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Data Analysis Using Formulas

Relative and Absolute Addressing

WEEK 4

Vitezslav Novak

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Data Analysis Using Formulas

Using Relative and Absolute Addressing

So far, we have only used relative addresses in the formulas. But this is definitely not enough when solving real problems. That is why it is necessary to familiarize yourself with the use of relative, absolute and mixed addresses in formulas.

First, we will show the general use of relative and absolute addresses. Addresses in the formula can be:

- **Relative** – is a reference adapting to a new position, when copying a cell with a formula, relative addresses change, e.g. =A1.
- **Absolute** – is a reference always pointing to the same cells, when copying a cell with a formula, absolute addresses do not change, e.g. =\$A\$1 (the \$ character fixes the row number and column name).
- **Mixed** – is a reference that adapts to the new position only in some direction when copying, e.g. =\$A1 – when copying, the column name does not change, but the row number does; or =A\$1 - when copying, the column name changes, but the row number does not.

The \$ sign in an absolute or mixed address is most easily entered with the F4 key, preferably immediately after entering the address in the formula.

Practical Use of All Types of Addresses

Subsequently, we will show the practical use of all types of addresses. Imagine the following tables with the calculation of payments for all months and markets when the payment is calculated as $(SPACE * PRICE + TAX + TRANSPORT) * (1 - DISCOUNT)$. You can find the tables in exercise workbook.



Data Analysis Using Formulas

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Tax											Market 1	Market 2	Market 3			
2		200									Transport	500	1200	400			
3																	
4	Space (m2)	Market 1	Market 2	Market 3	Price/m2	Market 1	Market 2	Market 3	Payment	Market 1	Market 2	Market 3	Month	Discount			
5	January	16	20	52	January	180	70	120	January				January	0,2			
6	February	23	30	70	February	175	65	115	February				February	0,15			
7	March	31	43	87	March	170	60	110	March				March	0,1			
8	April	38	58	103	April	165	55	105	April				April	0,05			
9	May	45	72	114	May	160	50	100	May				May	0,05			
10	June	50	85	120	June	165	55	105	June				June	0,03			
11	July	50	90	130	July	170	60	110	July				July	0,03			
12	August	50	85	120	August	175	65	115	August				August	0,03			
13	September	31	43	87	September	180	70	120	September				September	0,03			
14	October	23	30	70	October	185	75	125	October				October	0,1			
15	November	16	20	52	November	190	80	130	November				November	0,2			
16	December	16	20	52	December	195	85	135	December				December	0,25			

Figure 1 Example for using relative, absolute and mixed addresses

We want to insert the formula into the table only once in cell L5 and then copy it to the rest of the table. How should such a formula look like? It should look like as following:

$$=(B5*G5+\$A\$2+L\$2)*(1-\$Q5)$$

Why is there a dollar sign in some addresses and not in others?

B5, G5 – space and price differ in rows (months) and columns (markets) that is why the dollar sign mustn't be there.

\$A\$2 – tax is the same for all months and markets that is why the dollar sign must fix both the number of row and the name of the column.

L\$2 – transport differs only for markets (columns) that is why the number of row must be fixed with dollar sign.

\$Q5 – discount differs only for months (rows) that is why the name of the column must be fixed.



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