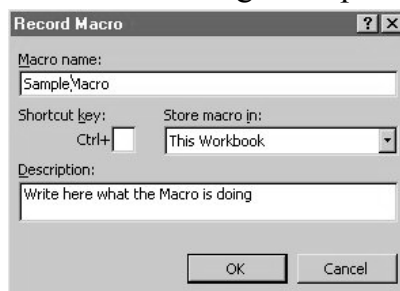


## Macros:

- In Lab session 11 you have already seen how to write a subroutine (Macro) using the VBA editor. (not UDF)
- Alternatively you can also create them with the Macro recorder. In this way you do not need to know any VBA commands.

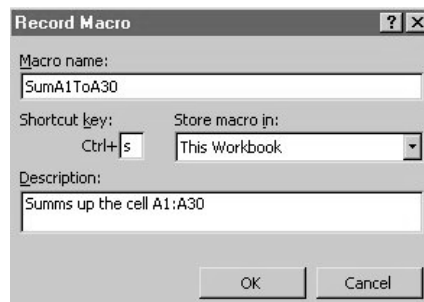
### 1) Recording a Macro:

- i) open a worksheet
- ii) select Tools → Macro → Record New Macro ↵  
⇒ the record Macro dialog box opens up



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- iii) enter Macro Name, e.g. “SumA1toA30“
  - not all names are allowed, such as function names, special signs in the name as !,?, blank,... are also not possible
- iv) enter a letter for the shortcut key, e.g. “s“
- v) store the macro somewhere, e.g. “This workbook“
- vi) fill in the description box, e.g. “sum up the cells A1:A30“
- vii) Ok ↵, the recording is on. Now all actions you carry out on the worksheet will be recorded and its code will be produced.



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viii) For example:

Carry out an action which sums up the cells A1:A30

- select a cell in your worksheet different from column A

- write: “ The sum of the cells A1:A30 is: “

- select the adjacent cell and write: “=Sum(A1:A30)“

- the effect of this is that in the cell in which you wrote

“=Sum(A1:A30)“ this sum will be displayed

· if a cell is empty its value contributes zero to the sum

· you can now change the content of A1:A30 and the sum will be updated automatically

ix) - select Tools → Macro → Stop Recording ↵

- alternatively in the window on the worksheet

select Stop Recording ↵

- if that window is now visible, you can make it appear by

selecting Edit → Toolbars → Stop Recording ↵

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## 2) Viewing the code:

- The recording has produced a VBA code, which alternatively we could have programmed by hand:

- Let's see what we have just produced:

- Select Tools → Macro → Macros ↵

⇒ a window called Macros opens up

- the window “Macro name“ shows the name of the Macro

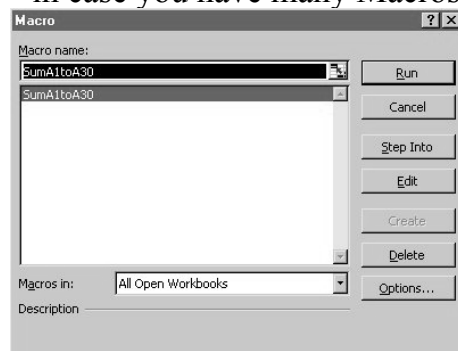
- in case you have many Macros: select Options ↵

to see the details of it

(in case you do not remember)

- Select Edit ↵

⇒ the code we have just produced will show up



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### Sub SumA1toA30()

'

### ' SumA1toA30 Macro

### ' sum up the cells A1:A30

'

### ' Keyboard Shortcut: Ctrl+s

'

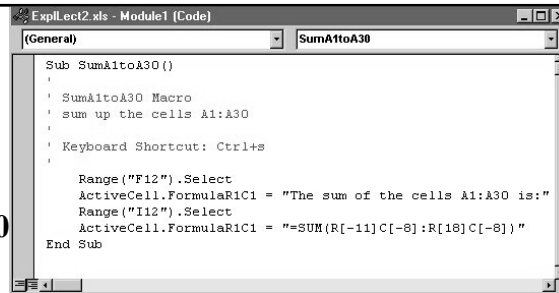
Range("F12").Select

ActiveCell.FormulaR1C1 = "The sum of the cells A1:A30 is:"

Range("I12").Select

ActiveCell.FormulaR1C1 = "=SUM(R[-11]C[-8]:R[18]C[-8])"

End Sub



```
Explicet2.xls - Module1 (Code)
[General] SumA1toA30
Sub SumA1toA30()
'
' SumA1toA30 Macro
' sum up the cells A1:A30
'
' Keyboard Shortcut: Ctrl+s
'
Range("F12").Select
ActiveCell.FormulaR1C1 = "The sum of the cells A1:A30 is:"
Range("I12").Select
ActiveCell.FormulaR1C1 = "=SUM(R[-11]C[-8]:R[18]C[-8])"
End Sub
```

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### 3) Activating the Macro:

i) Select Tools → Macro → Macros ↵

⇒ a window called Macros opens up

the macro's name appears in the window "Macro name:"

· in case you have more than one, select the one you want

Select Run ↵

⇒ what you have recorded before will be executed now

ii) Use the shortcut:

- our example just: Ctl + s

iii) If you were editing the code:

Select ▶ ↵

⇒ a window called Macros opens up ⇒ i)

iv) Using customized buttons or other objects:

- we have to see first how to create those (see point 4):

