

Excel exercise „Time Sheet“

Step 1

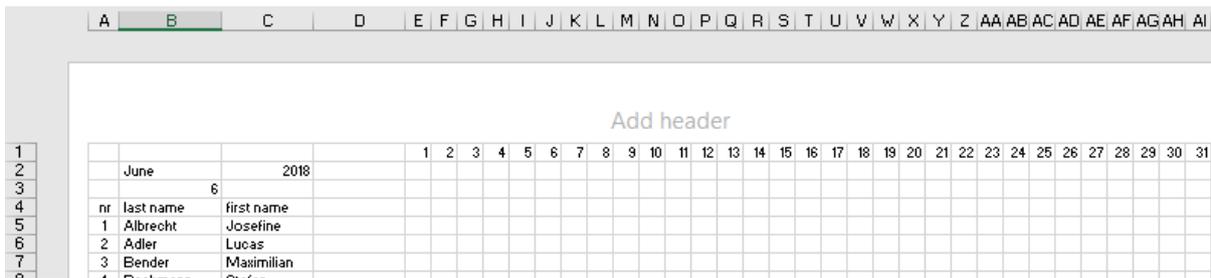
Use the exercise file “Excel-101-TimeSheet” to start with an alphabetically sorted list of names:

	A	B
1	last name	first name
2	Albrecht	Josefine
3	Adler	Lucas
4	Bender	Maximilian
5	Bachmann	Stefan
6	Bischof	Oliver
7	Brecht	Sebastian
8	Blankenburg	Tanja
9	Dieckmann	Thomas
10	Diefenbach	Maike

Step 2

1	Make a copy of the sheet “Step 1” and call it “Step 2”	right click to the sheet name and select “Move or Copy” (German: “Verschieben oder kopieren”)
2	Add three rows above the first row	mark row 1 and “Home / Cells / Insert” (German: “Start / Zellen / Einfügen”)
3	Add one column left to column A	mark column A and “Home / Cells” (German: “Start / Zellen / Einfügen”)
4	Switch to “Page Layout”	“View / Workbook Views / Page Layout” (German: “Ansicht / Arbeitsmappenansichten / Seitenlayout”)
5	Change the orientation to landscape	“Page Layout / Page Setup / Orientation” (German: “Seitenlayout / Seite einrichten / Ausrichtung”)
6	Reduce the left and right margins to 0.5	“Page Layout / Page Setup / Margins / Custom” (German: “Seitenlayout / Seite einrichten / Seitenränder / Benutzerdefinierte Seitenränder”)
7	Change the font of the whole sheet to Arial 10	“Home / Font” (German: “Start / Schriftart”)
8	Add ongoing numbers (1, 2, 3, ...) in column A (starting in row 5) and in row 1 (starting in column E, until number 31)	Use the Excel function for the automatic completion of lists
9	Enter the name of the month (June) in B2, the number of the month (6) in B3 and the year (2018) in C2	
10	Change the column widths in such a way, that the whole table fits to one sheet of paper	mark columns E to AI, right click on one column letter and select “Column Width” (German: “Spaltenbreite”)

Result:



Step 3

1	Make a copy of the sheet “Step 2” and call it “Step 3”	right click to the sheet name and select “Move or Copy” (<i>German: “Verschieben oder kopieren”</i>)
2	Replace the number 1 in cell E1 by the formula =DATE(C2,B3,1) <i>German: DATUM(C2;B3;1)</i>	DATE(Year, Month, Day) You will see # in the cell. That doesn’t matter – it only means, that the cell is too small to display its whole content.
3	Replace the number 2 in cell F1 by the formula =E1 + 1	= next day Again you will see # in the cell.
4	Copy the formula from F1 until the right end of the list (cell with the number 31)	... next day ... next day ... next day ... Again you will see # in all the cells.
5	format the range E1:A11 as “Date” (<i>German: “Datum”</i>)	“Home / Number” (<i>German: “Start / Zahl”</i>)
6	Now you have all the dates of the month in row 1. If you hold the mouse pointer over one of the cells you will see it:	
7	In cell E2 enter the formula =WEEKNUM(E1,2) and copy it until the right end of the list <i>(German: KALENDERWOCHE)</i>	It writes the number of the calendar week into the cell. Attention: The second argument (2) of WEEKNUM means, that Monday is the first day of the week. If you want, that Sunday is the first day, it must be set to 1.

