
A4 Spreadsheet Computation I

Important:

Before getting started with the assignment familiarizing oneself with the background material is strongly recommended. Especially if spreadsheet computation is new to you. In addition, if the tasks are too difficult for you to do on your own, practicing in groups is recommended.

You can use Office 365 Excel online to do the assignment. However, using the desktop version is recommended.

Make sure you submit the correct documents.

Objectives of the Assignment

With the help of the assignment one will get acquainted with spreadsheet computation using MS Excel 2016. After completing the assignment the student will

- know what is meant by a cell, row and a column,
- know how to insert information into a cell,
- know how to formulate cells in various ways,
- know how to name/insert/delete/ worksheets in a workbook and save them,
- know how to insert calculations in cells and use ready-to-use formulas as part of calculation,
- know how to retrieve information from other cells for cell calculations,
- know how to copy formulas
- know what a fill handle is and how it works
- be more skilled at using instruction functions

Tasks and Grading of the Assignment

The assignment has 4 tasks. The maximum total points for the assignment are 10 points.

Task 1 Cell formatting (3 p)

Task 2 Insertion of formulas (2p)

Task 3 Each month in its own worksheet (2p)

Task 4 Year monitoring sheet (3p)

What needs to be submitted?

Two MS Excel documents, that are named as follows:

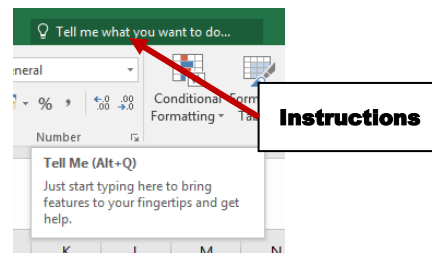
A4T1andT2.xlsx and

A4T3andT4.xlsx

The solutions to the 2 first tasks are submitted as their own document and the next 2 as one document as well.

At first - Tip

Learn to use the Help button. It is always useful to learn independent self-help actively. In comparison to the previous versions, there has been a significant investment in the new Office program versions' assistance functions. Even though utilizing the assistance functions may feel difficult at first, it is highly useful to learn to use them. Their logic is revealed during practice.



Picture 1. Help function in MS Excel

Task 1 (3p): Cell Formatting

This task does not yet actually use the computing features of a spreadsheet. The purpose of this task is to practice cell design. Open the Excel-workbook and save it already in your home directory as A4T1andT2.xlsx. On the first tab of the workbook, create a template like the one below following the directions (a)-(g). Task 2 will use this template as a starting point.

	A	B	C	D	E	F	G	H	I
1	JANUARY								2019
2									
3		date	€	source of income					
4	INCOME								
5									
6									
7		total							
8									
9	EXPENSES	date	food	living	health & sports	trips	other	explanation	
10									
11									
12									
13									
14									
15									
16									
17									
18									
19		total							

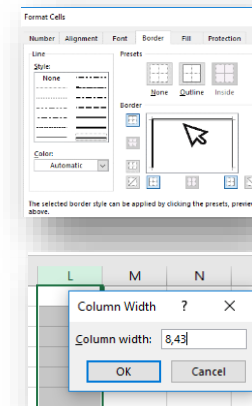
- (a) The title bar is one merged cell (cells A1-I1 are merged into one cell). Type in the title bar JANUARY with a bigger font. Add colorful background. The year “2019” in cell I1 uses the same font. [Tip 1](#)
- (b) Cells A3-A6 are merged into one. Type in a vertical orientation. Do the same with the merged cells A9-A11 and type EXPENSES (MENOT in the picture). [Tip 2](#)
- (c) The row and column title bars of the INCOME and EXPENSES are colorful. In other words, the cells A6-A3-I3 and A18-A9-I9 have a background color.
- (d) Rows 7 and 19 have a (re-enforced) top line from column A to column H. Cells I3 and I9 have frames. [Tip 3](#)
- (e) Columns A and B are narrower than the others. The widths of the columns C-G are the same with one another. Column H is clearly wider than the others. [Tip 4](#)
- (f) The column title text in cell E9 is divided onto two rows and the text is in the cells B3, C3, B9-H9 is centered both vertically and horizontally. [Tip 5](#)

Task 1 solution: A4T1andT2.xls document that serves as a basis for task 2.

Tip 1. Cell merging: **HOME/Alignment/ Merge&Center**. Cell background color: **HOME/Font/Fill Color**.

Changing the height of a row: Right click in the left margin over the row number and you’ll get the option **Row Height** or alternatively, drag the row divider down in the left margin.

