

# Student Workbook

**BSBITU402 Develop and use complex  
spreadsheets**

**Excel 2013**

June 2015 (TQB Pack 2)



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**BSBITU402A**

# Develop and use complex spreadsheets

**Excel 2013**



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**SUITABLE  
FOR  
BSBITU402**

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## **Develop and use complex spreadsheets** (Excel 2013)

This workbook supports BSBITU402A Develop and use complex spreadsheets in the BSB07 Business Services Training Package.

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Software Publications writing team

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*... continued*

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# BSBITU402A Develop and use complex spreadsheets

## Unit descriptor

This unit describes the performance outcomes, skills and knowledge required to use spreadsheet software to complete business tasks and to produce complex documents.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

## Application of unit

This unit applies to individuals employed in a range of work environments who require skills in the creation of complex spreadsheets to store and retrieve data. They may work as individuals providing administrative support within an enterprise, or may be independently responsible for designing and working with spreadsheets relevant to their own work roles.

## Employability skills

This unit contains employability skills.

## Prerequisites

There are no prerequisites for this unit.

Element	Performance Criteria	Page Reference
1	<b>Prepare to develop spreadsheet</b>	
1.1	Organise personal work environment in accordance with <b>ergonomic requirements</b>	Software Publications WHS ( <i>included in exercise file download</i> )
1.2	Analyse task and determine specifications for spreadsheets	xix–xxxii
1.3	Identify organisational and task requirements in relation to data entry, storage, output, reporting and presentation requirements	xix–xxvii
1.4	Apply <b>work organisation strategies</b> and <b>energy and resource conservation techniques</b> to plan work activities	Software Publications WHS ( <i>included in exercise file download</i> )
2	<b>Develop a linked spreadsheet solution</b>	
2.1	Utilise <b>spreadsheet design</b> software <b>functions</b> and <b>formulae</b> to meet identified requirements	Throughout workbook
2.2	Link spreadsheets in accordance with software procedures	94–101
2.3	Format cells and use data attributes assigned with relative and/or absolute cell references, in accordance with the task specifications	Throughout workbook
2.4	Test formulae to confirm output meets task requirements	34–42
3	<b>Automate and standardise spreadsheet operation</b>	
3.1	Evaluate tasks to identify those where automation would increase efficiency	155–166, 170–182
3.2	Create, use and edit <b>macros</b> to fulfil the requirements of the task and automate spreadsheet operation	153–166
3.3	Develop, edit and use <b>templates</b> to ensure consistency of design and layout for forms and reports, in accordance with organisational requirements	170–182

<b>Element</b>	<b>Performance Criteria</b>	<b>Page Reference</b>
<b>4</b>	<b>Use spreadsheets</b>	
4.1	Enter, check and amend data in accordance with organisational and task requirements	Throughout workbook
4.2	<b>Import and export</b> data between compatible spreadsheets and adjust host documents, in accordance with software and system procedures	183–188
4.3	Use manuals, user documentation and online help to overcome problems with spreadsheet design and production	xvi, xxvi, 45–47
4.4	Preview, adjust and <b>print</b> spreadsheet in accordance with organisational and task requirements	Throughout workbook
4.5	<b>Name and store spreadsheet</b> in accordance with organisational requirements and exit the application without data loss or damage	Throughout workbook
<b>5</b>	<b>Represent numerical data in graphic form</b>	
5.1	Determine style of <b>graph</b> to meet specified requirements and manipulate spreadsheet data if necessary to suit graph requirements	54–76
5.2	<b>Create graphs</b> with labels and titles from numerical data contained in a spreadsheet file	
5.3	Save, view and print graph within designated time lines	

## Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills

- literacy skills to interpret and evaluate the purposes and uses of various features of spreadsheets and to use a variety of strategies for planning and reviewing own work
- proofreading and editing skills to check for accuracy and consistency of information by consulting additional resources
- numeracy skills to collate and present data, graphs and related references.

### Required knowledge

- advanced functions of spreadsheet software applications
- impact of formatting and design on the presentation and readability of data
- key provisions of relevant legislation from all forms of government, standards and codes that may affect aspects of business operations, such as:
  - anti-discrimination legislation
  - ethical principles
  - codes of practice
  - privacy laws
  - occupational health and safety
  - organisational policies and procedures

## Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Variable	Scope	Page References
<b>Ergonomic requirements</b> may include:	avoiding radiation from computer screens chair height, seat and back adjustment document holder footrest keyboard and mouse position lighting noise minimisation posture screen position workstation height and layout	Software Publications WHS
<b>Work organisation strategies</b> may include:	exercise breaks mix of repetitive and other activities rest periods	
<b>Energy and resource conservation techniques</b> may include:	double-sided paper use recycling used and shredded paper re-using paper for rough drafts (observing confidentiality requirements) using power-save options for equipment	
<b>Spreadsheet design</b> may include:	analysis appropriateness avoidance of blank rows and columns embedding cell references in formulae formulae formatting and reformatting functions headers and footers headings headings and labels identification and parameters import and export of data labels linked formulae multi-page documents pivot tables relative and absolute cell references split screen operation	xix 178 Throughout workbook Throughout workbook 104–137 91 Throughout workbook Throughout workbook Throughout workbook Throughout workbook 183–188 Throughout workbook 94–101 Throughout workbook 142 Throughout workbook 27
<b>Functions</b> may include:	basic financial functions (if available) date functions	111–115, 128–135 120, 136

Variable	Scope	Page References
	logical functions (lookup, if, choose, true, false, conditions)	104–108, 119, 123–127, 135–136
	mathematical functions (square root, integer, absolute value, round)	123, 125–127, 136
	simple nested functions	27, 116
	statistical functions (standard deviation, count, maximum, minimum)	27, 118, 135
<b>Formulae</b> may include:	addition average comparison division exponentiation multiplication percentage subtraction combinations of above	Throughout workbook
<b>Macros</b> may include:	printing sections of a spreadsheet	165–166
<b>Templates</b> may include:	font types and sizes forms headers and footers headings page formats reports	170–182
<b>Importing and exporting data</b> may include:	proofreading reformatting split screen (if available)	183–188
<b>Printing</b> may include:	charts entire workbooks selected data within a worksheet worksheets	62 Throughout workbook 126 Throughout workbook
<b>Naming and storing spreadsheets</b> may include:	authorised access file naming conventions filing locations organisational policy for backing up files organisational policy for filing hard copies of spreadsheets security storage in folders and sub-folders storage on disk drives, CD-ROM, USB, tape back-up, server	xiii, 166–168 x vii xii xv xiii, 166–168 vi–ix vi–ix, xii
<b>Graphs</b> may include:	bar line pie scatter stack 3D	54–76

Variable	Scope	Page References
<b>Creating graphs</b> may include:	data range	
	keys and legends	
	labels and titles	
	naming	
	sizing (if possible)	
	using graph menu	
	X and Y axis	

## **Evidence Guide**

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	Evidence of the following is essential: <ul style="list-style-type: none"><li>• developing complex spreadsheets</li><li>• developing graphical representations of data contained in spreadsheets.</li></ul>
<b>Context of and specific resources for assessment</b>	Assessment must ensure: <ul style="list-style-type: none"><li>• access to office equipment and software</li><li>• access to samples of data for inclusion in spreadsheets.</li></ul>
<b>Method of assessment</b>	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: <ul style="list-style-type: none"><li>• direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate</li><li>• review of authenticated documents from the workplace or training environment</li><li>• demonstration of techniques.</li></ul>
<b>Guidance information for assessment</b>	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: <ul style="list-style-type: none"><li>• administration units</li><li>• other information and communications technology units.</li></ul>

## **Employability Skills Mapping**

### **Employability Skills for BSB40507: Certificate IV in Business Administration**

<b>Employability Skill</b>	<b>Industry/enterprise requirements for this qualification include</b>	<b>How this Employability Skill is covered</b>
Communication	<ul style="list-style-type: none"> <li>• communicating with colleagues and customers to gather information about their needs and to provide services</li> <li>• proofreading and editing</li> </ul>	<p>Page xvii describes communication as it relates to spreadsheets</p> <p>Proofreading and editing of documents is addressed throughout the book</p>
Teamwork	<ul style="list-style-type: none"> <li>• agreeing on the purpose and structure of documents, spreadsheets and databases with colleagues and clients</li> </ul>	<p>Page xvii describes the concept of quality and teamwork</p>
Problem solving	<ul style="list-style-type: none"> <li>• analysing document requirements and using online help, manuals and user documentation</li> </ul>	<p>Page xiii describes the use of manuals</p> <p>Pages 45-47 describe the use of help</p>
Initiative and enterprise	<ul style="list-style-type: none"> <li>• designing complex documents, databases and spreadsheets</li> <li>• evaluating tasks to improve efficiency</li> <li>• suggesting improvements to the structure and design of existing systems</li> </ul>	<p>Complex document design is described throughout the book</p> <p>Software Publications WHS contains notes on efficiency and systems improvement</p> <p><i>(included in exercise file download)</i></p>
Planning and organising	<ul style="list-style-type: none"> <li>• organising resources, equipment and time lines</li> <li>• organising work schedules and meetings</li> </ul>	<p>Page ix describes organising and prioritising</p>
Self-management	<ul style="list-style-type: none"> <li>• managing time and ensuring ergonomic requirements are met</li> <li>• planning and reviewing own work</li> </ul>	<p>Page ix describes managing time</p> <p>Software Publications WHS contains notes on ergonomic requirements</p> <p><i>(included in exercise file download)</i></p> <p>Pages xvii-xxx describe planning and design</p>
Technology	<ul style="list-style-type: none"> <li>• using business technology such as computers, word processing programs and printers</li> </ul>	<p>The whole book requires the learner to operate a PC running Windows 8.1 and the Microsoft Excel 2013 application</p>

## Files Used in this Workbook

You will require the following exercise files downloaded as per the instructions in this workbook. Check that all the following files have been downloaded.

- Active Sports.xlsx
- Albany Joinery for Charts.xlsx
- Baxter Sports.xlsx
- Best Deals for Charts.xlsx
- Bondi Office Equipment.xlsx
- Box Up Supermarkets.xlsx
- Budget Books.xlsx
- Busy Bee Company.xlsx
- Candy World.xlsx
- Charts – Cleantec.xlsx
- Classic Images Income.xlsx
- Cleantec.xlsx
- Commission Rates.txt
- Company List.xlsx
- Computer Software Pty Ltd.xlsx
- Cookery and Gardening Book Sales.xlsx
- Cool Shot Photography.xlsx
- Corp1
- Creative Caps.xlsx
- Cycle Stuff Sales – January.xlsx
- Day Tripper.xlsx
- Designer Images Products.txt
- Endeavour – Canberra.xlsx
- Fiji Landing Apartments.xlsx
- Fire Shop – Brisbane.xlsx
- Fire Shop – Melbourne.xlsx
- Fire Shop – Perth.xlsx
- Fire Shop – Sydney.xlsx
- Flower Shop.xlsx
- Flowers.xlsx
- Functions.xlsx
- Gym Membership.txt
- Hardware Haven Products.xlsx
- Hats Income Statement.xlsx
- Holiday Options.xlsx
- Jessies Clothing Stores.xlsx
- Lifestyle Books.xlsx
- Outdoor Life – October.xlsx
- Portus Enterprises.xlsx
- Recreational Magazines.xlsx
- Sales Ranking.xlsx
- Spartacus – Adelaide.xlsx
- Spartacus – Brisbane.xlsx
- Spartacus – Melbourne.xlsx
- Spartacus – Sydney.xlsx
- Speciality Foods Supplies.xlsx

- Spencer Jones Furniture.xlsx
- Staff Listing.xlsx
- Stock.xlsx
- Supermarket.xlsx
- Supreme Supermarkets.xlsx
- Te Kea Trading.xlsx
- The Paint Shop
- Townsville, Jan-Mar.xlsx
- VitaHealth Products.xlsx
- Walker and Grant Commission.xlsx
- Westlake.xlsx
- Williams – Brisbane.xlsx
- Williams – Cairns.xlsx
- Williams – Canberra.xlsx
- Williams – Sydney.xlsx
- 

### **Software Publications WHS**

A document titled **Software Publications WHS** has been included in the downloaded files. The learner should read this document before continuing with this workbook.