8	In cell E3 enter the formula =LEFT(TEXT(E1,"ddd"),2) and copy it until the right end of the list <i>German: LINKS(TEXT(E1;"ttt");2)</i>	It writes the first two letter of the name of the weekday into that cell.
9	In cell E4 enter the formula =DAY(E1) and copy it until the right end of the list <i>German: TAG(E1)</i>	It writes the number of the day into that cell.
10	Don't be concerned, that there is already the first day of the next month at the end of the list. First of all we will develop the general layout for a month – may be with 31 days. Afterwards we will correct this using conditional formatting.	

Result:

The screenshot shows an Excel spreadsheet with the following data:

		Add header																														
		#							#							#							#									
		22	22	23	23	23	23	23	23	23	24	24	24	24	24	24	25	25	25	25	25	25	26	26	26	26	26	26	26	26		
		Fr	Sa	So	Mc	Di	Mi	Do	Fr	Sa	So	Mc	Di	Mi	Do	Fr	Sa	So	Mc	Di	Mi	Do	Fr	Sa	So	Mc	Di	Mi	Do	Fr	Sa	So
1	nr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1
5	last name	Albrecht																														
5	first name	Josefine																														
6	last name	Adler																														
6	first name	Lucas																														
7	last name	Bender																														
7	first name	Maximilian																														

Step 4

1	Make a copy of the sheet “Step 3” and call it “Step 4”	right click to the sheet name and select “Move or Copy” (<i>German: “Verschieben oder kopieren”</i>)
2	Format the cells: <ul style="list-style-type: none"> • B2, C2: Bold, Align Left • B3: Font Color White (=invisible!) • A4, B4, C4, D4: Font Bold • Row 1: Font Color White (=invisible!) • Columns D, E, F, G, ...: Align Center • A5:A127: All Borders 	“Home / Font” and “Home / Alignment” <i>German: “Start / Schriftart” und “Start / Ausrichtung”</i> “Home / Font / Borders” <i>German: “Start / Schriftart / Rahmenlinie”</i>
3	Mark the range E5:A127 with the left mouse button and click “Home / Styles / Conditional Formatting / Manage Rules” <i>German: “Start / Formatvorlagen / Bedingte Formatierung / Regeln verwalten”</i> The “Conditional Formatting Rules Manager” opens	“Conditional Formatting” means, that the format of a cell (fill Color, border, ...) is not defined manually but with a certain condition (= a formula) <u>To learn more about “Conditional Formatting” look into the file “Excel-Basics”!</u>
4	Click “New Rule” and select “Use a formula to determine which cells to format” <i>German: “Formel zur Ermittlung der zu formatierenden Zellen verwenden”</i>	There are different possibilities to formulate the condition for the formatting. “Use a formula ...” is only one of them.
5	Enter the formula =OR(E\$3="Fr",E\$3="Sa") <i>German: ODER(E\$3="Fr";E\$3="Sa")</i> and click “Format” (<i>German: “Formatieren”</i>)	ATTENTION: Take care of the correct positions of the \$’s! The formula means that cells with “Fr” or “Sa” in row 3 shall be formatted.
6	Select “Fill” (<i>German: “Ausfüllen”</i>), click on a light grey and “OK”, “OK”, “OK”	Now the weekends are colored in light grey.
7	Replace the word “November” in cell B2 by the formula =DATE(C2,B3,1) <i>German: DATUM(C2;B3;1)</i>	
8	Format the cell B2 to “MMMM”	“Home / Number / More Number Formats / Custom / Type = MMMM” <i>German: “Start / Zahl / Mehr ... / Benutzerdefiniert / Typ = MMMM”</i> <u>If you want to learn more about custom formats look into the file “Excel-Basics”!</u> Now the name of the month doesn’t have to be entered manually. Instead of, it is

