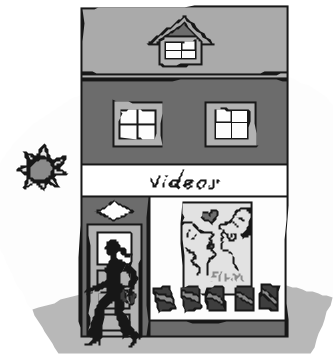


Creating a System for a Video Store

Worksheets

- Download the videos.xls spreadsheet file from icy-tea.com
Notice the different tabs at the bottom of the screen – these are the different worksheets inside the file. Change the names as follows:

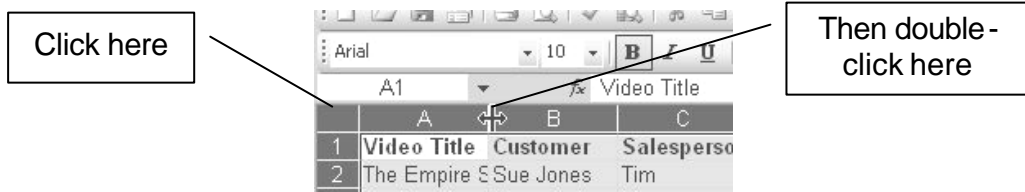
Sheet 1 ⇒ Income
Sheet 2 ⇒ Expenses
Sheet 3 ⇒ Analysis



- Now go to *Insert... Worksheet* and create a new sheet called Welcome.

On the Income Sheet

- On the Income sheet, resize the columns to fit the data. You can do this by clicking the top left grey square (between A and 1) and then moving the mouse between A and B and then double-clicking.



- Now highlight column D (click on the letter D) and go to *Format... Cells...* and change the date format to dd/mm/yy so the 1st date should appear as 20/09/04
- The next step is to calculate the amount paid for rentals. The value for rentals is on the Analysis sheet. Click inside cell F2 on the Income sheet and press 'equals' to enter a formula. Now click on E2, then the multiply sign (*) and now go to Analysis and click on cell B2. Your formula should look like:

=E2*Analysis!B2

Now format the result to be displayed as currency and use Autofill to copy the formula down.

To correct the mistake, go back to the formula in cell F2 and, in the formula bar, click on B2 and press the F4 key. Your formula should now look like:

=E2*Analysis!\$B\$2

Autofill it down again and it should behave properly. The dollar signs mean that B1 is an **absolute cell reference** and won't change as the formula moves into different rows.

6. In cell G2, write a formula that calculates the date the video is due to be returned. This is simply going to be the date borrowed plus the number of days rented.
7. In I1, put a heading **Fine**. We need a formula that will calculate the fine owed if the video is late. The daily fine for overdue films is on the Analysis sheet and we will use it in our formula.
We will use an IF function and it will look as follows:

$$=IF(\underbrace{H2>G2}_a, \underbrace{(H2-G2)*Analysis!B2}_b, \underbrace{0}_c)$$

This is read as follows:

- a. If the date returned (H2) is greater than the date due back (G2)...
 - b. The fine is the number of days overdue (H2-G2) multiplied by the fine (note the use of the dollar sign again)
 - c. Otherwise, the fine is zero.
8. Finally, we want to make fines stand out visually. Click in cell I1 again and go to *Format... Conditional Formatting*. Set it so that if the cell value is greater than zero, the font is bold and the background (pattern) is red. You can then Autofill down again or click on the Format Painter icon (a yellow paintbrush on the toolbar) and then drag over the other cells in the column.

On the Expenses Sheet

9. Complete the table at the top of the Expenses sheet that calculates the week's wage bill. The hourly wage for a salesperson is given on the Analysis sheet. Notice that the wage for a trainee manager is different – be careful when entering your formulae.
10. Calculate the total wage bill in cell D5.
11. Write the word Total in cell A11 and then enter a formula in B11 that will calculate the total bills for phone, electricity and rent.
12. Make sure all the appropriate cells are displayed in currency format – that does not include the hours worked as these are not in pounds.

