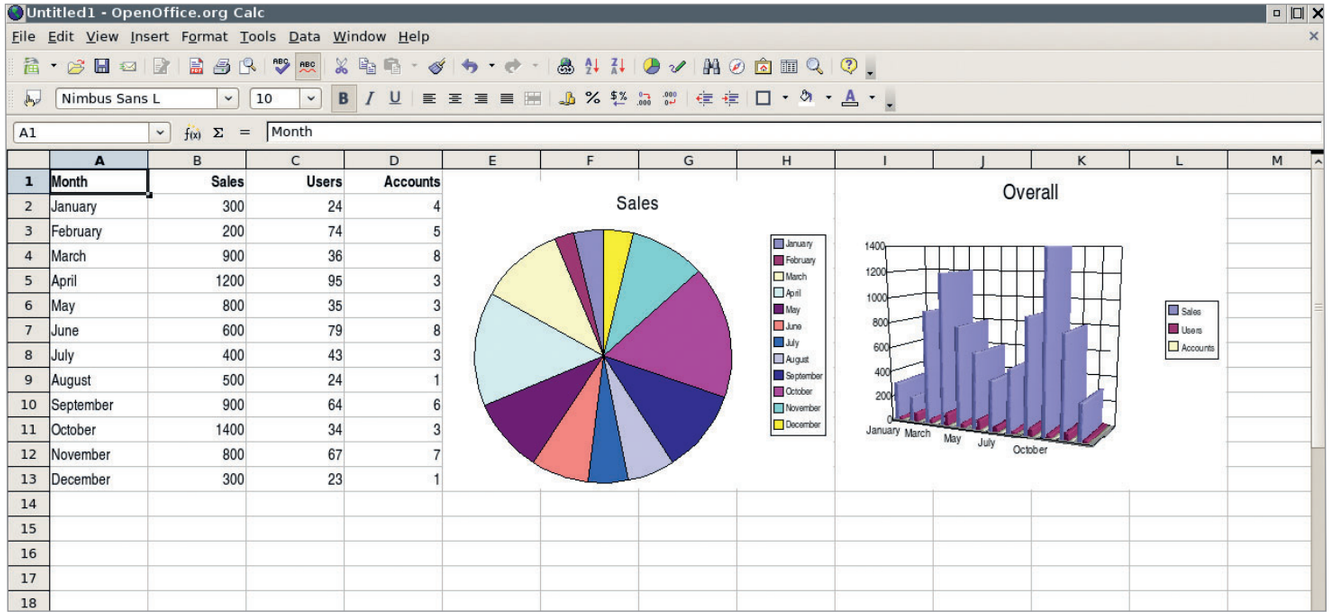
Getting started with OpenOffice.org Calc

Working with numbers has never been easier! OOo Calc has all the tools you need to make sense of all kinds of figures.



	A	B	C	D
1	Month	Sales	Users	Accounts
2	January	300	24	4
3	February	200	74	5
4	March	900	36	8
5	April	1200	95	3
6	May	800	35	3
7	June	600	79	8
8	July	400	43	3
9	August	500	24	1
10	September	900	64	6
11	October	1400	34	3
12	November	800	67	7
13	December	300	23	1

If you've ever used *Microsoft Excel* before, you'll have no problems getting to grips with *OpenOffice.org Calc*.

Numbers make the world go round. Quite literally actually, if you think in terms of the Keppler equations. But no matter who you are and what your interest in office software, it is almost a certainty that you will have some use for *Calc*. Whether it is for keeping track of club finances, exactly what types of beer you spent your student loan on, sales of your widgets or just the local football team's chances of promotion at the end of the season, numbers – and things to crunch them – are always useful.

OOo Calc should be pretty easy to use if you are familiar with any sort of spreadsheet, and you can probably skip the first part of this section, which covers dealing with cells and simple functions. Those of you who have not worked with a spreadsheet before shouldn't worry – although the world of *OOo Calc* can get very, very complicated if you have large amounts of data to deal with, it can also be very, very simple. A spreadsheet is a versatile tool that helps you do things with numbers and data, from the very simple to the very complex.

The spreadsheet is also like some sort of modern day forge, where the raw materials of information (say the results from an experiment or your monthly sales figures) are transformed into something more useful, like a pie chart or a short summary of profit and loss. The beauty of it is, you can change the machinery in this particular workshop without too much effort.