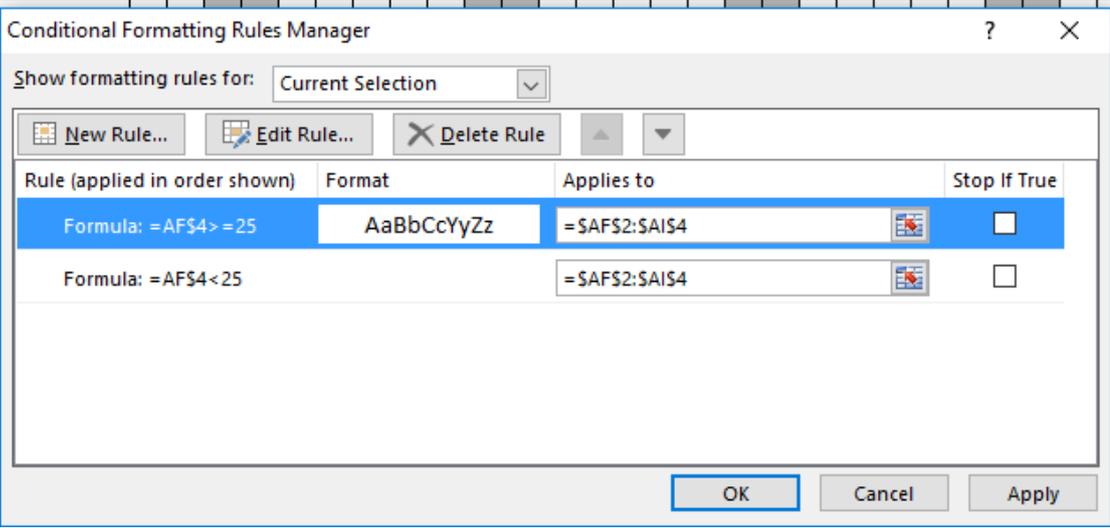
		automatically created from the number of the month!
9	If you now change the (invisible!) number of the month in cell B3 all the week numbers, day names and day numbers will change accordingly. Try it!! Isn't that nice!??	

Result:

		Add header																															
		Juni 2018																															
		Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	
nr	last name	first name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1
1	Albrecht	Josefine																															
2	Adler	Lucas																															
3	Bender	Maximilian																															
4	Bachmann	Stefan																															
5	Rischhof	Olivier																															

Step 5

1	Make a copy of the sheet “Step 4” and call it “Step 5”	right click to the sheet name and select “Move or Copy” (<i>German: “Verschieben oder kopieren”</i>)
2	Mark the range AF2:AI4 with the left mouse button and click “Home / Styles / Conditional Formatting / Manage Rules” <i>German: “Start / Formatvorlagen / Bedingte Formatierung / Regeln verwalten”</i> The “Conditional Formatting Rules Manager” opens	“Conditional Formatting” means, that the format of a cell (fill Color, border, ...) is not defined manually but with a certain condition (= a formula)
3	Click “New Rule” (<i>German: “Neue Regel”</i>) and select “Use a formula to determine which cells to format” <i>German: “Formel zur Ermittlung der zu formatierenden Zellen verwenden”</i>	There are different possibilities to formulate the condition for the formatting. “Use a formula ...” is only one of them.
4	Enter the formula =AF\$4<25 and click “Format” (<i>German: “Formatieren”</i>)	ATTENTION: Take care of the correct positions of the \$'s!
5	Select “Font / Color” (<i>German: “Schrift / Farbe”</i>), click on white and then two times on “OK”	
6	Click again on “New Rule” and select “Use a formula to determine which cells to format” <i>German: “Formel zur Ermittlung der zu formatierenden Zellen verwenden”</i>	
7	Enter the formula =AF\$4>=25 and click “Format” (<i>German: “Formatieren”</i>)	
8	Select “Font / Color” (<i>German: “Schrift / Farbe”</i>), click on “Automatic” and then two times on “OK” Now the “Conditional Formatting Rules Manager” should look like this:	The days not belonging to the current month at the end of rows 2-4 disappear because of the white font color.

