

Financial Applications

This chapter looks at some of the ways banks make use of spreadsheets. It will include a personal banking sheet, a home loan simulator and a calculation of compound interest.

Personal Banking

A spreadsheet can be used to allow a person to keep an accurate record of their financial dealings. It might be from a bank debit card, a cheque account, etc.

A Opening the Prepared Template

- 1 Load Microsoft Excel or close the current file.
- 2 Click on the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab or FILE menu. Access the CHAPTER 18 folder of the EXCEL 2016 SUPPORT FILES and load the file:

Personal Banking

Selecting YES to the READ-ONLY dialogue box.

B Completing the Formulas

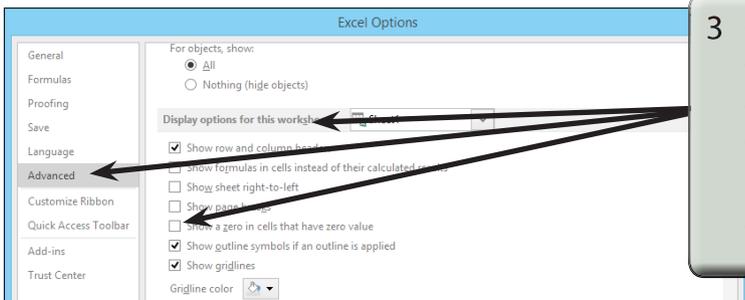
We need a formula that looks to see whether a deposit or withdrawal has been entered. If either has, then the deposit must be added to the balance or the withdrawal subtracted from the balance.

1 Enter the following formula in cell E8:
= IF(OR(C8<>"",D8<>""),E7 + C8 - D8,0)

DATE	ITEM	DEPOSIT	WITHDRAWAL	BALANCE
14-Sep	Initial Balance			\$1,000.00
				\$0.00

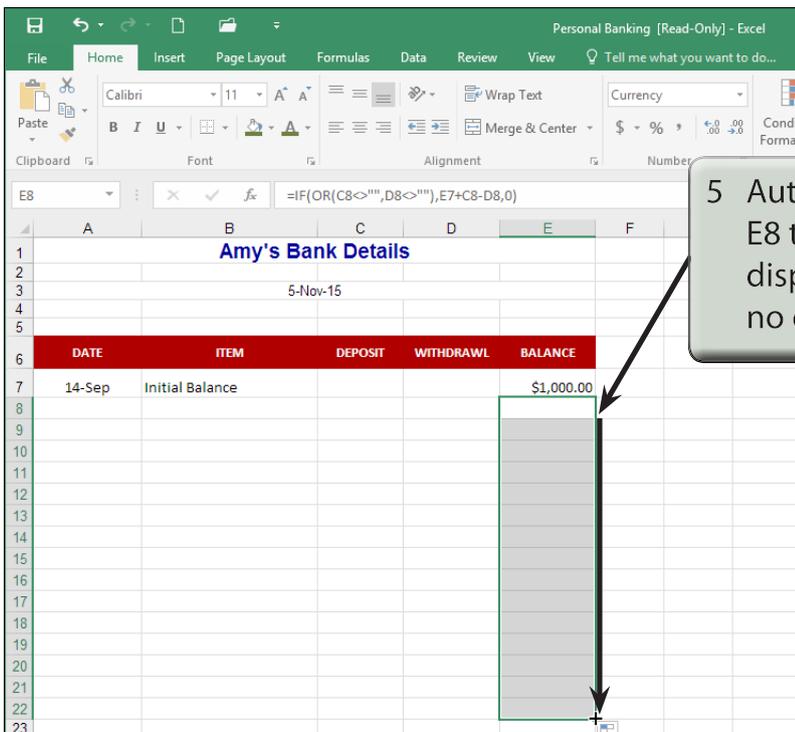
NOTE: This formula says: "If either a deposit is entered in this row, OR a withdrawal is entered in this row, then display the previous balance (one row up) plus the deposit in this row minus the withdrawal in this row, otherwise display zero."

- 2 Zero values need to be turned off. On the Windows system click on the FILE tab and select OPTIONS. On the Macintosh system display the EXCEL menu and select PREFERENCES.



3 On the Windows system open the ADVANCED option, scroll to the DISPLAY OPTIONS FOR THIS WORKSHEET section, turn off SHOW A ZERO IN CELLS THAT HAVE ZERO VALUE and select OK.

- 4 On the Macintosh system click on the VIEW icon, turn off ZERO VALUES and close the PREFERENCES window.