# How to Download Exercise Files

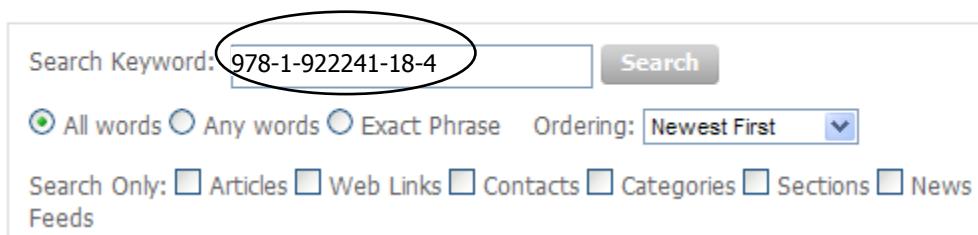
- 1 Connect an empty USB memory stick to the computer.
- 2 File Explorer may open. If a window displays click on the Close button  in the top right corner.
- 3 Open Internet Explorer.
- 4 Type: **www.softwarepublications.com.au** and press Enter.
- 5 Click on the Exercise Files link shown below.



This will display the Search page.

- 6 Type the ISBN number **including all dashes** from the cover of this book into the Search Keyword box.

## Search

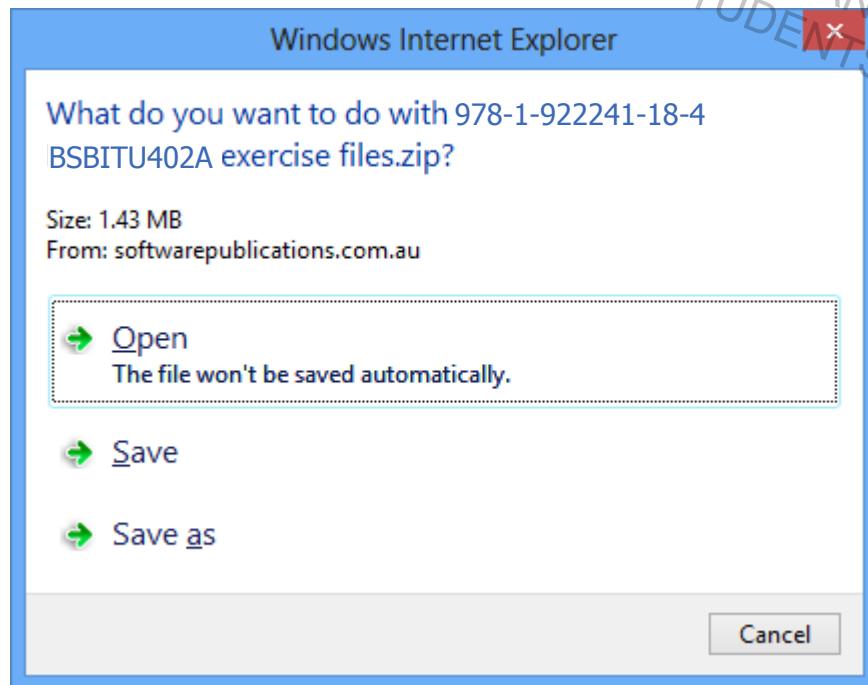


- 7 Click on **Search**. Search results will display beneath the Search box.

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: Products/Certificate IV
2. **[BSBITU402A Develop and use complex spreadsheets \(Excel 2013\)](#)**  
: Products/Business Services Training Package (BSB07)
3. **[BSBITU402A Develop and use complex spreadsheets \(Excel 2013\)](#)**  
: Products/Certificate IV in Business (BSB40207)
4. **[BSBITU402A Develop and use complex spreadsheets \(Excel 2013\)](#)**  
: Products/Certificate IV in Business Administration (BSB40507)
5. **[BSBITU402A Develop and use complex spreadsheets \(Excel 2013\)](#)**  
: Products/Certificate IV in Business Sales (BSB40607)
6. **[BSBITU402A Develop and use complex spreadsheets \(Excel 2013\)](#)**  
: Products/Certificate IV in Human Resources (BSB41007)

- 8 Click on the first coloured link in the list. Details about the book will display.

- 9 Check that the title of the book matches the book in front of you.
- 10 You may have to scroll down to locate Exercise Files: [Click here to download](#).
- 11 Click on the coloured link. You will see a box appear on the bottom of your screen like this:



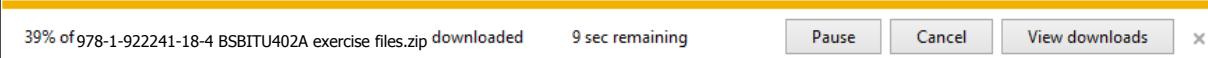
- 12 Click on [Save as](#).

The Save As dialog box will display.

- 13 Select Downloads from the Navigation Pane at the left of the dialog box.

- 14 Click on [Save](#).

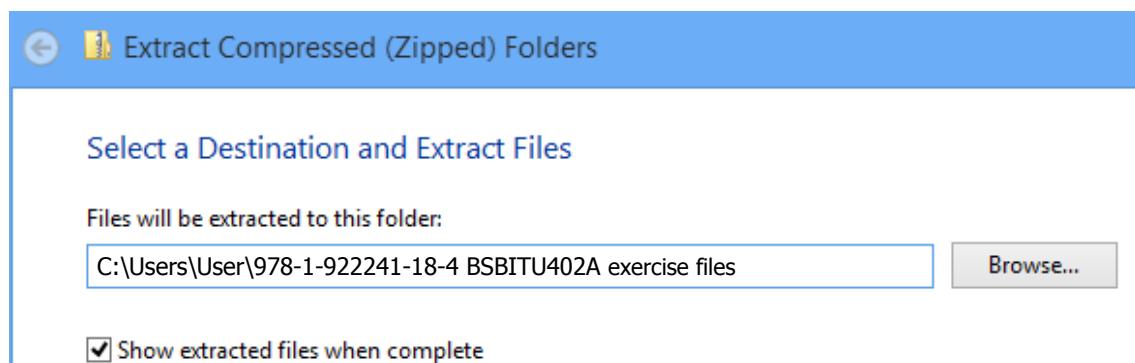
You will see a message display like this at the bottom of the browser window.



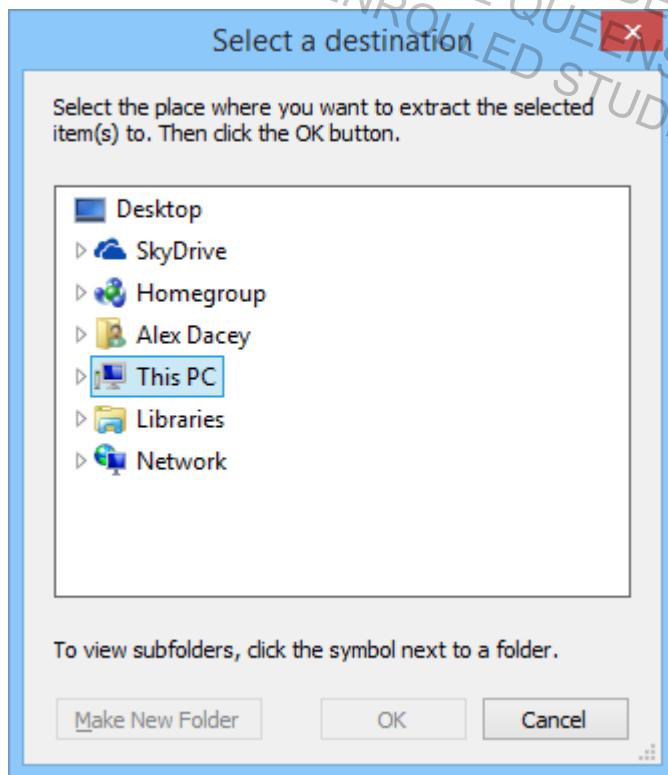
- 15 Click on [Open folder](#).

- 16 Select the downloaded file 978-1-922241-18-4 BSBITU402A exercise

- 17 Right click on the selected file and select Extract All. The Extract Compressed (Zipped) Folders dialog box will display.



- 18 Click on **Browse...**. The Select a destination dialog box will display.



19 Click on **> This PC**. Drives and memory sticks attached to the computer will display.

20 Select a destination for your files to be saved at (e.g. a USB drive).

21 Write the location here so you can find it later.

.....

22 Click OK at the bottom of the dialog box.

23 Click on **Extract**. The files will extract.

24 File Explorer will display a folder 978-1-922241-18-4 BSBITU402A exercise f...

25 Double click on the folder to display the downloaded files.

26 Check that you have all the files as listed in **Files used in this workbook**.

27 If the file names do not match or some files are missing, ask your trainer for help.

USED UNDER LICENCE  
FOR TAFE QUEENSLAND BRISBANE  
ENROLLED STUDENTS ONLY

# Office Procedures

# Windows 8.1 Basics

## Turning a Computer on and off

A computer is powered up by pressing the power button. On a desktop PC, the power button is usually located somewhere on the front or top of the system unit. On a laptop it may be on the front, on the side or under the lid.

With a desktop computer you may also have to turn on the monitor. This will also have a power button, generally located under the viewing area of the screen.



## Lock Screen

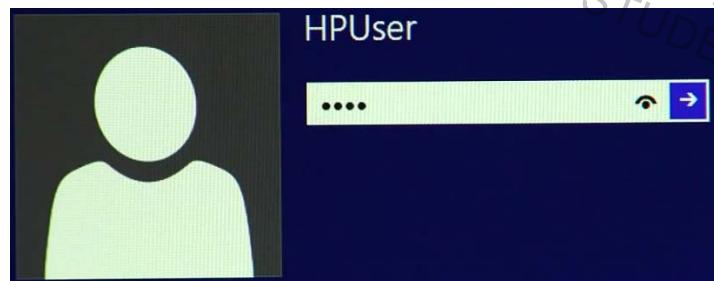
When you first turn on your Windows 8.1 machine, the Lock screen displays. The Lock screen shows the date and time and may also display Windows notifications and calendar entries.



Press any key or click the mouse to dismiss the lock screen.

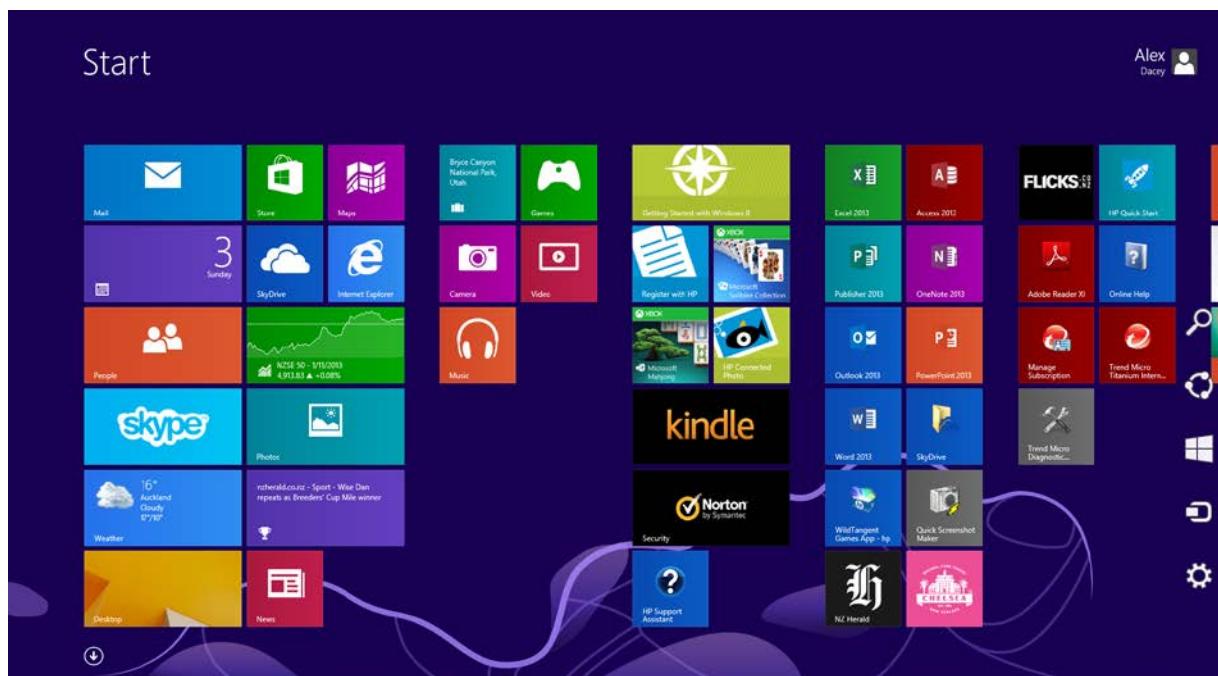
## Sign in Screen

After dismissing the Lock screen the Sign in screen will display. Select your name/picture, enter your password and press Enter.



