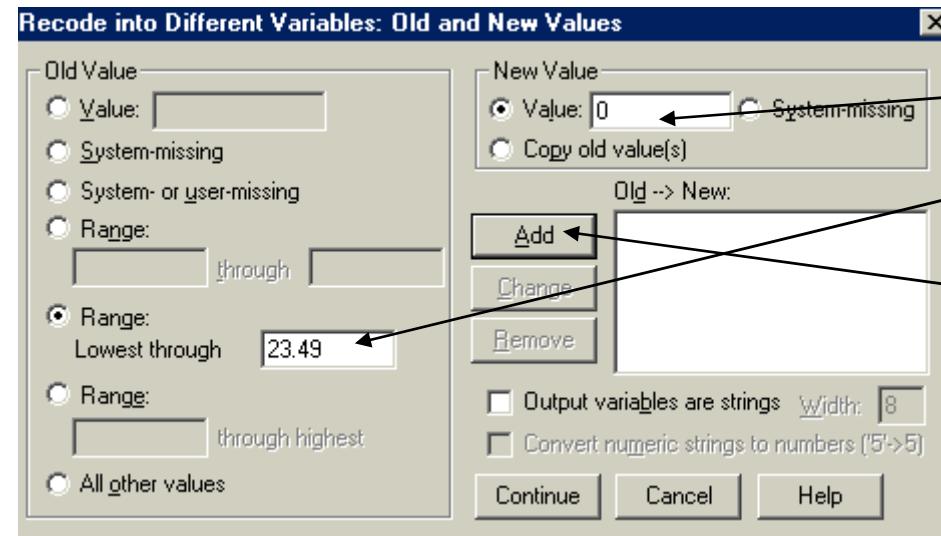
Type range for
Old value

Click

1

Recode into Different Variables: Old and New Values

Old Value
- Value:
- System-missing
- System- or user-missing
- Range:
  [ ] through [ ]
- (•) Range:
  Lowest through 23.499
- Range:
  [ ] through highest
- All other values

New Value
- (•) Value: 0
- Copy old value(s)
- System-missing

Old --> New:
Lowest thru 23.499 --> 0

Add
Change
Remove

[ ] Output variables are strings   Width: 8
[ ] Convert numeric strings to numbers ('5'->5)

Continue   Cancel   Help

2

Recode into Different Variables: Old and New Values

Old Value
- Value:
- System-missing
- System- or user-missing
- Range:
  [ ] through [ ]
- Range:
  Lowest through [ ]
- (•) Range:
  23.5 through highest
- All other values

New Value
- (•) Value: 1
- Copy old value(s)
- System-missing

Old --> New:
Lowest thru 23.499 --> 0
23.5 thru Highest --> 1

Add
Change
Remove

[ ] Output variables are strings   Width: 8
[ ] Convert numeric strings to numbers ('5'->5)

Continue   Cancel   Help

3

Click