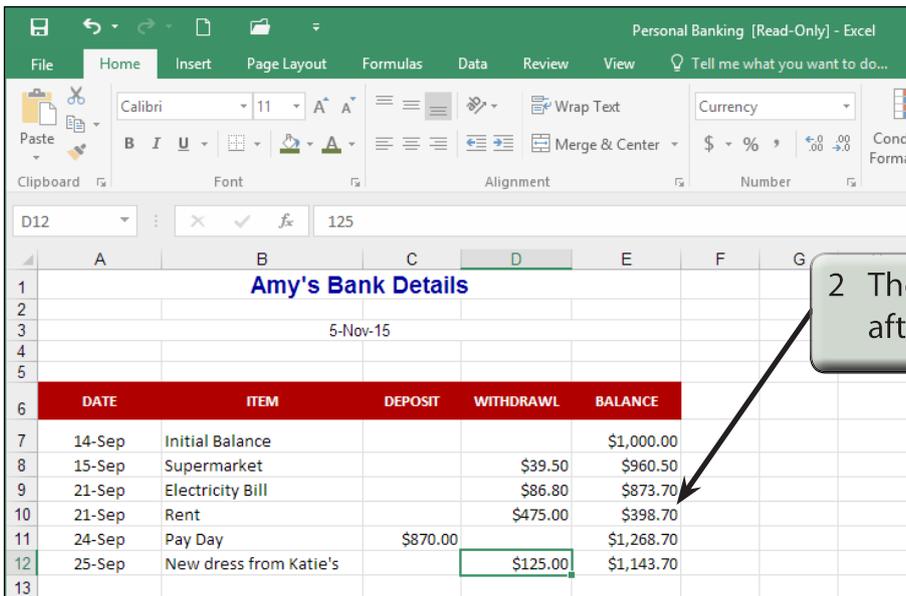
5 Autofill the formula down from cell E8 to cell E22. There will be nothing displayed at this stage as there are no deposits or withdrawals.

C Using the Personal Finances File

Now you are ready to use the account.

- 1 Enter the following labels and values into your worksheet (there is 1 deposit and 4 withdrawals):

Date	Item	Deposit	Withdrawal
15 Sep	Supermarket		\$39.50
21 Sep	Electricity Bill		\$86.80
21 Sep	Rent		\$475.00
24 Sep	Pay Day	\$870.00	
25 Sep	New dress from Katie's		\$125.00



2 The Balance should adjust after each entry.

- 3 Try adding some more withdrawals and deposits of your own.
- 4 Save your workbook and print a copy if your teacher requires you to.

The Home Loan Simulator

Many banks have home loan tables set up so that prospective borrowers can be shown what their repayments will be. We can use Microsoft Excel to set up a loan simulator of our own. Such tables are called LOAN AMORTIZATION tables. For simplicity we will just create a table for monthly repayments.

A Opening the Prepared Template

- 1 Close the current file and click on the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab or FILE menu.
- 2 Access the CHAPTER 18 folder of the EXCEL 2016 SUPPORT FILES and load the file:
 Home Loan
 Selecting YES to the READ-ONLY dialogue box.

B Entering the Initial Values

The values in the PRINCIPAL, INTEREST RATE and YEARS OF LOAN section control the spreadsheet. They are the only values that need to be entered and the table will be set up so that when different values are entered the table automatically adjusts.

The screenshot shows the following data in the spreadsheet:

HOME LOAN SIMULATOR				
PRINCIPAL	\$10,000.00	MONTHLY PAYMENT		
INTEREST RATE	7.00%	MONTHLY INTEREST		
YEAR OF LOAN	2	NUMBER OF PAYMENTS		
START	END	MONTHLY	PRINCIPAL	TO
MONTH	BALANCE	PAYMENT	REMAINING	PA

Callout 1: Move the cursor to cell C4 and enter: \$10000

Callout 2: In cell C5 enter: 7% and in cell C6 enter: 2

NOTE: For simplicity we will use a 2-year loan. Normally a home loan would be for a much higher Principal than this and be paid back over many more years.

C Naming the Cells

To make the calculations easier to understand it is helpful to name the cells that contain the three values you just entered.

1 Click in cell C4, then click in the NAME BOX, define the name of the cell by entering:
Principal
and press <enter> or <return>.

HOME LOAN SIMULATOR			
PRINCIPAL	\$10,000.00	MONTHLY PAYMENT	
INTEREST RATE	7.00%	MONTHLY INTEREST	
YEAR OF LOAN	2	NUMBER OF PAYMENTS	

- Repeat step 1 to name cell C5 as RATE and cell C6 as YEARS.

D Calculating the Monthly Interest

A calculation needs to be made to ensure that the repayments are such that the loan is paid off in the set number of years. Before the calculation is made we will calculate the MONTHLY INTEREST and the NUMBER OF REPAYMENTS.

Move the cursor to cell F5 and enter the formula:
= Rate/12

HOME LOAN SIMULATOR			
PRINCIPAL	\$10,000.00	MONTHLY PAYMENT	
INTEREST RATE	7.00%	MONTHLY INTEREST	0.58%
YEAR OF LOAN	2	NUMBER OF PAYMENTS	

NOTE: This will divide the yearly interest rate by 12 to obtain the monthly interest rate.