# The Start Screen

After signing in the Windows 8.1 Start screen will display. The coloured objects on the Start screen are called **tiles**. The number and type of tiles on the Start screen will depend on the computer manufacturer and the way the computer was set up.



## **Signing Out**

Signing out means your user account is closed but the computer stays on. It can then be used by another person. To sign out:

- 1 Save all your work.
  - 2 If the Start screen is not displayed, click on the Windows key  on the bottom row of the keyboard to display it.
  - 3 Click on your Sign in name at the top right corner of the screen.



- 4 From the menu displayed, select Sign out. The Sign in screen will display.

## Switching Users

If there are multiple accounts on one PC, it is possible to switch to another user's sign in without the first user signing out. This means you can leave your document and program open, allow another user to use the PC, and come back to your sign in later. To switch users:

- 1 If the Start screen is not displayed, click on  to display it.
- 2 Click on your Sign in name at the top right corner of the screen. The sign in names will be listed at the bottom of the menu.



- 3 Select the sign in name required. Note that it takes a few seconds to switch users and the screen may go blank.
- 4 The Sign in screen will display. Enter your password and press Enter.

## Charms

Charms are used to access commonly used tools. The Charms are hidden until they are required. When summoned, the Charms menu display at the right of the screen.

To display the Charms:

- Move the computer mouse to the top right corner of the screen OR
- Press  C.

	Search displays a Search bar used to search for programs, settings or files.
	Share allows you to share objects such as photos, videos and web links with other people.
	Select Start to return to the Start screen. If the Start screen is already displayed, selecting this Charm will display the previously viewed screen. This is the same as pressing the  key.
	Use Devices to interact with equipment connected to your computer such as printers, external monitors and media device players.
	Settings are used to personalise the computer, e.g. change the monitor brightness or the volume level. Settings are also used to restart and shut down the computer.

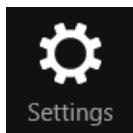
Note that some of the Charms are context sensitive – the options change depending on which program you are viewing when the Charm is summoned.

## **Restart**

You may have to restart your computer if it stops working correctly or it has frozen. You may also have to restart your computer after installing new software.

To restart the computer:

- 1 Display the Charms (■ C).



- 2 Click on the Settings charm



- 3 Click on

- 4 From the menu that displays, click on Restart.

### ***Alternative Restart Methods***

If the mouse has stopped responding, press the key combination Ctrl Alt Del twice.

As a last resort you can press the reset button on the system unit. The reset button is a small button which should be near the power button. Some computers do not have a reset button, in which case you will have to press and hold down the power button until the computer restarts.

## **Shut Down**

When you have finished using a computer, you can turn it off. This is a **shut down**.

- 1 Save your work and then close all programs and files.
- 2 Display the Charms.
- 3 Click on the Settings charm.
- 4 Click on Power.
- 5 From the menu that displays, click on Shut down.
- 6 If you have any unsaved data, you will be prompted to save or discard the data.

## **Searching from the Start Screen**

When the Start screen is displayed, you can simply type the name of the program, setting or file you are looking for. This will automatically open the Search pane and search for the word you are typing. The following describes the steps taken to open the Microsoft Word program.

- 1 Display the Start screen.
- 2 Type: **Word**. The Search pane will display at the left of the screen.



- 3 Click on in the Search pane to open the Word program.

# File Management

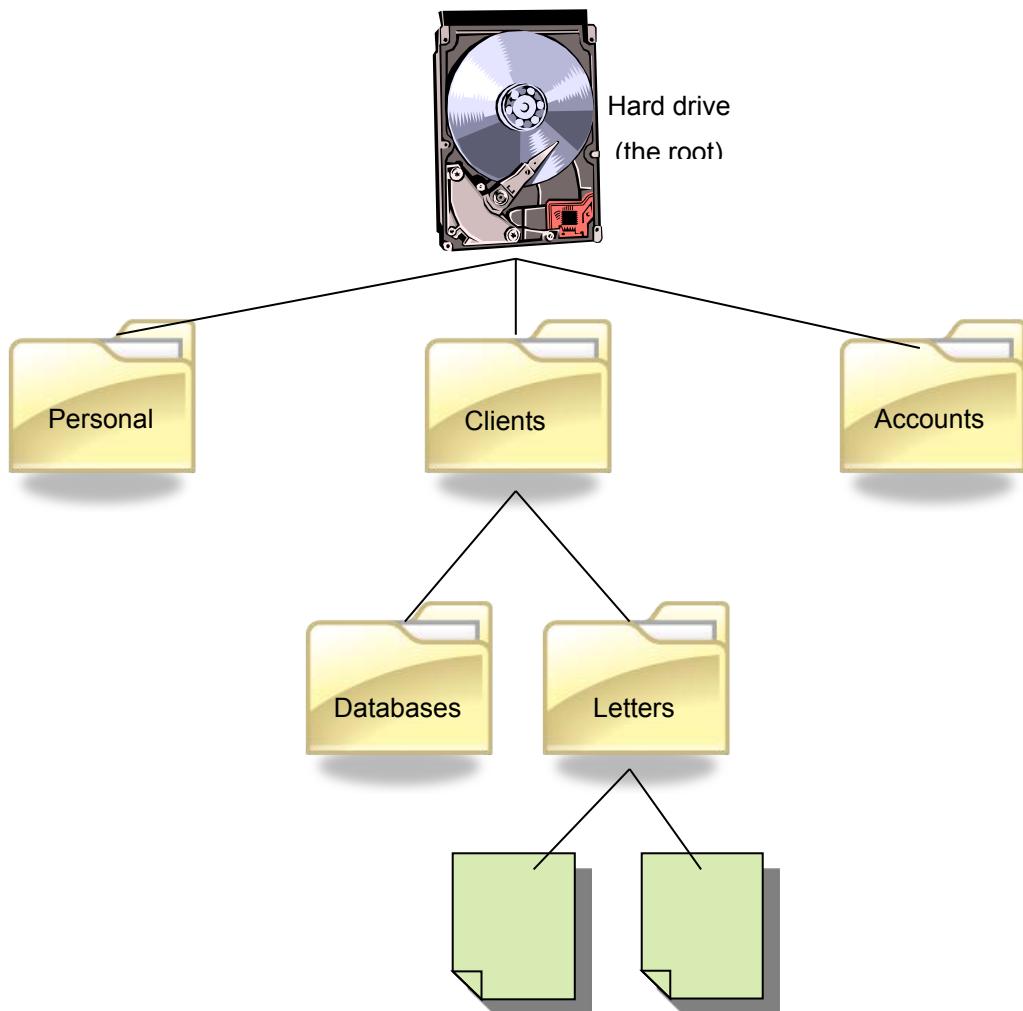
File management refers to the organising of files stored on your computer. Files should be organised in a logical manner to ensure they can be located quickly and easily.

## Folders, Files and Storage

The drives, folders and files on your computer form a hierarchical structure. At the top layer are the drives including the hard drive, removable drives and any network drives you have access to. It may help to think about your computer as a filing cabinet, with each drawer in the cabinet corresponding to a physical drive.

Each computer drive contains folders. Computer folders are virtual storage locations. They can contain other folders (called subfolders) and files. Files are the actual documents you work on such as a word processed document.

This folder structure is sometimes referred to as a directory tree.



### What is the Root?

The root is the top level of a directory tree. For example, if you save a file directly onto the hard disk (rather than in a folder) that file is stored in the root. Similarly you can save a file to the root of a USB memory stick, rather than in a folder.

# File Explorer

File Explorer is a file management program included in Windows 8.1, designed to help you manage your files, folders and drives.

## Starting File Explorer



- 1 The File Explorer button is usually pinned to the Taskbar. Click on this once to launch the program.

If this icon is not displayed on your Taskbar:

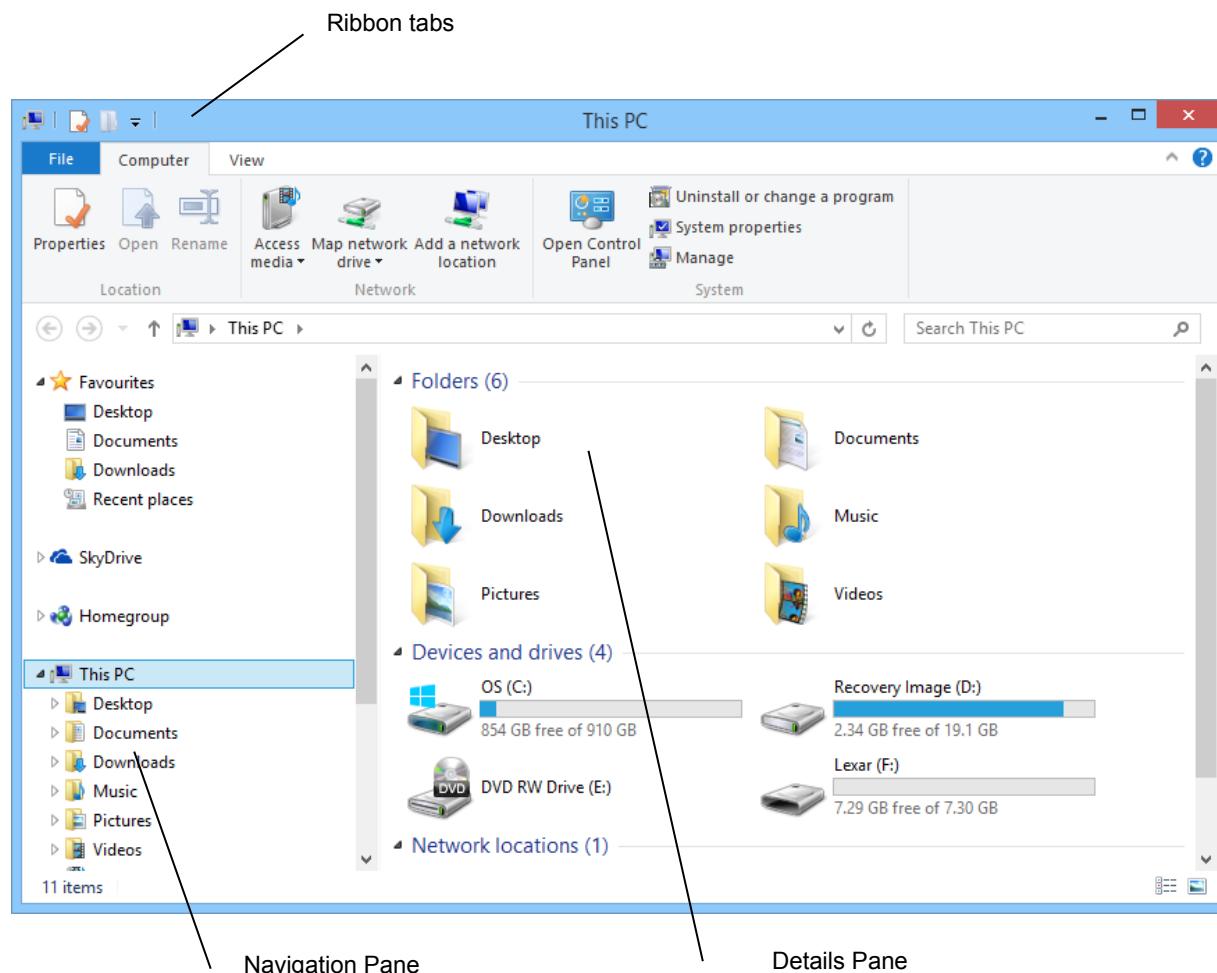
- 2 Display the Start screen.
- 3 Type: **File Explorer**.



- 4 Click on .

## The File Explorer Screen

Folders and drives are displayed on the left (in the Navigation Pane) and folders and files on the right (in the Details Pane).



## **File Explorer Ribbon**

The File Explorer window has a Ribbon at the top.



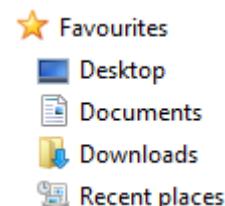
By default, the main part of the Ribbon is hidden; it drops down when you click on a tab. For example, clicking on the Home tab displays the Home Ribbon.