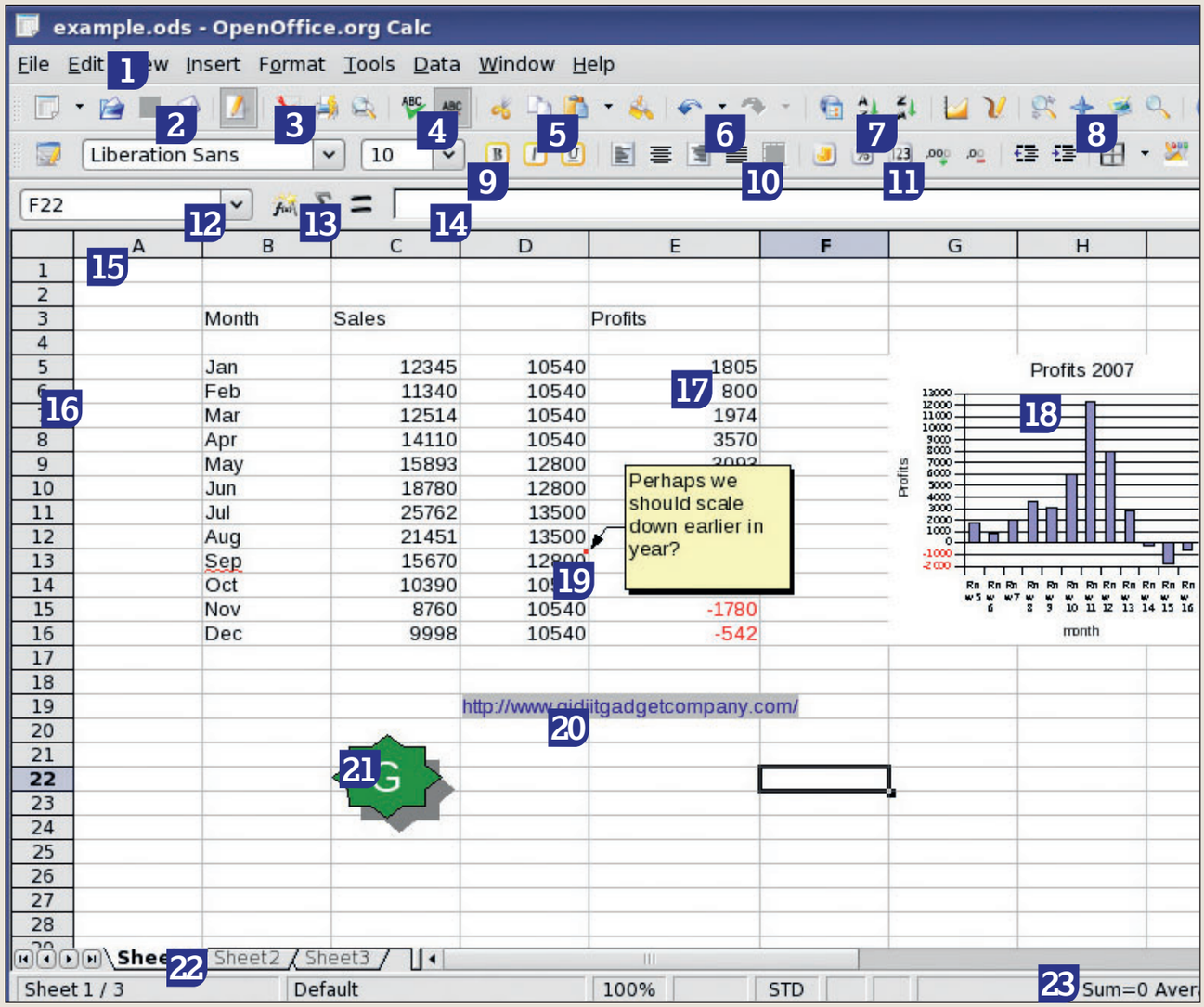
"As a rule, you can't expect Excel macros to run properly under OOo without some modifications."