9		
10	Click OK in the “Conditional Formatting Rules Manager”	

Explanation of the condition “AF\$4<25”:

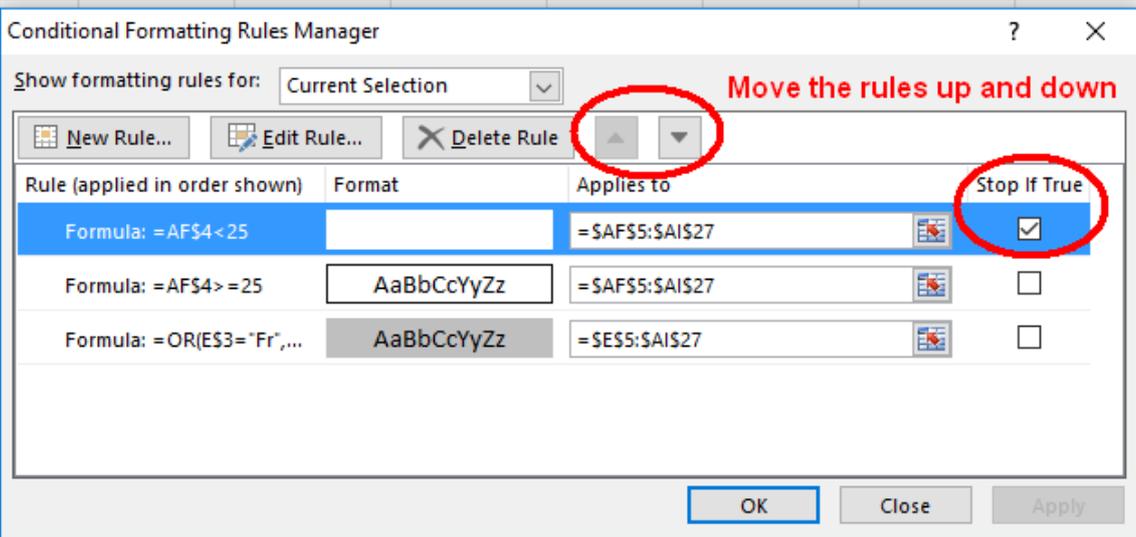
There are 31 columns for the days of the month. If the month has less days, then there are the numbers 1, 2, 3, ... in row 4 in the right columns = the first days of the next month.

These days shall be hidden using white font color.

The condition for this is, that there is a small number in row 4: “AF\$4<25”. Because there is no \$ before the AF this formula is adapted in each column. In column AF it reads “AF4<25”, in column AG: “AG4<25”, in AH: “AH4<25, ... and so on.

Step 6

1	Make a copy of the sheet “Step 5” and call it “Step 6”	right click to the sheet name and select “Move or Copy” (<i>German: “Verschieben oder kopieren”</i>)
2	Mark the range AF5:AI27 with the left mouse button and click “Home / Styles / Conditional Formatting” / Manage Rules” <i>German: “Start / Formatvorlagen / Bedingte Formatierung / Regeln verwalten”</i> The “Conditional Formatting Rules Manager” opens	“Conditional Formatting” means, that the format of a cell (fill Color, border, ...) is not defined manually but with a certain condition (= a formula)
3	Click “New Rule” (<i>German: “Neue Regel”</i>) and select “Use a formula to determine which cells to format” <i>German: “Formel zur Ermittlung der zu formatierenden Zellen verwenden”</i>	There are different possibilities to formulate the condition for the formatting. “Use a formula ...” is only one of them.
4	Enter the formula =AF\$4<25 and click “Format” (<i>German: “Formatieren”</i>)	ATTENTION: Take care of the correct positions of the \$’s!
5	Select “Font / Color” (<i>German: “Schrift / Farbe”</i>) and click on white; select “Border” (<i>German: “Rahmen”</i>) and click on “None” (<i>German: “Keine”</i>); click two times on “OK”	
6	Click again on “New Rule” (<i>German: “Neue Regel”</i>) and select “Use a formula to determine which cells to format” <i>German: “Formel zur Ermittlung der zu formatierenden Zellen verwenden”</i>	
7	Enter the formula =AF\$4>=25 and click “Format” (<i>German: “Formatieren”</i>)	
8	Select “Font” / “Color” and click on “Automatic”; select “Border” (<i>German: “Rahmen”</i>) and click on “Outline” (<i>German: “Außen”</i>); click two times on “OK” Now the “Conditional Formatting Rules Manager” should look like this:	If the rules are in another order on your screen as in the following figure, you can move them up and down with the two buttons marked in the figure:

<p>9</p>	 <p>ATTENTION: Activate “Stop If True” (German: “Anhalten”) for the first rule!!</p>	
<p>10</p>	<p>Click OK in the “Conditional Formatting Rules Manager”</p>	<p>The days not belonging to the current month at the end of rows 5-27 disappear because of the border=none</p>

Check

If you now change the (invisible!) number of the month in cell B3 all the week numbers, day names and day numbers will change accordingly.