## **Navigation Pane**

The Navigation Pane provides access to all the drives, folders and network places that make up your computer system. Click on a drive or folder in the Navigation Pane to display the content in the Details Pane.

### **Favourites**

Favourite drives are listed at the top of the Navigation Pane. These provide quick links to useful locations. An example is shown below; your Favourites might be different.



### **SkyDrive**

The SkyDrive  is a virtual storage device, available if you have a Microsoft account.

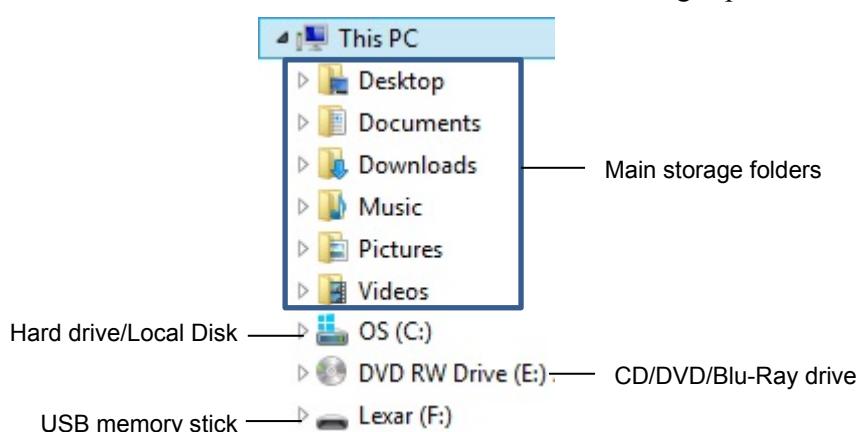
### **Homegroup**

If your computer is part of a Homegroup (a small network) the users will be listed under Homegroup in the Navigation Pane.



### **This PC**

This PC lists the main folders and drives that form the basis of the storage space on the computer.



### **Note**

The letters and names applied to each drive may vary.

The CD/DVD/Blu-ray drive may not display in the Navigation Pane until a disc is inserted.

## **Network Locations**

If you have access to a network drive, it will be listed under  Network in the Navigation Pane.

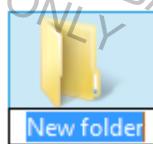
## Creating New Folders

- 1 Select the location for the new folder in the Navigation Pane.
- 2 Click on the Home Ribbon tab.



- 3 Click on the New folder button .

A new folder is displayed in the list of files. The New Folder box is ready for you to type in the name of the new folder.



- 4 Type a new name for the folder and press Enter.

## Renaming Files or Folders

Renaming a file or folder only changes the name; it does not alter the contents of either.

- 1 Select the file to be renamed in the Details Pane.
- 2 Display the Home Ribbon.

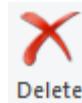


- F2
- 3 Click on the Rename button .
  - 4 Type the new name and press Enter.

## Recycle Confirmation

You can set your computer to give you a warning when you delete a file or folder. This helps to ensure you do not delete material accidentally. Note that your systems administrator may have already turned this option on.

- 1 Using File Explorer, display the Home Ribbon.



- 2 Click on the arrow at the bottom of the Delete button .
- 3 Check there is a tick beside *Show recycle confirmation*  *Show recycle confirmation*. If there is a tick, click on again to hide the menu. If there is not a tick, select *Show recycle confirmation* to select this option.

## Deleting a File

- 1 Select the file to be deleted.
- 2 Press the Delete key. Click on Yes to send the file to the Recycle Bin.  
Note that if you delete a file from a portable or network drive, it will not go to the Recycle Bin and therefore cannot be retrieved – it will be gone forever.

## Closing File Explorer

Click on the Close button to close File Explorer.

# Using Meaningful File Names

You will find it useful to implement a system for naming files so you can locate them easily again later. Your company may already have a naming convention set up that you should use.

File names are listed alphabetically according to the first word that is typed in. It is therefore important that the first word is meaningful. An example is shown below.

## **A letter to Tim Smythe about Word training**

could be saved as:

**Smythe, Tim - letter re Word training**

or document type first:

**Letter - Smythe, Tim re Word training**

Other naming conventions include:

- Name, Document Type, Description and Version Number**

Type the surname, or company name, of the recipient followed by the document type, e.g. letter, fax, memo, spreadsheet, version number (if required), then description.

Example: The second letter typed to Deltron Electrical Pty Ltd would be saved as  
**Deltron, letter 2 - electrical repairs**

- Document Type, Name, Version Number, Description**

Type the document type, e.g. letter, fax, memo, surname or company name of recipient, version number (if desired), then description.

Example: The third fax sent to Enerco Gas Pty Ltd would be saved as  
**Fax - Enerco 3, gas installation**

The second letter sent to Micro Services Pty Ltd would be saved as  
**Letter - Micro Services 2 - Overdue account**

- Date, Name, Description**

If the date is used at the beginning of the file name, all files will be listed in date order and, within date order, by name. Document type and version can also be included if desired.

Example: **31-3-13, Balance Sheet** indicates that the spreadsheet was a Balance Sheet created on 31 March 2013.

**12-4-13, Seiko Presentation** indicates that the presentation was for Seiko on 12 April 2013.

- File names with Numbers**

Some organisations (including legal and insurance firms) use a numbering system whereby each file created assumes the next recorded number or a number is given from a deleted file.

Example: A policy could be saved as  
**00100 - Brown, J - Property Insurance**

A database report could be saved as  
**109866 - Stock Report**

# Timelines

Whether at work or at a training organisation, most projects you participate in will have a **timeline** attached to it. A timeline is a schedule of activities that need to happen in order for the project to be completed. These activities are referred to as **milestones** and each milestone may have a date attached. The **deadline** is the date or time at which the project must be finally completed and submitted.

The following is a simple timeline for the creation of a small database. The Done column can be used to tick off activities as they are completed.

Actions	Due Date	Done
Discussions with team members about database requirements	1 July	✓
Planning completed and planning documents created	7 July	✓
Database created	8 August	✓
Testing completed	16 August	✓
Changes made	22 August	
Retesting completed	26 August	
Database signed off by all stakeholders	31 August	

A very simple task, e.g. writing a letter to a client, will probably only have a deadline, rather than a detailed timeline. For example you might be required to have the letter word processed and printed by close of business.

The timeline or deadline may be given to you by:

- your supervisor
- a company manager
- a client
- a team member who is working on the same project.

When you have milestones and deadlines to meet, it is important that you keep these dates in mind and organise your work tasks so that the deadline is met. Enter all key dates into a calendar and that sufficient time is allocated for each activity.

In some cases deadlines will need to be negotiated with your supervisor. You will both need to agree the timeframe allocated to the task will be sufficient to complete it to the required standard.

If you realise that a milestone or deadline will not be met, it is important to let your workplace supervisor or the person expecting delivery know as soon as possible. Other staff members or clients of the company may require the finished product on a certain date. Your supervisor may be able to allocate more resources to you to help meet the milestone/deadline.

# Backup Procedures

A backup is a security procedure to protect data on a computer or computer network. It involves copying files and folders onto a disc or drive that can be stored away from the computer. If the computer is lost or damaged, the information contained in the backup can be loaded onto a new computer.

The contents of your computer(s) should be backed up regularly as valuable data and software can be lost, e.g.:

- a hard disk can fail
- computer could be stolen
- a natural disaster can destroy your computer.

Although you can back up your files onto your hard drive, it is better to back up to a removable storage media and then store it in a remote location. If your computer is stolen or is destroyed in a disaster, you will not lose the backed up data as well.

A wide range of storage media can be used to back up files including special backup tapes, CD/DVDs and removable hard drives such as USB memory sticks.

## Backup versus Copy

The difference between copying files and creating a backup is that when the files are copied, the actual file is transferred to a disk. Files that have been copied can be used by accessing the disk. Copying is a slow process and takes up a large amount of disk space.

Files that are backed up are compressed, meaning they are squeezed into one file and they cannot be used from the disk; they must be restored to your hard drive before use.

## Backup Software

Backup software backs up data quickly and easily. You can use it to do a one-off backup or to schedule backups on a regular basis. Tell it what data to back up, where to store it and when to perform the backup and the program will do the rest.

Windows 8.1 includes a backup program called **File History**. When this is turned on, File History will automatically backup the main storage folders and drives at regular intervals.

## Organisational Policies for Backing up Files

All organisations which use computers should have policies and procedures for ensuring important material is backed up regularly. The schedule for backups will depend on the type of organisation. If important documents are created on a daily basis then a backup should be done every night. Other organisations may backup their data less frequently, e.g. weekly. Others might backup their data several times a day.

Usually key personnel are made responsible for ensuring backups are made as required. They will need to ensure the backup device, e.g. tape or drive, is connected to the machine running the backup program. They may have to take completed backups home to ensure an offsite copy is kept safe.

In your organisation you may be responsible for backing up the material stored on your local computer.

# Protecting Data

Most companies have computerised data which they need to keep secure. This could include:

- personal information about staff including pay information
- contact information for clients
- financial records relating to the business
- files, plans, diagrams or price lists which could give an advantage to competitors if released.

## Unauthorised Access

The threat of unauthorised access of information comes from many sources including burglars, guests to the company and computer hackers who access the company network illegally. Staff members can also be a threat if they gain access to information they are not allowed to view, such as pay or contract details for other staff members.

### ***Preventing Unauthorised Access***

The following security procedures can be followed to prevent unauthorised access to computer data:

- Ensure offices containing computer equipment are kept locked after hours.
- Ensure visitors to the site do not have unsupervised access to computers.
- Apply passwords to files so they cannot be opened without entering the password.
- Set up sign in names and passwords to access the computer systems.
- Use different logins to restrict which files different staff members can access.

## Data Storage

An organisation should have policies for how files are stored, be they electronic or printed documents. On a network there may be a specific drive in which all work data is stored. If material is stored on CD or DVD disks or on portable drives, there should be an allocated storage area. This area should ideally be protected, for example, locked in a fireproof box or safe.

Hard copies of documents also need to be protected. Filing cabinets are often used and they should be locked where possible.

## Malware

The term malware (malicious software) is used to describe any intrusive software which is introduced to a user's computer without their consent. Some of the main types of malware are described below.

### ***Computer Viruses***

A computer virus is a program deliberately designed to infect files. Viruses can:

- delete or corrupt files
- delete or corrupt programs
- cause messages to display on the screen
- slow down processing time.

Whenever data is transmitted through the internet, within a network or by sharing drives, there is a chance that a virus has been transmitted.

## **Worms**

A worm is a computer program which is designed to replicate itself and spread its duplicates across a network. Unlike a virus, it does not need to attach itself to another file to be transmitted.

This can slow down a network due to the increase in the number of files being transmitted. Other worms carry a payload which is code designed to corrupt (damage) files.

Worms are often transmitted via an email. When the email is received and opened (or even previewed), the worm infects the computer. Some worms will then attempt to send copies of itself to every email address in a computer's email address book.

## **Trojan Horse Programs**

Trojan horse programs (troyans) allow a hacker to access your computer from a remote location. Once a trojan has been installed on a computer, the hacker can access the computer and perform various tasks without the user noticing, including:

- stealing data
- corrupting/damaging files
- using the PC to perform illegal or unethical transactions over the internet
- keystroke logging where the hacker records information typed, e.g. passwords to online bank accounts.

## **Spyware**

Spyware is a type of malware installed by unethical business organisations to collect information about a computer user's internet habits. Although it is generally not designed to damage your computer, it can slow your system down by accessing the computer processor. Spyware invades the user's privacy by recording information about websites visited.

Spyware will monitor the computer user's activity on the internet and send web-based advertising to the computer based on the type of websites visited.

## **Protection against Malware**

Steps can be taken to reduce the risk of your computer or network getting infected by malware. Your workplace may have policies similar to these.

- Check up-to-date antivirus software is loaded onto your computer and network.
- Do not download programs from the internet unless it is from a trusted provider. Downloadable games are particularly prone to having malware attached to them.
- Do not transfer files between computers using discs or USB memory sticks without scanning them for viruses first.
- Do not open email attachments from unknown sources.

## **Antivirus Software**

Antivirus software is used to protect computers from viruses and other malware. It is designed to check files for viruses and destroy any it finds.

