Financial Applications



This chapter looks at some of the ways banks make use of spreadsheets. It will include an 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.

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7	14-Sep	Initial Balance			,000.00	
8					\$0.00	
9					T I I I I I I I I I I I I I I I I I I I	

- 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.

	Excel Options	3 On the Windows system open		
General Formulas Proofing Save	For objects, show: <u>All</u> <u>O</u> Nothing (hige objects)	the ADVANCED option, scroll to the DISPLAY OPTIONS FOR THIS		
Save Language Advanced	✓ Show row and column based → show formulas in cells instead of their calculated round	WORKSHEET section, turn off SHOW		
Customize Ribbon	Show sheet right-to-left	A ZERO IN CELLS THAT HAVE ZERO		
Quick Access Toolbar Add-ins	 Show a zero in cells that have zero value ✓ Show guttine symbols if an outline is applied ✓ Show gridlines 	VALUE and select OK.		
Trust Center	Gridline color			

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

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3			5-Nov-15					
5							no deposits or withdrawals.	
6	DATE	ITEM	DEP	POSIT WITHDR/	WL BALANCE			
7	14-Sep	Initial Balance			\$1,000.	.00		
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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	ltem	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

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3		5-N	ov-15					after each entry.
4								
6	DATE	ITEM	DEPOSIT	WITHDRAWL	BALANCE			
7	14-Sep	Initial Balance			\$1,000.0			
8	15-Sep	Supermarket		\$39.50	\$960.5	D		
9	21-Sep	Electricity Bill		\$86.80	\$873.7	0		
10	21-Sep	Rent		\$475.00	\$398.7	D		
11	24-Sep	Pay Day	\$870.00		\$1,268.7	0		
12 13	25-Sep	New dress from Katie's		\$125.00	\$1,143.7	D		

- 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

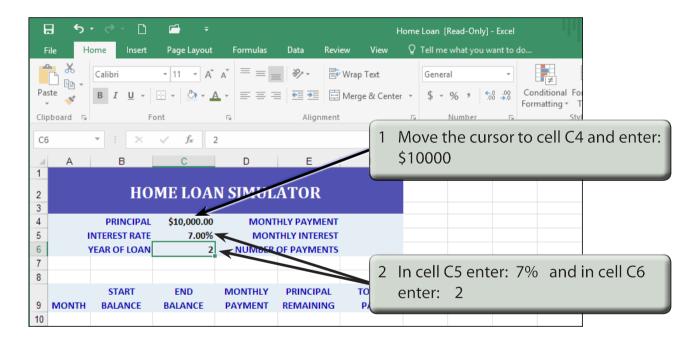
- 1 Close the current file and click on the OPEN icon in the QUICK ACCESS TOOLBAR or from within the FILE tab or FILE menu.
- 2 Access the CHAPTER 18 folder of the EXCEL 2016 SUPPORT FILES and load the file:

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.



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.

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	yout Formulas Data Review View A A = = = ≫ - ⊕ Wrap Text - A - = = = ⊕	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>.</return></enter>
3 4 PRINCIPAL \$10,000	DAN SIMULATOR MONTHLY PAYMENT MONTHLY INTEREST 2 NUMBER OF PAYMENTS	

2 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.

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F5	▼ : ×	√ f _× =F	D E		= Rate/12
1 2 3			SIMULATOR		
4	PRINCIPAL INTEREST RATE	\$10,000.00 7.00%	MONTHLY PAYN MONTHLY INTE		96
6 7	YEAR OF LOAN	2	NUMBER OF PAYM		

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