

# Lesson 6-1: Create a single-input data table

Don't be fooled by the name. A *data table* has nothing to do with a regular Excel table. Data tables are another of those wonderful Excel features that are a complete mystery to virtually all Excel users.

In this lesson we'll use a data table to list the monthly repayments for a loan at different interest rates.

## 1 Open *Mortgage-1* from your sample files folder.

This is a simple worksheet that calculates four result values from four input values. When performing what-if analysis, it is a good idea to separate the input values from the result values on your worksheet.

The worksheet uses the PMT function that was covered in: *Lesson 3-3: Use the formula palette and the PMT function.*

	A	B
3	<b>Input Cells</b>	
4	Loan Amount	250,000
5	Deposit (%)	10%
6	Term (Years)	25
7	Interest Rate (APR%)	6.6%
8		
9	<b>Result Cells</b>	
10	Loan Financed	225,000
11	Monthly Repayment	1,533.31
12	Total amount to be repaid	459,992
13	Total interest to be repaid	234,992

During the last 20 years, interest rates have never dropped below 2.5% or increased to more than 15.5%.

Based upon the assumption that future rates will stay in this range, we will create a data sheet to show how potential changes in interest rates will affect monthly payments.

## 2 Create a single input data table to display all result cells for interest rates between 2.5% and 15.5% in half percent increments.

1. Type **Interest %** into cell D3.
2. Type **Monthly Payment** into cell E3.
3. Type **Total Payments** into cell F3.
4. Type **Total Interest** into cell G3.
5. AutoSize columns D, E, F and G so that all of the headers are readable.
6. Type **2.5%** into cell B7.

When you create a data table, you should always put the lowest input value into the source table. You'll see why in a moment.

### note

#### Single-input data tables can have the input cell along rows or columns

It is also possible to place the result cells along the left of the data table and the input cells along the top.

In this case, you would specify a *Row input cell* rather than a *Column input cell* in the *Data Table* dialog.

**Mortgage-1**

## trivia

### What is the TABLE function?

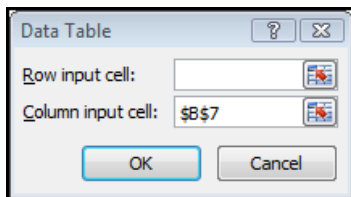
If you look at the function behind each cell in the data table, you'll see a strange syntax:

`{=TABLE(B7)}`

This often confuses, because you'll find no reference to a TABLE function in the Excel help.

You'll also find that you are unable to manually create a TABLE function.

The TABLE function is simply Excel's "behind the scenes" way of implementing data table functionality. The only way you can insert a TABLE function into a worksheet is by creating a data table.



## note

### Data tables are read only

You cannot change or delete a cell in a data table.

If you try to do this, Excel will produce an error message.

If you need to remove cell in a data table, you must delete the entire table.

- Put formulas in cells D4:G4 that refer to the relevant input and result cells. The correct formulas are shown below:

	D	E	F	G
3	Interest %	Monthly Payment	Total Payments	Total Interest
4	=B7	=B11	=B12	=B13

- Type `=D4+0.005` into cell D5.
- AutoFill cell D5 down to cell D30 (15.5%).
- Select cells D3:G3.
- Click: Home→Styles→Cell Styles→Heading 3.

Your worksheet should now look like this:

	D	E	F	G
3	Interest %	Monthly Payment	Total Payments	Total Interest
4	2.5%	1,009.39	302,816.30	77,816.30
5	3.0%			
6	3.5%			
7	4.0%			

You are now ready to create your data table.

- Select cells D4:G30.
- Click: Data→Data Tools→What-If Analysis→Data Table...

The *Data Table* dialog appears.

- Set the *Column input cell* to cell B7.

Because the interest rates are shown in column D, Excel must change the value in cell B7 to the value in column D in order to calculate values for columns E, F and G.

- Click the OK button.

The data table is populated to show all result cells for all interest rates.

- Select cells E4:G30.
- Click: Home→Styles→Cell Styles→Comma[0].

	D	E	F	G
3	Interest %	Monthly Payment	Total Payments	Total Interest
4	2.50%	1,009	302,816	77,816
5	3.00%	1,067	320,093	95,093
6	3.50%	1,126	337,921	112,921
7	4.00%	1,188	356,290	131,290

You are now able to change any of the *Input Cells* to explore the effect of different *Loan Amount*, *Interest Rate*, *Deposit* or *Term* values.

- Save your work as *Mortgage-2*.