Part of any organisation's data security plan should include the purchase of reputable antivirus software. Software should be kept up-to-date as new malicious programs are being developed every day.

Antivirus software does not guarantee your computer will never get a virus. Sometimes a virus will slip in unnoticed; however, it does greatly reduce the risk of infection.

## **Firewalls**

A firewall is designed to prevent unauthorised access to a PC. Basically it puts a wall between computers within an organisation and the internet. This wall allows users out to access the internet, but stops malware coming in.

The firewall cannot block all incoming data otherwise it would prevent downloading legitimate software or remove a legitimate file attached to an email.

The firewall has to analyse each piece of data which passes through it to try and distinguish between advantageous and dangerous programs.

## ***Activity***

Find out what measures your workplace or training organisation have in place to protect data from threats such as unauthorised access or malware and describe them below. Alternatively, describe measures that could be taken to protect this organisation from such a threat.

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# **Filing Hard Copies of Documents**

Good filing systems ensure documents can be located easily when required.

When storing printed documents, labelled dividers should be used to categorise the documents – some examples are listed below. Documents are usually filed in alphabetical or date order (the most recent date would be on top for easy access).

- Specific document types, e.g. letters, memos, faxes, forms, emails.
  - Company areas, e.g. Accounts, Orders, General Correspondence.
  - Customer numbering system.

# Using Manuals

## Manuals

A manual is a paper or computerised document which provides information on a specific topic.

### **Instructional Manuals**

Instructional manuals provide step-by-step instructions on how to use a particular feature or object, in a logical sequence. This workbook is an instructional manual. Each feature is taught by step-by-step instructions and additional exercises are provided for consolidation of learning and accumulation of knowledge.

### **Procedures Manuals**

Procedures manuals are generally specific to an organisation. You may be provided with a manual when you first join an organisation. They should cover important information about how the organisation is run and what is expected of you. The following may be included:

- Information about how data is to be stored and handled.
- The company's internet and email usage policy.
- Information about copyright.
- Behavioural standards in the organisation, e.g. the banning of inappropriate behaviour.
- Document standards, formats and templates to be used. This may include the proper use of the company logo, colour scheme, etc.
- The company reporting structure – who reports to whom.

## Software Help

Most computer programs contain help files which provide information on using the program. Examples include:

- Windows Help and Support supplied with Windows 8.1.
- Microsoft Word Help

Many help files have an online component, meaning your computer must be connected to the internet to access all content.

Help files tend to contain a search facility. Enter a keyword to search for information on that topic.

## Solving Operational Problems

If you are unsure about how something should be done in your organisation, your first step is to consult your company's procedures manual. If this does not contain the information you require, speak to your supervisor.

Online communities and forums can also be a source of help. These are electronic meeting places where people discuss specific topics. For example, Microsoft has a series of forums called **Office Answers** where you can post questions and other people on the forum will make suggestions and try and solve the problem.

# Copyright

## What is Copyright?

The purpose of copyright is to protect an original work, by controlling how that work is copied and distributed. These works can include written words, sound recordings, performing arts, filmed material and computer software amongst others. The creator/owner of the work is said to hold copyright for that material and copyright laws dictate who can duplicate the material, thus protecting the interest of the owner.

Copyright in Australia it is protected by the **Copyright Amendment Act 2006**.

## Copyright in the Workplace

Many workplaces will have regulations pertaining to copyright. Organisations can be prosecuted and fined heavily if they break copyright law; therefore, it is in their interests to ensure all employees are made aware of copyright regulations.

Some areas that organisations may include in their copyright policies are described below.

### **Software**

Software copyright is not usually sold – it is licensed. If you use three separate computers, you need to have three licensed copies of your software or have a licence that allows you to install it three times. Many organisations have regulations in place to stop the illegal copying of software and to ensure all software installed on the organisation's computers has been purchased legally.

### **Material from the Internet**

Information available on the internet may be freely available, but that does not mean it can be assumed to be free of copyright. For example, although it is easy to download an image from the internet, you may be breaching copyright if you do so without permission. Some websites provide material which can be copied freely, but it is generally labelled as such.

Organisations should have regulations pertaining to internet usage, including how to deal with material retrieved from the internet. For example, if you wish to use information you have gathered from the internet, you may require written permission from the webmaster or owner of the website. Or, if you are including such material in a written report or presentation, you may be required to provide a formal citation, stating where the material was taken from.

### **Fair Dealing**

Under certain circumstances, a small portion of copyrighted material may be copied. This provision is known as fair dealing, and allows material to be copied when it is used for such things as education, review and criticism, parody and satire. An organisation may specify, for example, what proportion of a text may be copied for educational purposes within the workplace.

### **Music and Video**

Illegal copying or downloading of music and video files is a huge problem across the world. Organisations may have put measures in place so no such illegal copying can be done on workplace machines. This may include preventing staff members from accessing file sharing websites where illegal files can be accessed.

# Work Request Forms

In an efficient organisation a work request form will be given to the relevant staff members regarding tasks to be completed. This form should include all information required to complete the specified task. A work request form may be quite detailed as in the example below:

WORD PROCESSING REQUEST FORM	
Author's Name: Malcolm ..... <input checked="" type="checkbox"/>	Create a document: ..... ✓ Edit existing document..... (Name of document)..... Rename document: .....
Date: 2nd August.....	
Date Required: 1 No. of Copies: .....	Paper Size: A4 Portrait..... A4 Landscape..... Other.....
Instructions:  Please create mail merge letters to send to the people shown in the visitors' books for open houses on 8th and 15th August.  In the letter just thank them for visiting the open home at (street and area) on (date). Also mention that we are enclosing information regarding open homes for the month of September (remind me to do this tomorrow - date the letters with tomorrow's date). End by saying that if we can be of further assistance to contact our office.  Please print a copy of the data file also.  We'll need mailing labels also. (Ensure you include the state in each address.)	

A simpler work request form may be used for a basic task where little detail is required. These can then be stapled to the required task and given to the relevant staff member for completion or emailed along with the required files.

WORK REQUEST FORM	WORK REQUEST FORM
Author's Name: John Sinclair..... File: Computer Database..... Date Required: Today..... No. of Copies: 1.....	Author's Name: K. Marsh..... File: January Sales Figures..... Date Required: Today..... No. of Copies 5.....
Comments:  Add the attached clients to our database.  Print a report listing all corporate clients.	Comments:  Format attached spreadsheet to company style. Include our logo.  Add 3-D Bar Chart of all data on a separate sheet.

Always clarify the requirements for the document with the author if there is anything that you do not understand. Requirements include who the document is for, why it is needed, the style or layout, where it is to be stored and any security requirements.

# Worksheet Design

Many people look at the simplicity of a worksheet and just start typing numbers in. However the very fact that a worksheet is simple and flexible means you have to plan it before the real work is started. By properly planning your worksheet you can save yourself a lot of effort later and make the worksheet more useful to yourself and other users.

In order to create a good design, it is important that you understand the required outcomes. The worksheet may need to:

- produce numerical information
- display data in a chart
- allow others to access the data for use in their own worksheets
- allow many different users of different abilities to input data and produce output from your spreadsheet

While computers do all the difficult work calculating and updating figures, GIGO (garbage in, garbage out) still applies. Data must be typed in accurately by the users, and the formulas need to be set up correctly.

There are some rules that need to be taken into account when designing a worksheet. Failure to follow them will result in, at best, a difficult worksheet to use and, at worst, a worksheet producing erroneous results.

Every worksheet you produce should have the characteristics listed below.

<b>Accuracy</b>	If the numbers in your worksheet, or the calculations you set up, are wrong then the results and your conclusions will be incorrect. This is a simple case of GIGO.
<b>Clarity</b>	If someone else will be looking at your worksheet they must be able to quickly see the numbers in which they are interested and how the results have been achieved. If the worksheet requires editing, the user will want to be able to quickly and easily see how the data is arranged and what figures need changing.
<b>Flexibility</b>	Will you want to change the worksheet design? Is it being set up to solve an existing problem or are you developing it as you work at the problem? Is the worksheet going to solve a sequence of similar problems? Even if you don't think you will need your worksheet to do any more than solve a current problem, a worksheet that is flexible so that it can be easily changed is well worth having.
<b>Efficiency</b>	Some worksheets can be laid out to minimise the time it takes to number crunch the calculations. If you have a very large worksheet then this may be worth looking at. However, it is probably more worthwhile to look at how easy the worksheet is to use for yourself. Can you find the areas you want to work on easily? Is entering the data as simple a process as it can be?
<b>Auditability</b>	The results that the worksheet produces are only as good as the numbers and the calculations that produce them. Is it easy to prove to someone else that you have got your calculations right in the worksheet? If an error did occur would you be able to locate it quickly? When you design your worksheet make sure that you either know, or can easily find out, what is going on in the worksheet at any stage.

## Design by Blocks (or Areas)

The idea of INPUT - PROCESSING - OUTPUT is a good basis for starting your design. These processes can be divided into different areas, or blocks, in your worksheet. Every worksheet should have at least four and up to six distinct areas containing different information. They are as follows:

<b>Identification Area</b>	Every worksheet, no matter how simple, should have an identification area. This area could include: <ul style="list-style-type: none"><li>• title of the worksheet (often the same as the file name)</li><li>• purpose of the worksheet as a sub-title</li><li>• name of the person who created it,</li><li>• the date the worksheet was created and the date the worksheet was last altered.</li></ul>
<b>Documentation Area</b>	This area should describe the worksheet in more detail, including details of all the calculations if necessary. In a simple worksheet this area may not be required, but in big or complex workbook it is more important, particularly if multiple people need to be able to use and understand it.  A workbook with multiple worksheets may include a table of contents that identifies the worksheets and provides hyperlinks to them.
<b>Input Area</b>	This is where the initial data should go. Any constants (such as GST Rate: 12.5%, or Bonus Rate: 5%, or Startup Fee: \$250) or controlling parameters (e.g. Quantity: 300, Hours: 140) should go in this area.
<b>Work Area</b>	This area performs the calculations. If possible the calculations should be explained in the <b>Documentation Area</b> . It is worth setting your calculations out as a series of simple calculations rather than trying to do everything in one long complicated cell formula - it makes them much easier to read and easier to error check.
<b>Output Area</b>	This area displays the results. It is usually convenient to place the input and the output areas next to each other so you can see the effect on the output of changing a parameter in the input.
<b>Macros</b>	Complex workbooks may have a set of macros attached to them, which are saved with the workbook file. You will need to annotate the macros with comments explaining what they do. Documentation is important, as most macro languages are difficult to read.

Navigating around a workbook can be done either by pages (screens), or by Go To a cell or name, or by worksheet. The pages method is often the most convenient and the quickest so it makes sense to organise your areas so that useful chunks can be viewed on a page, or screen, at a time. Try to avoid using too many blank rows or columns in a spreadsheet. Later on you could set up a series of hyperlinks that link to the table of contents and from there to targets in other sheets.

## Layouts

Choosing an appropriate layout for your worksheet will aid in the successful navigation and use of that spreadsheet. Layout designs include:

- block layout
- linear layout
- multisheet layout.

## **Block Layout**

This type of layout is ideal for small worksheets, and is also very popular with novice worksheet users. Everything is positioned as near to the top left corner as possible, as shown below.

Identification		
Documentation		
Input	Work	Output

The advantage is that just about everything is visible on one screen. The disadvantage is that this design is not flexible, and you would have to do some awkward moving around of areas to expand the identification, documentation or work area.

## **Linear Layout**

The linear layout is more flexible than the block layout as it allows for expansion of any of the areas.

### **Linear Horizontal**

This layout is appropriate where you have a multi-field list that extends across the worksheet - such as a class list.

Identification	Documentation	Input	Work	Output
----------------	---------------	-------	------	--------

### **Linear Vertical**

Identification
Documentation
Input
Work
Output

Whether you choose vertical or horizontal layout is up to you. The horizontal design means you can format whole columns to the best width for the information they contain as that will be the same the whole way down the spreadsheet.

The vertical design is similar to the way you would lay out the problem on a word processor. It is useful for cashflow/budget type problems.

## **Multi-sheet Layout**

Multiple worksheets will be used to record data and perform calculations. This may include:

- multiple worksheets within one workbook
- multiple workbook files

Multiple worksheets can be used to list data about individual departments, branches or cities and then summarise data. In the example below, each branch has its own worksheet and the total figures for each month are displayed on the Summary worksheet.