- Tip 2.** The cells below one another need to be merged together. In a merged cell, turn the text into vertical orientation: **HOME/Alignment/Orientation**.
- Tip 3.** Cell framing (see the top picture on the right): **HOME/Font/Borders**
- Tip 4.** The column width can be formatted in the column title by grabbing the vertical line, but also by giving the exact width information in numbers: **HOME /Cells/Format/Column Width**.
The column width can be opened by activating the column dialog in the column title by clicking and then giving the same width definition to all columns (right-click and selecting the **Column Width** in the dialog, see the bottom picture on the right).
- Tip 5.** Text in a cell can be divided onto two rows by selecting **Wrap text** (in the **Alignment** dialog) or forcing row feed in a cell by typing **Alt/enter**.



Task 2 (2p): Insertion of Formulas

Compose a small budget calculation by following instructions (a)-(d) in the template you created in the first task:

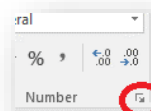
- (a) Define the data type of the cells C4:C7 and C10:G19 as Currency (in euros). **Tip 6**
- (b) In cell C7, create a formula for the sum of the same column in the rows 4, 5 and 6 and in cells C19:G19 the sums of each column from the rows 10 - 18. **Tip 7**
- (c) Create a formula in which the information of the cell C7 is copied into the cell I3.
- (d) Create a formula in which the sum of the cells C19-G19 is added up in the cell I9.

	A	B	C	D	E	F	G	H	I
1	JANUARY								2019
2									
3		date	€	source of income					0,00 €
4	INCOME								
5									
6									
7		total	0,00 €						
8									
9	EXPENSES	date	food	living	health & sports	trips	other	explanation	0,00 €
10									
11									
12									
13									
14									
15									
16									
17									
18									
19		total	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €		

When the table cells are empty the value of the sum cells is 0,00 € (picture above).

Task 2 solution: Document A4T1andT2.xlsx.

- Tip 6.** To define the data type of a cell use the first tab of Cell formatting-message box: **HOME/Number/small corner arrow**



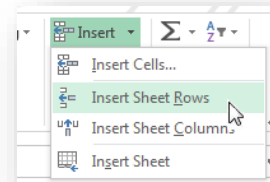
Tip 7. In order to create a formula that adds up sums one may either use a ready functions (background material Theme 2 Chapter 5) or create a sum statement that adds up sums.

Task 3 (2p): Each Month on Its Own Worksheet

Save a copy of the previously created file as a basis for the next two tasks. Rename the copy as *A4T3andT4.xlsx*. Copy the budget you made for January to two new sheets (workbook tab) and name it with the subsequent months. In addition, change the titles of the tables accordingly. Three months is enough to complete the task, but an entire year is allowed as well. **Tip 8**

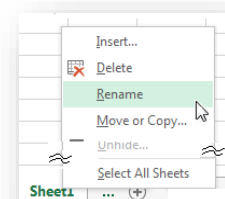
	A	B	C	D	E	F	G	H	I
1	MARCH								2019
2									
3	INCOME	date	€	source of income					0,00 €
4									
5									
6									
7		total	0,00 €						
8	EXPENSES	date	food	living	health & sports	trips	other	explanation	0,00 €
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19		total	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €		
20									
21									
22									
23									

Type imaginary income and expenses to make sure the formulas work. **There's an example of the income in January on the next page (in Finnish!)** – in your own table it is enough that you type some income and expenses for all (minimum 3) months and that for some months you'll need to add rows for both income and expenses (income more than 3 rows and expenses more than 9 rows). **Tip 9**



Task 3 solution: A workbook *AT3andT4.xlsx*, which is used as a basis in task 4.

Tip 8. To add new tabs, click the + -button in the bottom edge. To name a work sheet, right-click over the default sheet name *Sheet1*. Dropdown menu opens, select Rename.



Tip 9. To add a new row to the income or expenses: First, take the cursor over the cell in the table where you wish to add a row above and then **HOME/Cells/Insert/Insert Sheet Rows**.

Pay attention, if you've added up the sum in an addition cell by specifying the cells to be added using cell1: cell2 (i.e. SUM C3:C6) the addition cell formula will automatically update to include the added cell as you add rows to the table. In case you listed the cells individually (i.e. C3+C4+C5+C6), you'll need to update the sum formula manually when adding a new cell in between.