Keyboard shortcuts

On the face of it, *OOo Calc* is functionally identical to *MS Office*. But that is not quite the full story. For example, *Excel* has many more defined functions than *OOo Calc*. This is not really a limitation, as pretty much all of the functions can be made by stringing together several of the existing ones, but it obviously does have an impact on compatibility if you try to import an *Office* spreadsheet that uses them. Fortunately, the functions in question are usually related to very niche uses of a spreadsheet, so the chances that they will cause a problem to you are slim.

The other problem is embedded macros. As a rule, you can't expect *Excel* macros to run properly under *OOo*, because they use *VisualBasic*, which obviously isn't a part of the *OOo* suite. You can make a lot of them run with some modifications though, and SUSE's reworking of *OpenOffice.org* has much better support for this.

OpenOffice.org Calc: guide to the interface



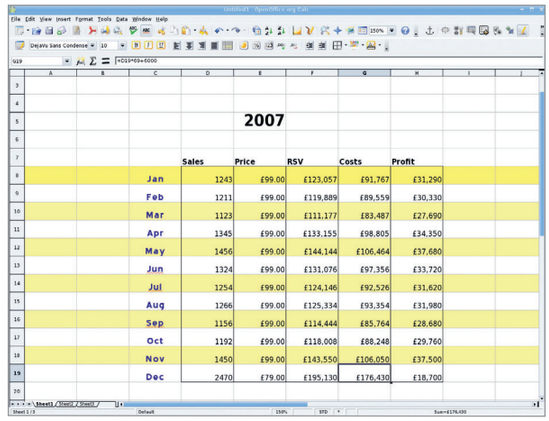
1 **Menus** typical function locations.
2 **File operations**: Load, Save and Save As.
3 **Export as PDF** see p94 for more details.
4 **Spellcheck** activates a spell-check or the Check As You Type feature.
5 **Cut, Copy and Paste** applied to cells or ranges of cells.
6 **Undo and Redo** buttons for when you make mistakes.
7 **Sort** text or numerical ranges in ascending or descending order.
8 **Navigation** common *OOo* tools , including Zoom and Help.
9 **Text Formatting** choose a font and style for selected text.
10 **Justification** numbers and text can be justified in common ways.
11 **Number formats** common formats for your numbers – currency, decimal...
12 **Range Selection** type in a range or use the menu for previous selections.
13 **Function wizard** guides you through creating a function.
14 **Cell contents** the cell on the main sheet shows values, but this area will show you the function entered in that cell, and you can edit it directly here.
15 **Columns** labels start at A and go on to IV
16 **Rows** are numbered. Drag the dividers to get larger row heights!
17 **Cells** on the grid show their value and may have different styles depending on their properties (*eg* could be formatted to turn red when negative).
18 **Charts** can be embedded or standalone, and can refresh to show current values.
19 **Notes** individual cells can have non-printing notes attached, indicated by a small dot in the top right corner of the cell. Hold the mouse over them to see the note.
20 **Hyperlink** all sorts of objects can be embedded into a spreadsheet. This is a working hyperlink, which will also work when exported to PDF.
21 **Embedded graphic** an imported OLE object, in this case a graphic that was created in *Ooo Draw*.
22 **Sheet tabs** by default there are three sheets to each document. Right-click to add more or rename existing sheets to something more meaningful.
23 **Status bar** includes a handy timesaver, the right hand area contains a current sum and average for the selected area of cells.

Calc: common spreadsheet elements

All about cells

A cell is the smallest element in a spreadsheet document, the smallest building block if you like. The purpose of a cell is to hold one specific piece of information, a single blob of data. Now, in the world of spreadsheets, that could be a simple, literal value, such as a number or a piece of text. These are the simplest pieces of data managed by a spreadsheet because they do not depend on anything else, anywhere else. They are unchangeable, except of course, if you want to edit them to say something different.

It is not quite true to say that numbers and text are the same things either. A number has a value, and if you enter a number, *Calc* knows deep inside that something can be done with this number – it can be added, multiplied or subjected to all sorts of other things. By default, it will also be formatted as a number – there will be no leading 0s for example. Usually, if you enter a number, it is because ultimately you may want to actually do something with it, and so this is a good behaviour for *Calc*. But sometimes numbers are just text. A membership number, for example, might be 000013. In this case, you would want to keep the number with the leading 0s. You probably wouldn't want to be able to add it or multiply it with another number, you wouldn't want it to be counted as part of a summing function, and indeed, you may want to manipulate it as text. To force a cell value to be text rather than a number, you simply start it with a single quote mark '. Alternatively, you can change the format of the cell beforehand to be text. If you have already entered numbers, you can't later convert them to text fields, so be careful.