	A	B	C	D	E	F
1	<b>Cleantec</b>					
2						
3	Branch:	Devonshire				
4						
5		Jan	Feb	Mar	Apr	Total
6	Upholstery	458	450	500	550	1958
7	Carpet	800	950	925	960	3635
8	Drapery	562	600	610	580	2352
9	Fabric	320	315	290	210	1135
10	Vinyl	120	105	80	115	420
11		A	B	C	D	F
12	Total	2260				
1	<b>Cleantec</b>					
2						
3	Branch:	Cheltenham				
4						
5		Jan	Feb	Mar	Apr	Total
6	Windows	2000	1562	1860	2020	7442
7	House Exteriors	1550	1820	1450	1580	6400
8	Gutters	300	340	250	310	1200
9	WaterBlasting	450	500	630	590	2170
10		A	B	C	D	E
11	Total	4300	4222	4190	4500	17212
1	<b>Cleantec</b>					
2						
3	Branch:	Stanley				
4						
5		Jan	Feb	Mar	Apr	Total
6	Carpet Cleaning	600	630	625	650	2505
7	Stain Removal	95	120	100	80	395
8	Shower Proofing	350	290	250	400	1400
9	Vehicle Interiors	480	44			
10	Boat Interiors	560	55	1		
11	Boat Exteriors	345	33	2		
12		A	B	C	D	E
13	Total	2430	236	4		
1	<b>Cleantec</b>					
2						
3	Summary					
4						
5		Jan	Feb	Mar	Apr	
6	Devonshire	2260	2420	2415	2415	
7	Cheltenham	4300	4222	4190	4500	
8	Stanley Bay	2430	2365	2395	2390	
9		A	B	C	D	E
10	Total	8990	9007	9000	9305	

# What Makes a Good Worksheet?

So far we have discussed clear layout. This is the starting point when making worksheets that are easy to use and maintain. Two further things will make your worksheet much more user-friendly: sound construction and appropriate appearance.

## Sound Construction

The construction of a worksheet is how you make your formulas and construct sequences within your worksheet. Use of the Input Area is essential to make the following types of processes easy to manage and maintain.

### Example 1

Column headings are needed to give dates for a series of weeks or fortnights. The worksheet will be used many times and each time the start date, or number of periods to be covered, or other information, may change. How would you construct these headings?

Try this:

- 1 In a worksheet, insert today's date by pressing Ctrl ;
- 2 Use the fill feature to create a date series in steps of 14 across a few columns.
- 3 Change the start date to a date from last week, and re-create your series.

The problem with this solution is its inflexibility. It doesn't allow for the easy alteration of the start date or the step for the following dates.

The following are better solutions:

- Set up the initial input data for the date sequences as below.

	A	B	C	D	E	F
1	<b>Starting Date:</b>	11-May-14				
2	<b>Date Step:</b>		14		Enter 7 for weekly, 14 for fortnightly	
3						
4		11-May-14	25-May-14	08-Jun-14	22-Jun-14	06-Jul-14

The date formulas for the date labels are:

=B1      =B4+\$B\$2      =C4+\$B\$2      =D4+\$B\$2      =E4+\$B\$2

- A more advanced way to do the date formulas is to use named cell references, as below.

=StartDate      =B4+DateStep      =C4+DateStep      =D4+DateStep      =E4+DateStep

The names clearly identify what is happening within the formulas.

The major advantage of the second method is that to change the start date or the step requires only the alteration of two input values. There is no editing of formulas, or re-filling of cells.

## Example 2

Your boss asks you to perform some data analysis. She wants to know what 33% of the Sales figure is, what a 5% increase and decrease in Sales is, and what a 7.5% bonus of Sales amounts to.

You have considered the following two methods:

### Method 1

#### VALUES

Analysis	
33% of Sales	39,600
5% Increase in Sales	126,000
5% Decrease in Sales	114,000
7.5% Bonus	9,000

#### FORMULAS

Analysis	
33% of Sales	=Sales*33%
5% Increase in Sales	=Sales*(1+5%)
5% Decrease in Sales	=Sales*(1-5%)
7.5% Bonus	=Sales*7.5%

### Method 2

#### VALUES

Analysis	Rates	
Sales Cut	33%	39,600
Sales Increase	5.0%	126,000
Sales Decrease	5.0%	114,000
Sales Bonus	7.5%	9,000

#### FORMULAS

Analysis	Rates	
Sales Cut	33%	=Sales*B22
Sales Increase	5.0%	=Sales*(1+B24)
Sales Decrease	5.0%	=Sales*(1-B25)
Sales Bonus	7.5%	=Sales*B27

Method 2 is the most appropriate construction. Since the rates are included as a separate column, they can easily be updated without changing the formulas.

## Appropriate Appearance

The appearance of your spreadsheet will aid operators to use it and analysers to read it. Your spreadsheet can be enhanced with numeric, font, colour and border formats.

Some guidelines are important to remember:

- Are there any appearance standards or requirements set by the client or workplace? Some organisations may insist that spreadsheets are prepared following a particular style. These style requirements may be defined in a Corporate Style Guide.
- All data in the spreadsheet needs to be able to be read easily. If the font is too small or columns are crammed together too tightly, this will hinder readability.
- Do not try to fit too much information onto one worksheet. Multiple sheets might be a better option for a complicated worksheet.
- It is possible to use different coloured font or background colours on different segments of the worksheet. Important output figures may be emphasised with the use of colour. However, too many colours can make a worksheet look garish or confused.
- What sort of printer do you have access to? A highly coloured spreadsheet will look grey on a black and white printout.

## **Worksheet Examples**

The following worksheet has insufficient formatting. The column headers are not aligned appropriately. The columns are too close together and the total row is not separated from the rest of the data.

January	February	March	April	May
360.90	537.10	359.50	456.80	895.60
354.50	271.00	573.60	562.30	455.20
6307.00	5234.50	5583.60	6721.90	5891.20
317.00	3744.30	9452.30	224.00	334.00
5545.20	962.50	1654.70	9526.00	7112.00
819.40	652.90	618.50	452.30	4897.20
196.20	919.40	2105.30	989.30	1062.70
4343.40	3750.10	8547.60	4587.10	5681.00
466.00	114.30	236.10	233.70	98.30
18709.60	16186.10	29131.20	23753.40	26427.20

The example below is over-formatted. The \$ beside each numeric entry clutters up the narrow columns without adding much information. They dark grey may not print well.

January	February	March	April	May
\$ 360.90	\$ 537.10	\$ 359.50	\$ 456.80	\$ 895.60
\$ 354.50	\$ 271.00	\$ 573.60	\$ 562.30	\$ 455.20
\$ 6,307.00	\$ 5,234.50	\$ 5,583.60	\$ 6,721.90	\$ 5,891.20
\$ 317.00	\$ 3,744.30	\$ 9,452.30	\$ 224.00	\$ 334.00
\$ 5,545.20	\$ 962.50	\$ 1,654.70	\$ 9,526.00	\$ 7,112.00
\$ 819.40	\$ 652.90	\$ 618.50	\$ 452.30	\$ 4,897.20
\$ 196.20	\$ 919.40	\$ 2,105.30	\$ 989.30	\$ 1,062.70
\$ 4,343.40	\$ 3,750.10	\$ 8,547.60	\$ 4,587.10	\$ 5,681.00
\$ 466.00	\$ 114.30	\$ 236.10	\$ 233.70	\$ 98.30
\$ 18,709.60	\$ 16,186.10	\$ 29,131.20	\$ 23,753.40	\$ 26,427.20

The worksheet example below displays more appropriate formatting.

- Column labels are right-aligned over numbers, in bold and separated by the border.
- Columns are wide enough to see the data easily.
- Totals are clearly identifiable by borders.
- Currency symbols are only used in the first and the total row indicating that all figures are currency.

January	February	March	April	May
\$360.90	\$537.10	\$359.50	\$456.80	\$895.60
354.50	271.00	573.60	562.30	455.20
6307.00	5234.50	5583.60	6721.90	5891.20
317.00	3744.30	9452.30	224.00	334.00
5545.20	962.50	1654.70	9526.00	7112.00
819.40	652.90	618.50	452.30	4897.20
196.20	919.40	2105.30	989.30	1062.70
4343.40	3750.10	8547.60	4587.10	5681.00
466.00	114.30	236.10	233.70	98.30
<b>\$18,709.60</b>	<b>\$16,186.10</b>	<b>\$29,131.20</b>	<b>\$23,753.40</b>	<b>\$26,427.20</b>

# Workbook Documentation

If you are creating workbooks for other people to use, or workbooks that are complex or that are used infrequently, documentation can assist, or serve as a reminder to, other users.

Clear documentation ensures users understand the purpose of the workbook and give them instructions on how to use and manipulate the worksheets. Documentation can be inserted into a blank area of a worksheet or as a separate worksheet. Alternatively, they can be created in a word processed document

The following can be included in workbook documentation:

## Title

Ensure your documentation has a title. Include a subtitle with the date the spreadsheet was completed and the author. You may wish to include the company name, department and any other reference information that you think is important.

## Purpose

Write a paragraph explaining why the spreadsheet was created. What does it do? When would you use it? What will it tell you?

## Installation Instructions (if needed)

If the spreadsheet is a template you should indicate this, and advise that it needs to be copied into the relevant folder.

## General Instructions

A simple outline of the structure of the spreadsheet should be given to provide the user with an overall picture. Include instructions on how to use the spreadsheet, what data is to be inserted where, what data can be altered, how best to print the spreadsheet (e.g. portrait or landscape), viewing charts, etc. Mention if there are any links in the spreadsheet to another file or within the spreadsheet, and their purpose. It is advantageous to use named ranges when creating a worksheet as these can be referred to in your documentation.

Remember the documentation is to help the user understand your spreadsheet, not to teach them how to use Excel.

## Macros

If you have used macros you will need to outline the name, purpose, shortcut keys allocated and any other details.

Name	Purpose	Shortcut Key	Other Details
Ranking	Sorts sales data from highest to lowest and creates a ranking based on this sort	Ctrl + R	Can be applied to all worksheets in the workbook.

An example of spreadsheet documentation is shown on the next page.

## Excel Worksheet

	A	B	C	D	E	F	G	H
1	<b>Day Trippers</b>							
2								
3								
4	<b>Tours</b>	January	February	March	April	May	June	Total
5	Hinterland Tour	256	353	178	125	374	322	1,608
6	The Coast Tour	312	262	285	310	345	370	1,884
7	Bryon Bay and Tweed Heads	408	478	324	314	423	384	2,331
8	Fraser Island	993	810	826	786	874	882	5,171
9	Brisbane in a Day	554	487	512	456	492	414	2,915
10	Brisbane at Night	452	435	478	398	416	488	2,667
11	<b>Total</b>	2,975	2,825	2,603	2,389	2,924	2,860	16,576
12								
13								
14	<i>Is the average of each monthly total above 2800?</i>	FALSE						
15	<i>What is the median tour number for the total of the tours rounded to 100</i>	2,500						

## Documentation in Worksheet

	A	B	C	D	E	F	G	H	I	J
1	<b>Day Trippers</b>									
2	Created for Day Trippers, Accounts Department by Jim Hanson - 12/01/2013									
3										
4	<b>Purpose</b>									
5	To record and calculate the number of passengers each month for each Day Trippers tour.									
6										
7	Find out if the average number of passengers being carried per month is over 2800									
8										
9	Find the median number of passengers to the nearest 100.									
10										
11	<b>Installation instructions</b>									
12	Workbook can be downloaded from the Day Trippers intranet.									
13	Copy the workbook to your working folder and open as normal.									
14	Workbook must be opened in Excel 2013.									
15										
16	<b>General instructions</b>									
17	To insert a new month, select the Total column and insert a new column to the left.									
18	Enter the data for the new month.									
19										
20	To insert a new tour, select the Total row and insert a new row above.									
21	Enter the data required for the relevant months.									
22	In the Total column use the AutoSum button to calculate the total for the new tour.									
23										
24	In cell B16 an IF function has been used to determine whether the monthly tour average is above 2800.									
25	IF(AVERAGE(B13:G13)>2800,TRUE,FALSE).									
26	If the average is above 2800 then TRUE will display in the cell.									
27										
28	In cell B17 MEDIAN and ROUND functions have been used to determine									
29	the median for the total of a monthly tour to the nearest 100									
30	ROUND(MEDIAN(H7:H12),-2)									
31										

# Using Spreadsheets to Solve Problems

In simple terms anything that can be worked out on a calculator can be analysed in a spreadsheet. Spreadsheets, however, are much more powerful than calculators.