	A	B	C	D	E	F	G	H	I	J
10		pvm	ruoka	vuokra	puhelin ja liikenne	terveys ja liikunta	muut	selvitys ja kuitti		820,90 €
11	MENOT	1	25,34 €					Lidl (kuitti 1)		
12		2	2,50 €					ylöpiston ruokala		
13		4	2,50 €					ylöpiston ruokala		
14		4			33,00 €			bussikortti		
15		4		360,00 €				vuokra		
16		5	3,10 €					ylöpiston ruokala		
17		6				4,00 €		salimaksu		
18		8	8,90 €					take-away kiinalaisesta		
19		8	35,34 €					Lidl (kuitti 1)		
20		9	2,50 €					ylöpiston ruokala		
21		10	2,50 €					ylöpiston ruokala		
22		10				4,00 €		salimaksu		
23		10		20,00 €				vesimaksu		
24		13	3,10 €					ylöpiston ruokala		
25		14	47,56 €					S-Market (kuitti 2)		
26		15	8,90 €					take-away kiinalaisesta		
27		20	2,50 €					ylöpiston ruokala		
28		17	2,50 €					ylöpiston ruokala		
29		20					9,00 €	elokuviassa		
30		20					2,50 €	elokuvakarkit (kuitti 3)		
31		20	8,20 €					pizzeria		
32		24				4,00 €		salimaksu		
33		21	35,40 €					Siwa		
34		23					12,00 €	pesuaineita & wc-paperia		
35		24	57,56 €					C-Market (kuitti 4)		
36		25				4,00 €		salimaksu		
37		26			25,00 €			puhelinlasku		
38		27					35,00 €	osia pyörään (kuitti 5)		
39		28					55,00 €	vaatteita (kuitti 6)		
40		29	2,50 €					ylöpiston ruokala		
41		30	2,50 €					ylöpiston ruokala		
42		yht	253,40 €	380,00 €	58,00 €	16,00 €	113,50 €			

Task 4 (3p): Year Monitoring Sheet

Create another worksheet in the previous task's file A4T3andT4.xlsx. Name it "The Entire Year 2019". Create a summary of the income and expenses of the year on this sheet according to the example below:

	A	B	C	D	E	F	G	H	I	J
1	ENTIRE YEAR									2019
2										
3										
4		INCOME			Health &			EXPENSES	Monthly	
5		total	food	living	sports	trips	other	total	balance	
6	January	870,00 €	253,40 €	380,00 €	16,00 €	65,00 €	138,50 €	852,90 €	17,10 €	
7	February	840,00 €	233,34 €	380,00 €	8,00 €	33,00 €	35,00 €	689,34 €	150,66 €	
8	March	840,00 €	187,06 €	380,00 €	8,00 €	25,00 €	75,00 €	675,06 €	164,94 €	
9	April									
10	May									
11	June									
12	July									
13	August									
14	September									
15	October									
16	November									
17	December									
18	average/month	850,00 €	224,60 €	380,00 €	10,67 €	41,00 €	82,83 €	739,10 €	110,90 €	
19										
20										
21										
22										

Pay attention, the months of the year in the first column can be created with the help of the fill handle (when assumed that the Excel that you're using has months saved as *Custom lists*).

The last picture above serves as an example of how the value of the cell C7 from January has been brought to the January-income cell (B5). **Tip 10** Bring the values of each month on each sheet to the cells accordingly. Finally, calculate the average monthly income and expenses in the last row in the table, **Tip 11** and the monthly financial balance in the last column of the table. **Tip 12**

Task 4 solution: Document A4T3andT4.xlsx

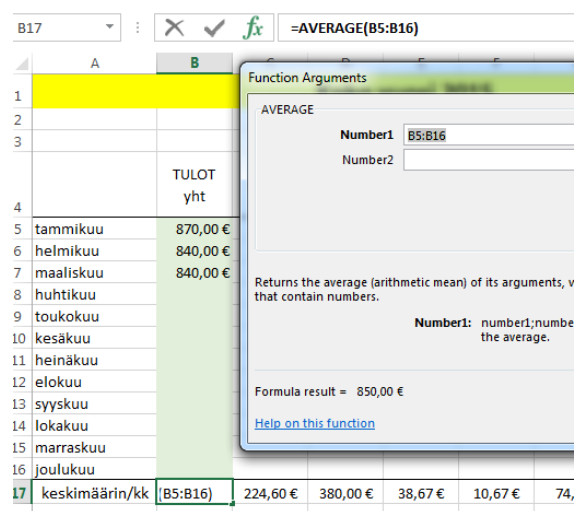
Tip 10. A cell reference to another worksheet can be made by giving the name of the worksheet + an exclamation mark before the actual cell reference. For example, the cell reference brought to the cell B5 can be typed by oneself (i.e. January!C7). A simpler way is to just enter the formula's "=" and then go to the January tab, click on cell C7 and then press enter to stop typing the formula.

Tip 11. Average monthly income and classified expenses can be calculated with the AVERAGE - function.

The picture on the right shows the calculation of average expenditure. The function can be typed, however, it is impossible to remember the syntax (the form of the function how it should be typed) of all the functions.

This is why it is useful to insert a function by clicking the **fx** button. In the Function Arguments box give the functions arguments (AVERAGE). The Help on this function option in the bottom corner is useful as well.

Tip 12. Expenses are deducted from the monthly balance of income and expenses. For example, the formula of the cell I5 is = B5-H5



Submit 2 documents of the entire task: Excel-workbook A4T1andT2.xlsx (1 worksheet) and A4T3andT4.xlsx, including 4 worksheets (or more if you added more months than until March).

No PDF-files needed this time.