That was already the result of step 4.

But now something new happens: The list shows only the really existing days of a month – 28 in February, 31 in March and 30 in April:

		Februar 2018		5	5	5	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8	8	8	9	9	9					
				Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi
nr	last name	first name		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	Albrecht	Josefine																													
2	Adler	Lucas																													
3	Bender	Maximilian																													
4	Bachmann	Stefan																													
5	Bischof	Oliver																													
6	Brecht	Sebastian																													

		März 2018		9	9	9	10	10	10	10	10	10	10	11	11	11	11	11	11	12	12	12	12	12	12	13	13	13	13	13				
				Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa
nr	last name	first name		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	Albrecht	Josefine																																
2	Adler	Lucas																																
3	Bender	Maximilian																																
4	Bachmann	Stefan																																
5	Bischof	Oliver																																
6	Brecht	Sebastian																																

		April 2018		13	14	14	14	14	14	14	14	15	15	15	15	15	16	16	16	16	16	16	16	17	17	17	17	17	17	18			
				So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo
nr	last name	first name		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Albrecht	Josefine																															
2	Adler	Lucas																															
3	Bender	Maximilian																															
4	Bachmann	Stefan																															
5	Bischof	Oliver																															
6	Brecht	Sebastian																															

That’s the result of the conditional formatting made in steps 5 and 6. There it was said:

“Set the font color to white and the border to none, if the value in row 4 (=the day number) is smaller than 25.”

That means – for example – on the February sheet the 1st and 2nd March are still there (check it by clicking in the corresponding cells!) – but they are invisible!

You see – conditional formatting is a very powerful trick. If you want to learn more about it, please have a look into the file “Excel-Basics”!

Step 7

1	Make a copy of the sheet “Step 6” and call it “Step 7”	right click to the sheet name and select “Move or Copy” (<i>German: “Verschieben oder kopieren”</i>)
2	In cell D5 enter the formula =SUM(E5:A15) <i>German: SUMME(E5:A15)</i> and copy it down	
3	Write the word “month” in cell D4.	
4	If you are not in the page layout, switch to the page layout and write “Time Sheet” and “General Construction Company” into the left and right part of the header, respectively. Format the two texts in Arial 14.	“View / Page Layout” <i>German: “Ansicht / Seitenlayout”</i> “Home / Font” <i>German: “Start / Schriftart”</i>
5	Insert the automatically generated file name into the left part of the footer and format it in Arial 10.	“Header & Footer Tools / Design / File Name” <i>German: “Kopf- und Fußzeilentools / Entwurf / Dateiname”</i>
6	Write the current date into the middle part of the footer and format it in Arial 10.	Don’t use the function “Current Date”! Write it manually!
7	Write the word “page ” into the right part of the footer, insert the automatically generated page number and format it in Arial 10.	“Header & Footer Tools / Design / Page Number” <i>German: “Kopf- und Fußzeilentools / Entwurf / Seitenzahl”</i>
8	Add a field for the signature.	See picture below

Result:

Time Sheet General Construction Company

Juni		2018	month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
nr	last name	first name	month	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa
1	Albrecht	Josefine	0																														
2	Adler	Lucas	0																														
3	Bender	Maximilian	0																														
4	Bachmann	Stefan	0																														
5	Bischof	Oliver	0																														
6	Brecht	Sebastian	0																														
7	Blankenburg	Tanja	0																														
8	Dieckmann	Thomas	0																														
9	Diefenbach	Maiko	0																														
10	Dunker	Torben	0																														
11	Dabrowski	Philip	0																														
12	Fritsch	Florny	0																														
13	Fritsch	Tommy	0																														
14	Fichter	Tatjana	0																														
15	Harmann	Michaela	0																														
16	Kluge	Tina	0																														
17	Kellner	Marleen	0																														
18	Meyer	Mira	0																														
19	Maurer	Wilhelm	0																														
20	Penner	Sebastian	0																														
21	Teschner	Matthias	0																														
22	Topp	Matteo	0																														
23	Uhlmann	Viebke	0																														