Spreadsheets can answer questions relating to money, quantities, figures, listings of data, etc. You can use functions to perform calculations on data to display a result (answering a question). You can sort and manipulate data into groups, particular orders/lists. A chart can be used to display data in the worksheet, for example trends, etc.

Some scenarios where spreadsheets can be used to solve problems or questions you may have are described below.

## Scenario 1

You have been given a list of sales from different salespersons in the Sales department for March. The accountant needs to know the total sales for each salesperson and the total for the Sales department. The Sales Manager wants to find out which product and which salesperson has had the most sales. You have also been asked to calculate the average sales for the month.

## Scenario 2

You would like a new car and wish to save up to buy one. You can afford to save \$100 per week towards a new vehicle. The interest rate for your savings account is 5.5%. How long would it take to save for a car worth \$4,000?

## Scenario 3

You have been given an empty company cheque book with a list of butts. You have been asked to calculate the GST that has been paid on each item purchased. The GST rate is set at 10% for each purchase.

## Scenario 4

The wages for the week need to be calculated and a slip filled in to send to the bank for automatic transfer. You have five people who are on a weekly wage. You are given a list of their hourly rate, tax bracket and the structure of their time allowances, including overtime.

## Scenario 5

As a teacher you have to keep track of student progress. The students have four exams throughout the year, which are the basis for the total mark for the year. The first exam has a maximum grade of 35, which is 35% towards the total mark for the year. The second exam has a maximum grade of 15, which is 15% towards the total mark for the year. The third and fourth exams have maximum grades of 25 for each exam, which is 50% towards the total mark for the year. You need to calculate the total mark for each student and give a statistical summary for the class.

# Working with Scenarios

The following exercise is an example of how a spreadsheet is created from a scenario.

- Martin is the accountant for Smith and Jones Ltd. He needs to find out the gross profit from the manufacture of different types of pens. Gavin has given him a breakdown of the costs to manufacture each pen.

Martin has asked Erica from Sales for a distributor price list of each pen, to help him work out the gross profit. The results are required to be displayed in chart format so Martin can show the general manager the difference in the sell price and production cost for each pen.

Martin,

Here are the costings for the pens you asked for.

	Streamline	Professional	Artie	Master
Refills	0.80	1.50	1.00	1.00
Spring	0.50	0.50	0.50	0.50
Case	1.00	2.00	0.80	1.50
Labour	1.00	1.00	1.00	1.00

GAVIN

Martin,

As promised, here is the latest price list for distributors.

Pen	Distributor's Cost Price	Retail Price
Streamline	\$5.00	\$7.00
Professional	\$7.00	\$9.00
Artie	\$6.00	\$8.00
Master	\$7.50	\$8.50

Erica

Questions Martin might ask himself could include the following:

- 1 What two headings could I use for this worksheet?

.....  
.....

- 2 What result needs to be achieved?

.....

- 3 What column headings are required?

.....

- 4 What would I use for row headings?

.....

- 5 What calculations are required?

.....  
.....

## Answers

- 1 Which two headings could I use for this worksheet?

Smith and Jones Ltd.

Gross Profit (per pen)

- 2 What result needs to be achieved?

The difference between sell price to distributors and production costs for each pen, i.e. the gross profit.

- 3 What column headings are required?

Column headings for each pen, i.e. Streamline, Professional, Artie, Master.

- 4 What would I use for row headings?

Sell Price, then Production Costs.

- 5 What calculations are required?

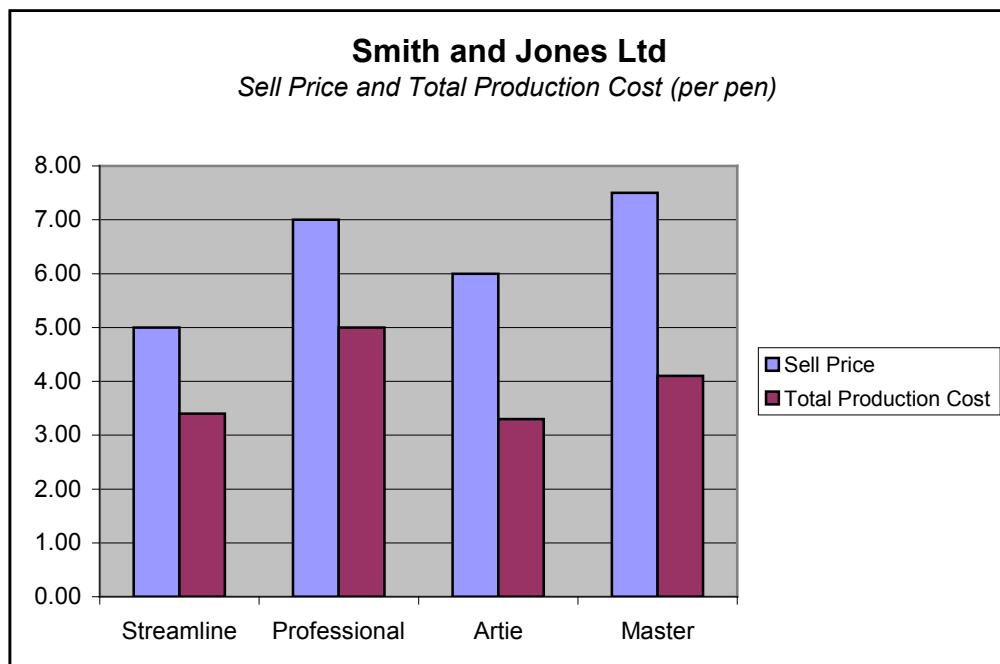
Total production costs.

Sell price minus Total production cost = gross profit.

## Smith and Jones Ltd

*Gross Profit (per pen)*

	Streamline	Professional	Artie	Master
Sell Price	5.00	7.00	6.00	7.50
<b>Production Costs</b>				
Refills	0.80	1.50	1.00	1.10
Spring	0.50	0.50	0.50	0.50
Case	1.10	2.00	0.80	1.50
Labour	1.00	1.00	1.00	1.00
<b>Total Production Cost</b>	<b>3.40</b>	<b>5.00</b>	<b>3.30</b>	<b>4.10</b>
<b>Gross Profit</b>	<b>1.60</b>	<b>2.00</b>	<b>2.70</b>	<b>3.40</b>



USED UNDER LICENCE  
FOR TAFE QUEENSLAND BRISBANE  
ENROLLED STUDENTS ONLY

Section  
**1**

# Borders and Shading

## Copying and Moving Data Series

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### Learning Outcomes

*At the end of this section you should be able to:*

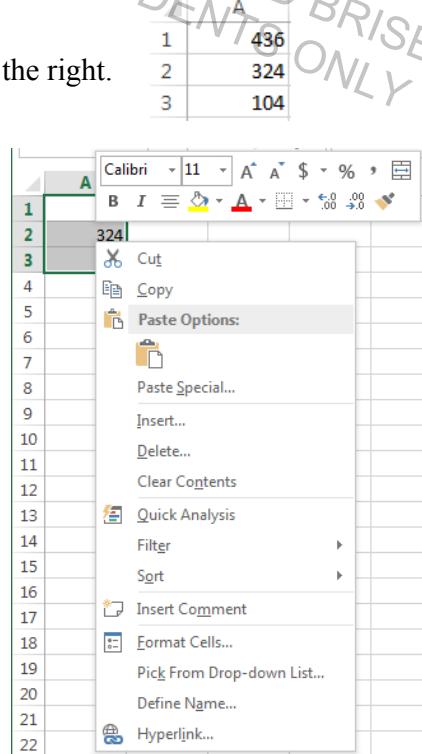
- Select cells
- Apply fonts, borders and patterns
- Copy and move cells, columns and rows
- Copy and move data using the Clipboard or mouse
- Understand the Clipboard Task Pane
- Insert and delete columns and rows
- Use Fill Series options

# Shortcut Menu

In Excel the shortcut menu can be accessed by right clicking. The shortcut menu will alter depending on the feature currently being used.

## Exercise 1

- 1 In a new workbook type the figures in the cells indicated at the right.
- 2 Select cells A1 to A3.
- 3 Right click on the selection and you will see the shortcut menu (and the Mini toolbar), as shown at the right.
- 4 Click with the left mouse button on Copy.
- 5 Right click on cell C1 and select Paste  from the Paste Options.
- 6 Press Enter.
- 7 Right click on row header 4.
- 8 Notice that the row is selected and options relating to the selected row appear on the shortcut menu.
- 9 Select Row Height.
- 10 Change to 20 then click on OK.
- 11 Leave the workbook open for the next exercise.



# Insert Symbol

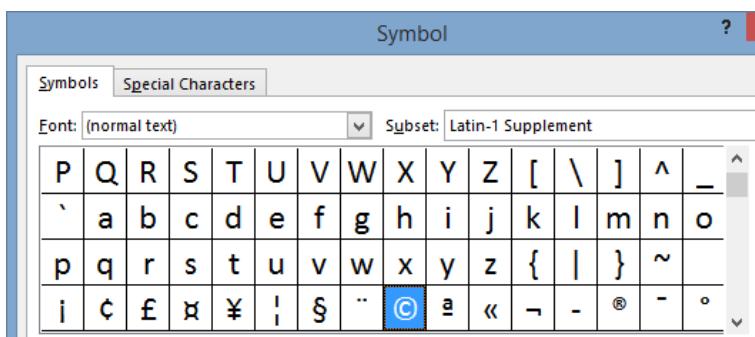
The Insert Symbol feature is used to insert symbols into a cell.

## Exercise 2

- 1 Using the workbook created previously, click on cell B6.



- 2 On the Insert Ribbon click on the Symbol button . The Symbol dialog box will display.
- 3 From the *Font:* box you can select from a wide range of fonts. Ensure (normal text) is displayed in the *Font:* box.



- 4 Click on © from the list of symbols available (7<sup>th</sup> row).
- 5 Click on Insert

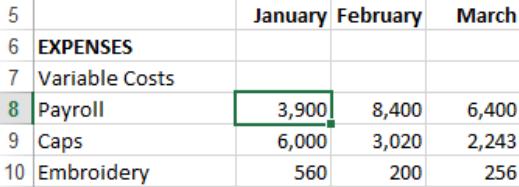
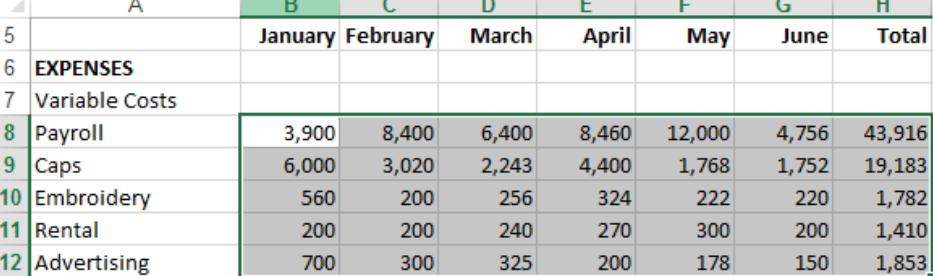
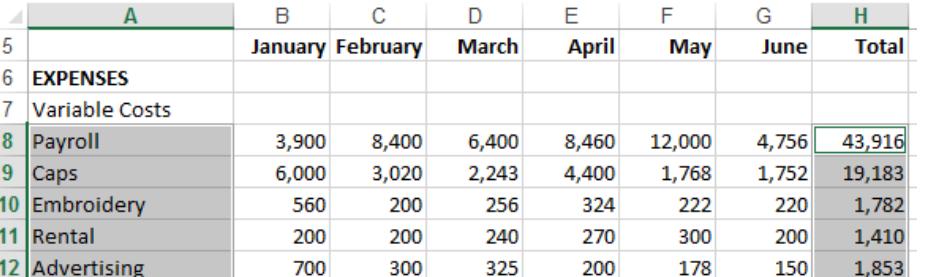
- 6 Click on Close.
- 7 Press the Spacebar and type your name.
- 8 Press Enter.
- 9 Practise inserting symbols from other fonts (picture symbols are included in Wingdings and Webdings fonts). A symbol can be enlarged by increasing the font size.
- 10 Close the workbook without saving.