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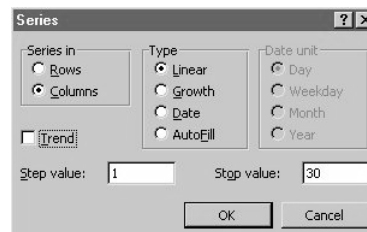
- Example: We calculate once more

$$\sum_{a=1}^n a = \frac{n(n+1)}{2}$$

- first you have to fill in: 1→A1 , 2→A2, 3→A3 ... 30→A30
- you can do this by hand, but the faster way is to use “Series“:

- put 1 into cell A1:
- select Edit → Fill → Series ↵  
⇒ a window called Series opens up

- Fill in: Series:      • Column
- Type:      • Linear
- Step value: 1
- Stop value: 30



- Ok ↵

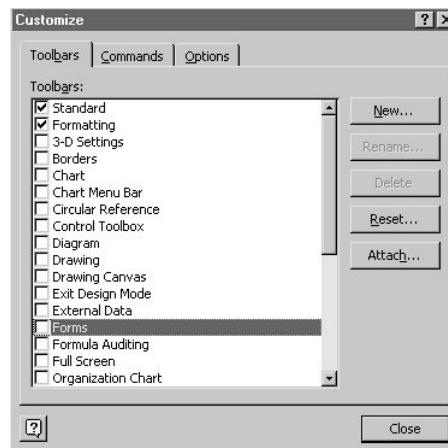
- activate the Macro ⇒ The sum of the cells A1:A30 is 465

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#### 4) Customized buttons (and other objects):

- Make the “Forms toolbar“ visible:

Select Tools → Customize → Toolbars →  Forms → Close ↵



⇒ a new toolbar with possible form commands open up



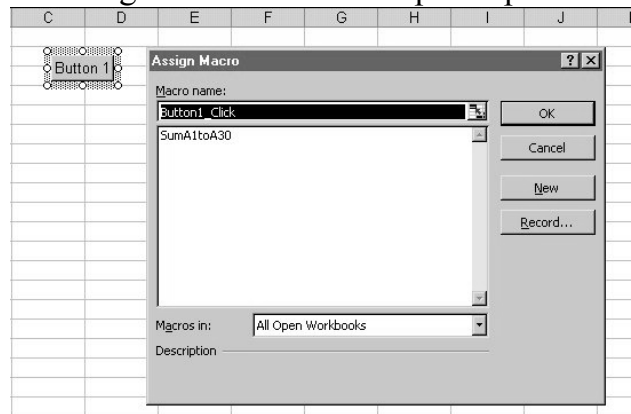
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ii) Assign a Macro to a button:

- Select Button (a grey box)

→ select a cell in your worksheet

⇒ the “Assign Macro“ window opens up



→ select the Macro which you want to attach to this button,

e.g. SumA1toA30 → Ok ↵

⇒ it says now “Button #“ on your button

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iii) Activating the Macro:

- Selecting now this button will activate the Macro you have attached to it, e.g. SumA1toA30

iv) Changing the button design:

- attach a better text to the button:

- select the right mouse button (moving first over the button)

⇒ a variety of commands opens up:

→ select Edit text ↵

→ type a meaningful text onto the button,

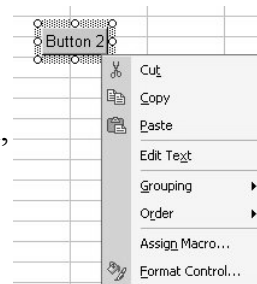
e.g. Sum A1 to A30

⇒ ⇒

- change the size of the button:

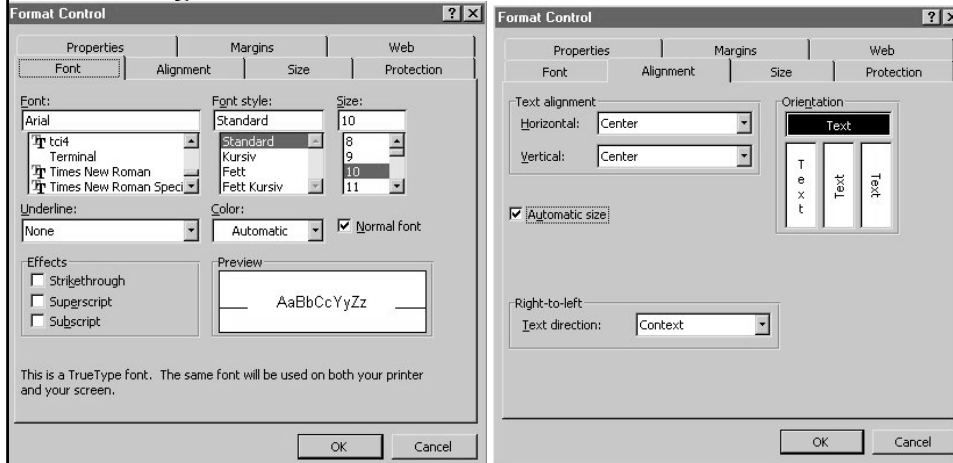
- select the right mouse button (moving first over the button)

→ select Format Control ↵



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- change the size of the button:
  - select the right mouse button (moving first over the button)
  - select Format Control ↵
  - Alignment



→  Automatic size → Ok ↵

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- similarly you can change the writing direction, the text fonts, the text and button size, the margins of the button, the colour, the status of the protection, etc.

Sum of A1 to A30

Sum of A1 to A30

Sum of A1 to A30

- You can also assign Macros to other objects:
  - the  symbol from the forms toolbar
  - a text label *Aa* on the forms toolbar
  - other symbols from the forms toolbar
  - a picture you have imported before such as

Sum of A1 to A30

Sum of A1 to A30



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(Select Insert → Picture → From File or Clip Art → choose a picture)