confirmed: _____
Andreas Stern

Step 8

1	Make a copy of the sheet “Step 7” and call it “Step 8”	right click to the sheet name and select “Move or Copy” (German: “Verschieben oder kopieren”)
2	Enter 6.5 in cell G5. You may be surprised because it changes to 7. This is caused by the number of decimals. If the number of decimals is too small, the number is rounded and you will see “7” instead of “6.5”. If the number of decimals is too large, there is not enough space inside the cell to display all the decimals and you will see a ##.	Possibly you have to make the columns A-D a bit smaller and the columns E-AI a bit broader. The objective is, that the table fits to one sheet of paper and that you don’t see ## in the cells!
3	Change the number of decimals in the inner part of the table (E5:A127) so that you can enter numbers like “7.5”. Check this!	To change the number of decimals mark the cells, <u>right click</u> them and select “Format cells” (German: “Zellen formatieren”). Then select the register “Number” (German: “Zahlen”) and then “Category = Number” (German: “Kategorie = Zahl”) “Decimal places” = 1 (German: “Dezimalstellen = 1”)
4	Mark the inner range of the table (E5:A127) <u>and the cell B3</u> , right click it and select “Format Cells” / “Protection”. (German: “Zellen formatieren / Schutz”)	This is necessary to avoid, that somebody (including yourself!) changes the worksheet or destroys the formulas! Only the inner part of the table is NOT write protected!
5	<u>Deactivate</u> “Locked” (German: “Gesperrt”) and click OK.	
6	Activate the write protection of the worksheet	“Review / Changes / Protect Sheet / OK” German: “Überprüfen / Änderungen / Blatt schützen / OK”

Result:

		Juni 2018		22	22	22	23	23	23	23	23	23	24	24	24	24	24	24	25	25	25	25	25	25	26	26	26	26	26				
				Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa	So	Mo	Di	Mi	Do	Fr	Sa
nr	last name	first name	month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Albrecht	Josefine	37,5			7	7	8	8																								
2	Adler	Lucas	0																														
3	Bender	Maximilian	0																														
4	Bachmann	Stefan	0																														
5	Bischof	Oliver	0																														

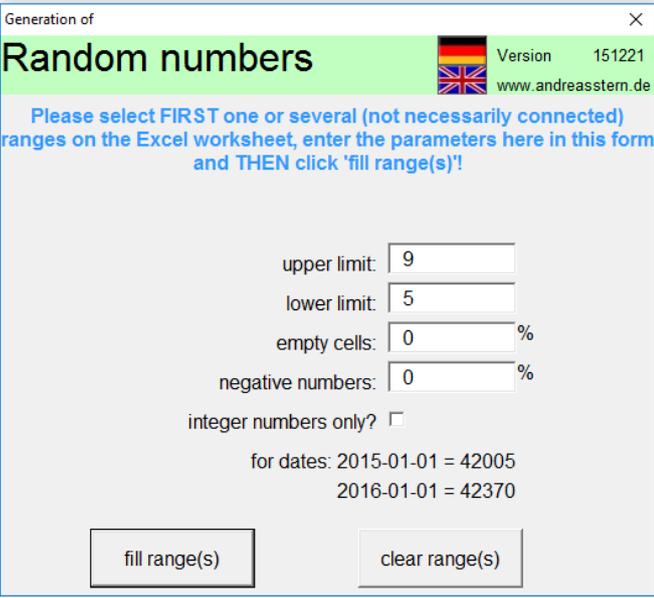
Step 9

1	Make copies of the worksheet for each month of the year	Right click on the worksheet name and select “Move or Copy” (<i>German: “Verschieben oder kopieren”</i>)
2	Change the names of the worksheets (“2016 Jun”, “2016 Jul”, “2016 Aug”, ...)	Right click on the worksheet name and select “Rename” (<i>German: “Umbenennen”</i>)
3	On each worksheet enter the number of the month in the (hidden!) cell B3 – everything else will change automatically!	Isn’t that fantastic!?