On the Analysis Sheet

13. Make sure the financial information at the top of this sheet is in currency format. It is on this sheet to allow us to change some of the main **variables** (numbers we can alter) easily to see the effect on the profit of different situations.
Put your Name and Form at the top of the sheet.
14. In cell B8, we need to count the number of videos rented by Clare. Type =COUNTIF and open a bracket. Now click on the Income sheet and click on the letter 'C' at the top of column C. Next type a comma into your formula in the formula bar and click back onto the Analysis sheet. Now click on cell A8 and close the brackets in your formula. The formula you have entered should look as follows:

=COUNTIF(Income!C:C,Analysis!A8)

This means count how many cells in column C of the Income sheet contain the same data as cell A8 in Analysis.

Copy the formula down to the other two cells and check that the results are right by looking at your income sheet and counting for yourself. If not, go back and correct your mistake.

15. In cell C8, we are going to work out how much money each salesperson brought in from rentals. Click in cell C8 and type =SUMIF and open a bracket. Go to the Income sheet and select column A, then type a comma. Go back to Analysis and select C8, then type another comma. Finally, go back to Income and select column F and then close the bracket. Your formula should look as follows:

=SUMIF(Income!C:C,Analysis!A8,Income!F:F)

This will add up all of the rentals in the Income sheet if they match the name in cell A8. Copy this down to cells C9 & 10.

16. To work out how much commission each salesperson gets (an extra amount they get paid, based on how much they sell), enter a formula in cell D8 that calculates 15% of the value of the rentals by that person. Copy the formula into cells D9 & 10.
17. Now you need to enter some other calculations further down the Analysis sheet. Position them where you want but make sure you use suitable labels so that the reader knows what they are looking at.
You need to calculate:

Total Income:	The income from all rentals made plus fines
Total Expenses:	The money spent on bills, wages and commission
Profit:	The total income from the week minus the total expenses

18. Add some colour, shapes or clipart to your page to make it more visually appealing (but tastefully!)
19. Finally, check your Analysis page will print on one sheet. To do this, click on the Print Preview icon on the toolbar (the magnifying glass on a white rectangle) or go to *File... Print Preview*. If it doesn't fit, you can change column widths, font sizes, page margins or delete any empty rows or columns until it fits. You could also change the page layout to landscape (*File... Page Setup...*)

The Interface (More advanced work)

Now that you have a working system for entering data, performing some processing (calculations) and producing some output, it is time to make it a little more user-friendly.

20. Go to *Insert... Worksheet* and create a new sheet called Welcome. Drag it to the left of the other three sheets.
21. Highlight all cells by clicking on the top left grey box and change the background to a different colour (you can use the paint bucket icon or you can right-click on the grey box and use *Format Cells... Pattern...*)
22. Right-click on the top toolbar and call up the Control Toolbox. Find the icon for the Command Button and draw a button on your Welcome sheet. Right-click on the button and select *Properties* and change the Caption on the button to 'Income.' Then close the properties window.
23. The next step is to record a **macro** – an automatic procedure. Go to *Tools... Macro... Record New Macro* and name the macro 'IncomeSheet' and press OK.
Next, simply click on the Income worksheet.
Now look for a toolbar that appeared earlier that has a *Stop* symbol on it (a square, as in 'stop' on a video player). Click stop. You have now recorded a procedure that will move you to the Income sheet.
24. Go back to the Welcome sheet and double-click on the Income button. A new window will open that lets you program your button.
In between the Private Sub and End Sub lines, enter the word IncomeSheet. Your code should look like this:

```
Private Sub CommandButton1_Click()  
IncomeSheet  
End Sub
```

Now close this new window that opened so that you go back to the spreadsheet.
This means that when the button is pushed, the macro called IncomeSheet will be run.

25. To test your macro, go to the Control Toolbox and click on the blue set-square/triangle symbol to exit design mode. You can now push the button.
If any security errors pop up, go to *Tools... Macros... Security* and set macro security to medium.
26. Now make two more buttons that will open the other two sheets.
27. Finally we are going to give the user a simple method of entering data.
Create a new macro called IncomeSheet. You will be asked if you want to replace the original IncomeSheet macro and the answer is yes.
When it starts recording, go to the Income sheet and click on one of the data cells in the middle of the table. Now go to *Data... Form...* and then select Close on the menu that comes up.
Your new macro allows the user to open up a handy data input form to enter new rentals.

Congratulations – you have created a data entry system for a small business!