2007

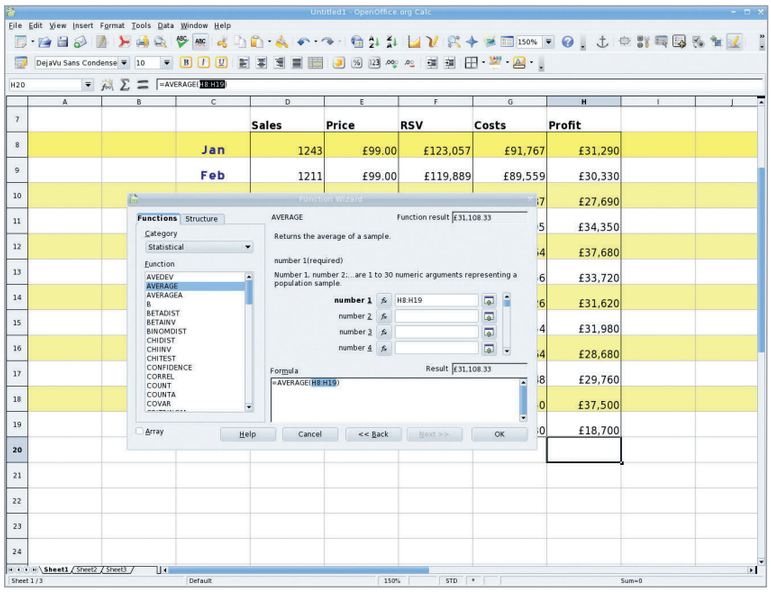
	Sales	Price	RSV	Costs	Profit
Jan	1243	£99.00	£123,057	£91,767	£31,290
Feb	1211	£99.00	£119,889	£89,559	£30,330
Mar	1123	£99.00	£111,177	£83,487	£27,690
Apr	1345	£99.00	£133,155	£98,805	£34,350
May	1456	£99.00	£144,144	£106,464	£37,680
Jun	1324	£99.00	£131,076	£97,356	£33,720
Jul	1254	£99.00	£124,146	£92,526	£31,620
Aug	1266	£99.00	£125,334	£93,354	£31,980
Sep	1156	£99.00	£114,444	£85,764	£28,680
Oct	1192	£99.00	£118,008	£88,248	£29,760
Nov	1450	£99.00	£143,550	£106,050	£37,500
Dec	2470	£79.00	£195,130	£176,430	£18,700

› You can use the text formatting controls to make the spreadsheet easier to read, or just to look nicer.

Functions

One step up from a literal value is a function (often also called a formula). There are hundreds of built-in functions, covering everything from generating random numbers to calculating the compound interest on a loan. A function may depend on a single value, several discrete values, a range of values or any combination of these – it is in effect a tiny program all on its own. When you enter a function into a cell, the cell displays the result of that function, not the function itself. To edit the function, when you select the cell, you need to edit the function definition in the text area just above the main window.

› Functions that reference other cells are the key to making the spreadsheet display complicated and useful calculations.



To begin with, let's consider a simple function first. Suppose we were to function:

```
=2*6
```

into a cell. The cell would display the value 12, but if we select the cell, we will see the text **2*6** in the edit area just above the spreadsheet itself. Note that a function always begins with '**=**', so that *Calc* knows there is something to calculate! This is a very simple function, because it is also a literal value – sure, *Calc* has to do some maths to work out the answer, but once it is done, the value will never change.