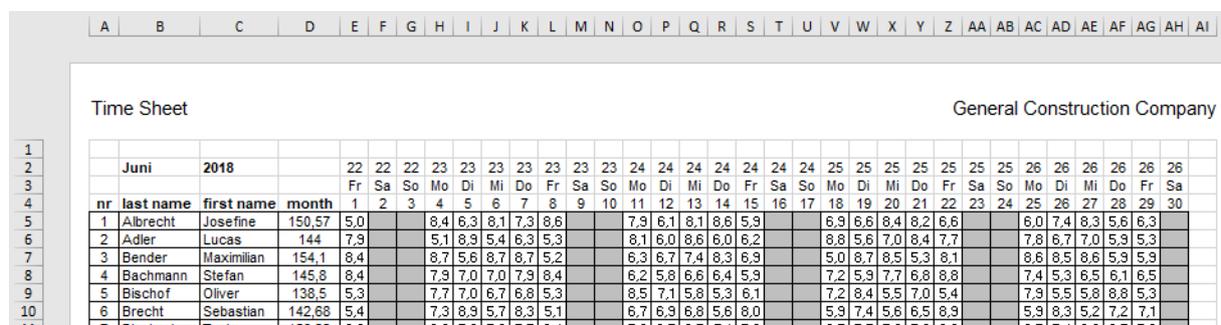
Result:

The screenshot shows an Excel spreadsheet titled "Time Sheet" for "General Construction Company". The main data area is a grid with columns for days (1-30) and rows for employees (1-23). The header row includes "Juni 2018" and a row of days with abbreviations (Fr, Sa, So, Mo, Di, Mi, Do, Fr, Sa). The employee list includes names like Albrecht, Adler, Bender, etc., with a "month" column containing the number 0. A "confirmed:" field is signed by "Andreas Stern". The bottom status bar shows "Excel-101-TimeSheet-Seng-V181106.xlsx", "6.11.2018", "page 1", and a worksheet tab "2018 Jun" highlighted in red.

Step 10

1	Enable all macros	<p>“File / Options / Trust Center / Trust Center Settings / Macro Settings / Enable all macros / OK / OK”</p> <p><i>German: “Datei / Optionen / Trust Center / Einstellungen für das Trust Center / Makroeinstellungen / Alle Makros aktivieren / OK / OK”</i></p>
2	Close Excel and re-open it again	
3	Mark the inner part of the table (E5:A127) <u>except the weekends</u> and press Ctrl-Shift-N	Mark the first range, press the Ctrl key and while holding it down mark the other ranges!
4	With the help of this form you can fill ranges with random numbers:	
5	Generate data from the beginning of June until the current day	

Result:



Because the numbers are generated with a random number generator, you will have other numbers on your worksheet!

What have you learned in this exercise?

In step 2 you have learned how to

- copy and rename worksheets
- add and delete rows and columns
- use the page layout and change the page orientation
- use the Excel function for the automatic completion of lists
- change the row and column width
- change the font type, size and color

In step 3 you have learned how to

- use the formulas DATE(), WEEKNUM(), LEFT(), TEXT(), DAY()
- copy formulas
- understand, what ## in a cell means

In step 4 you have learned how to

- make the content of a cell invisible
- align the content of cells
- define a conditional formatting
- use the formula DATE(), OR()
- use custom formats (e.g. “MMMM”)

In step 5 and 6 you have learned how to

- define a conditional formatting
- make the content of a cell invisible

In step 7 you have learned how to

- use the formulas SUM(), OR()
- use the automatic file name and page number function in the header and footer

In step 8 you have learned how to

- overcome the problem with ## in a cell
- define the decimals of numbers in a cell
- define a write protection for a certain range of cells

In step 10 you have learned how to

- use the random number form to generate random numbers

In step 11 you have learned how to

- define the decimals of numbers in a cell
- use cell references from one worksheet to another one

That’s a lot – isn’t it!?

If you want to get a deeper understanding of what you have done here, work through the files “Excel-Basics” and “Excel-Formulas”!

Good luck!