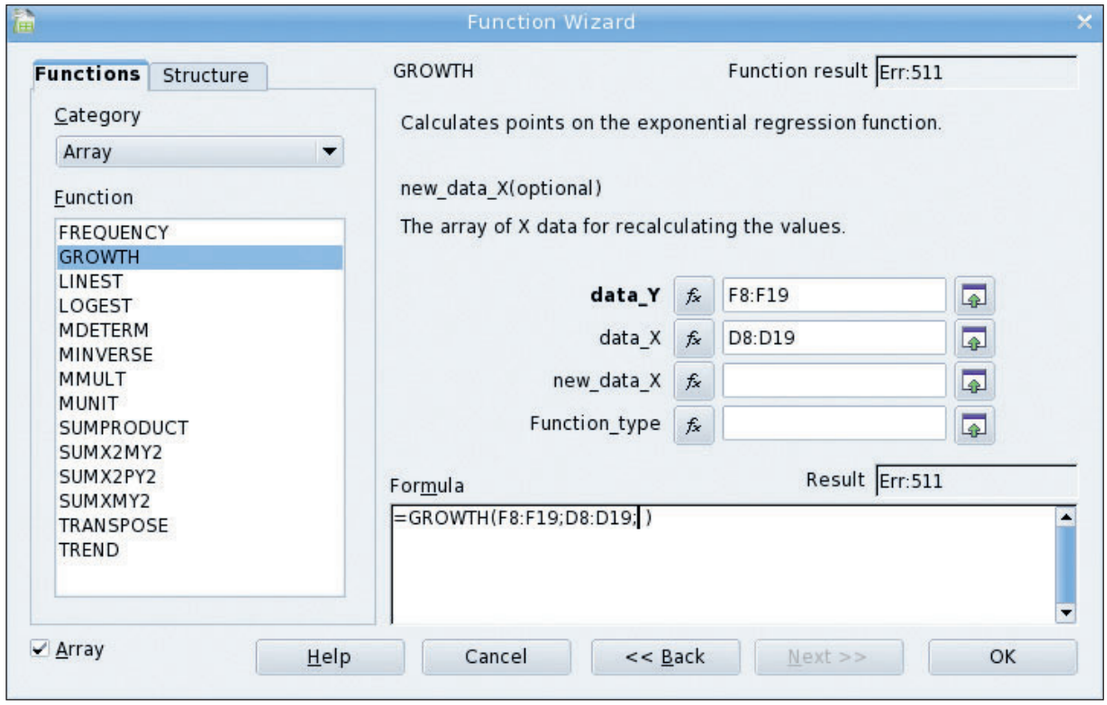
That's all very well, but a load of functions that just calculate static results isn't going to achieve much. Spreadsheets really come in handy when the results of one calculation are passed into another one. This is done by referring to a different cell, and the text you use to do that is called a reference. As you have probably noticed by now, the spreadsheet is arranged in rows and columns of cells, so each cell can easily be identified by its coordinates on that grid – by referring to the column and row that it is in, quite similar to grid references on a map. Columns are labelled with letters, and the rows with numbers, and it has become the standard to use the column reference first. So, the reference for the first cell in the spreadsheet is **A1**. Now, assume that we have the value **6** already entered into cell **A1**. We can now enter the following function in cell **A2**:

```
=A1 * 2
```

When the spreadsheet comes to evaluate this function, it sees the reference, and goes off to calculate whatever is in cell **A1**, then substitutes that result into the function, and in this case, would come up with the answer **12**.

The real power of this is that now if you change the value entered into **A1**, say to the number **5**, then without doing anything else, the value in **A2** will change to be **10**. The spreadsheet is like a very customiseable calculator, and with a combination of functions and references, you can build up a very complicated computing engine.

Circular references are something you need to beware of, because they can be rather tricky to track down. What is a circular reference? Well, say you assigned the value of **3** to cell **A1**. Now you assign **B1** to be **A1**. Then you assign **C1** to be **B1*2**. Now you go back to **A1** and assign it to be equal to **C1-1**. What happens? All the cells you entered will now show the text **#name**



› **Some functions need a range of values to work properly, so get used to working with them**

?, which is shorthand for "I don't know what's going on, but I can't resolve the contents of this cell". Whenever you enter data on the spreadsheet, and it references another cell, that cell is recalculated. In this case, when *Calc* tried to work out the value for **C1**, it eventually worked its way back to **A1**, whose value was indeterminate – the cells are trying to reference each other, so it is impossible to calculate a working value.

Usually this sort of error is just that. In the scheme of things, you are unlikely to intentionally create a circular reference, and when you do, it's usually because you are trying to do something you didn't really mean to do, or at least, didn't really mean to do in that particular spot, so fixing the error, moving the data somewhere else, shouldn't be so hard. In most spreadsheets, data flows from one part, through loads of functions, to the end, possibly a chart. It very rarely flows in two directions, just as you don't often see a river flowing backwards.

Using ranges

Some functions require a range of values to work, rather than a single cell. For example, the function **Average(...)** returns the average of a list of numbers. This can be a list of literal values **(1,2,3,4)** or cell references, or more usefully, a cell range. A Range is defined by the start and end cell references, separated by a colon. So, **A1:A7** is the range of values contained in the seven cells at the top of column A. A range doesn't have to be a single column or row, it could include a number of either. So, **A1:C3** is a range of nine cells: **A1,A2,A3,B1,B2,B3,C1,C2,C3**.

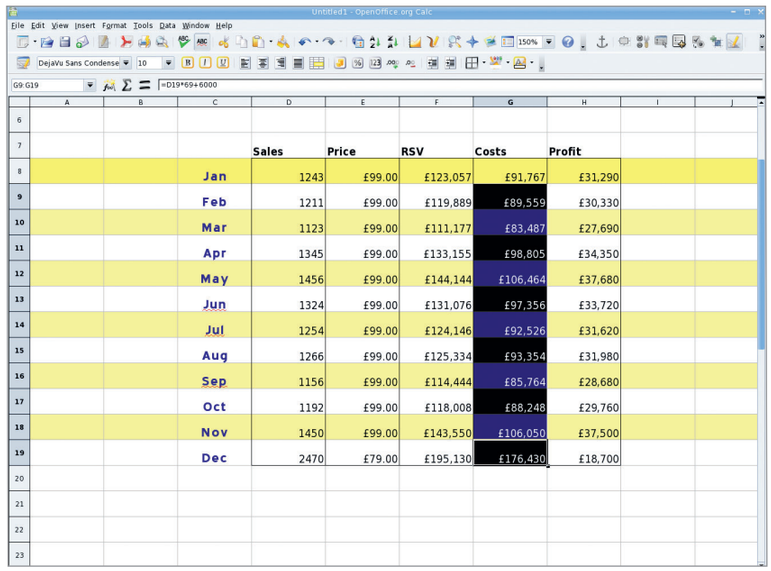
You should be careful with ranges though, as some functions require a range to be in a single column.

You may also sometimes see values in ranges with a dollar sign in front like this: **A1**. This signifies that the reference is an absolute reference and should always link to that cell. What's the point of that? Well, it becomes useful when copying and pasting functions or cell references. Say you have a column A with prices in, and you want to have another column with prices plus VAT. In **B1** you would enter the function **=A1*1.175**. That's all simple enough. But now, say your column in A contains 100 prices! It would take ages to manually enter the formulae for each element in column B. So, you can simply copy and paste them. select **B1** and then hit Ctrl-C to copy the contents. Now click and drag to select all of the range **B2** to **B100**. Now Press Ctrl-V to paste the function in. If you click on a cell in the B column, say, **B13**, you will see it contains the function **=A13*1.175**. By default, in pasting operations, *Calc* will use relative references. So if you copy something from **B1** and put it in **B4**, all the cell references are adjusted by the same amount.

Sometimes, you don't want this to happen, and in those cases you should insert the **$** symbol before the column or the row or both to lock it. When you paste such values, the exact reference is always maintained.

Now you know a little bit about how the spreadsheet actually works. Over the next few sections we will be looking at more advanced features of the spreadsheet, and how to perform simple and complex tasks. LXF

› **Cutting and pasting functions automatically updates relative cell references, unless you use the $ before the column or row or both.**



	Sales	Price	RSV	Costs	Profit
Jan	1243	£99.00	£123,057	£91,767	£31,290
Feb	1211	£99.00	£119,889	£89,559	£30,330
Mar	1123	£99.00	£111,177	£83,487	£27,690
Apr	1345	£99.00	£133,155	£98,805	£34,350
May	1456	£99.00	£144,144	£106,464	£37,680
Jun	1324	£99.00	£131,076	£97,356	£33,720
Jul	1254	£99.00	£124,146	£92,526	£31,620
Aug	1266	£99.00	£125,334	£93,354	£31,980
Sep	1156	£99.00	£114,444	£85,764	£28,680
Oct	1192	£99.00	£118,008	£88,248	£29,760
Nov	1450	£99.00	£143,550	£106,050	£37,500
Dec	2470	£79.00	£195,130	£176,430	£18,700