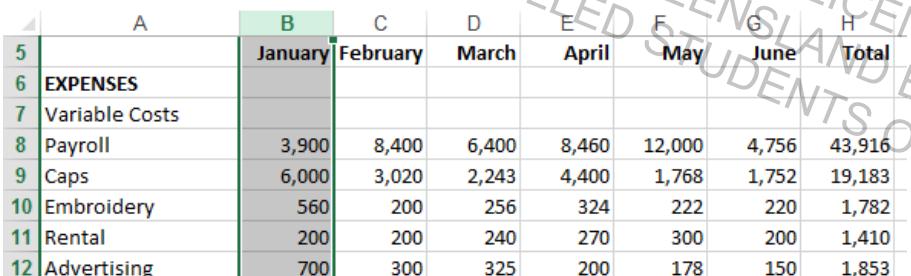
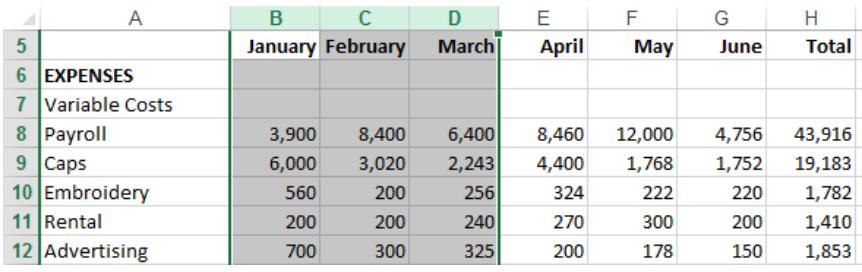
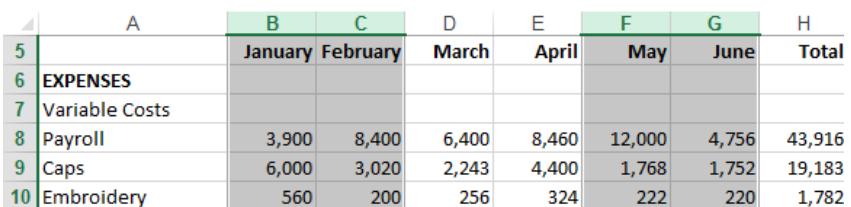
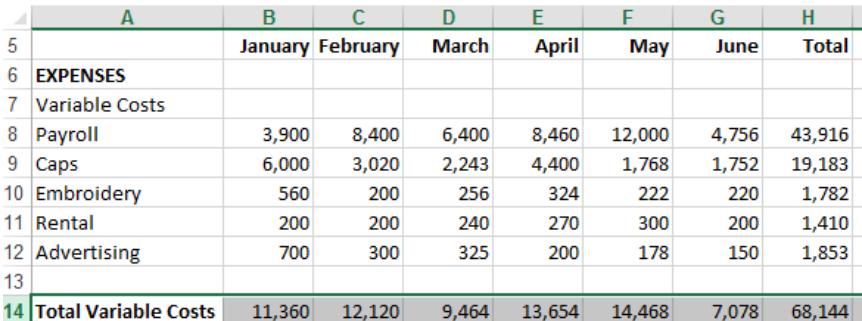
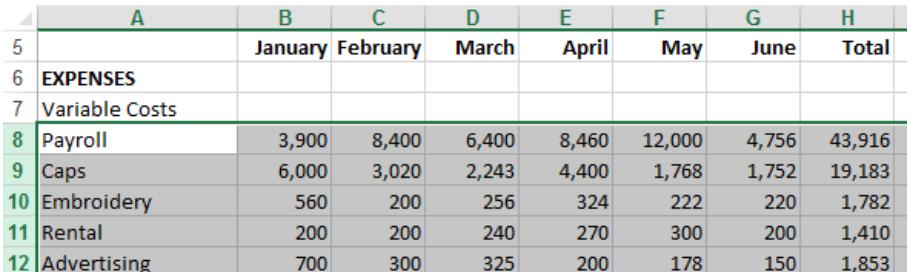
## Selecting Cells

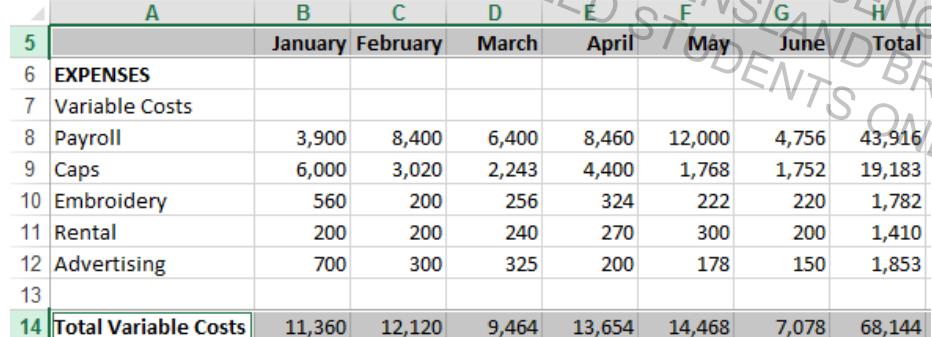
Cells within a worksheet are selected to enter, edit or format data.

### Exercise 3

- Ctrl O 1 Click on **FILE** then click on **Open** and open the workbook called **Creative Caps**.
- 2 Practise *selecting* using the various methods shown below.

Selecting	Action
Single cell	Click in the centre of the cell.  5 6 EXPENSES 7 Variable Costs 8 Payroll 3,900 8,400 6,400 9 Caps 6,000 3,020 2,243 10 Embroidery 560 200 256
Range of cells	Click in the centre of the first cell in the range and drag to the last cell in the range. Alternatively, click in the first cell, hold down the Shift key and click on the last cell.  A B C D E F G H 5 January February March April May June Total 6 EXPENSES 7 Variable Costs 8 Payroll 3,900 8,400 6,400 8,460 12,000 4,756 43,916 9 Caps 6,000 3,020 2,243 4,400 1,768 1,752 19,183 10 Embroidery 560 200 256 324 222 220 1,782 11 Rental 200 200 240 270 300 200 1,410 12 Advertising 700 300 325 200 178 150 1,853
Non-adjacent cells	Select the first range of cells then hold down the Ctrl key and select the second range of cells and so on.  A B C D E F G H 5 January February March April May June Total 6 EXPENSES 7 Variable Costs 8 Payroll 3,900 8,400 6,400 8,460 12,000 4,756 43,916 9 Caps 6,000 3,020 2,243 4,400 1,768 1,752 19,183 10 Embroidery 560 200 256 324 222 220 1,782 11 Rental 200 200 240 270 300 200 1,410 12 Advertising 700 300 325 200 178 150 1,853

Selecting	Action
Entire column	Click on the column header OR press Ctrl Spacebar. 
Adjacent columns	Click and drag on the column headers. 
Non-adjacent columns	Hold down the Ctrl key and click on each column header. 
Entire row	Click on the row header OR press Shift Spacebar 
Adjacent rows	Click and drag on the row headers. 

Selecting	Action
Non-Adjacent rows	<p>Hold down the Ctrl key and click on each row header.</p> 
Entire worksheet	<p>Click on the Select All button above the first row header and to the left of the first column header OR click within the worksheet data and press Ctrl A twice.</p> 
Deselecting selected cells	<p>Click on a blank cell outside the selected cells.</p>

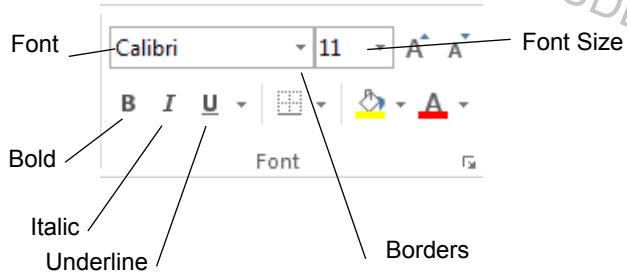
### Tip

Hold down the Shift key and use the arrows keys on the keyboard to select cells. Pressing an arrow key will deselect cells.

- 3 Close the workbook without saving.

# Fonts

A font is a style of type. Changing the font type, style and size allows you to emphasise areas in a worksheet. Options from the Font Group of the Home Ribbon are shown below.



In addition to using the Font Group on the Home Ribbon (or the mini toolbar), options can be changed in the Font tab of the Format Cells dialog box where fonts and formatting changes can be previewed before applying them to cells. Ensure fonts used fit the purpose and style of the worksheet.

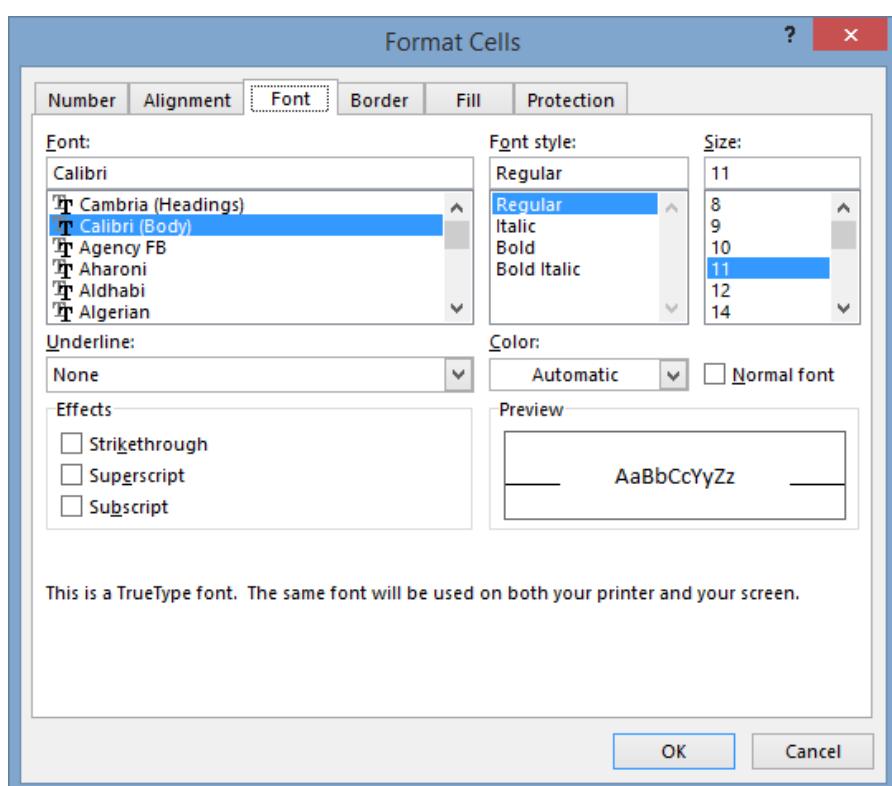
## Format Cells Dialog Box

- 1 Select the cells to be formatted.



- 2 On the Home Ribbon click on the Format button in the Cells Group and select Format Cells.

- 3 Click on the Font tab.



- 4 Select the font, font style, size and any other formatting required.

- 5 Click on OK.

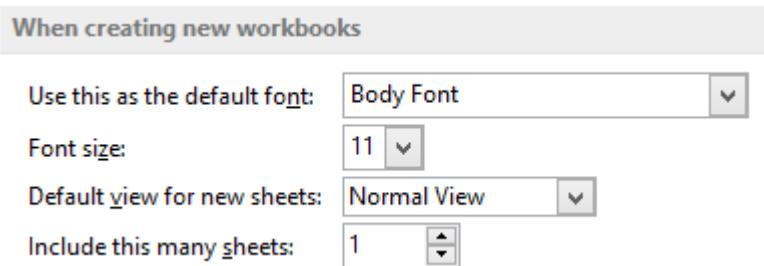
## Formatting Shortcut Keys

The following shortcut keys can be used for formatting.

Ctrl B OR Ctrl 2	Bold
Ctrl I OR Ctrl 3	Italics
Ctrl U OR Ctrl 4	Underline
Ctrl 5	Strikethrough
Ctrl Shift &	Border around cell(s)
Ctrl Shift _	Removes cell border
Ctrl Shift `	General number format
Ctrl Shift !	Two decimal places, commas
Ctrl Shift \$	Currency format, two decimal places
Ctrl Shift %	Percentage format, no decimals
Alt H FF	Moves to the Font box - type in the font required or press Alt ↓ then ↓ or ↑ to select the font. Press Enter
Alt H FS	Moves to the Point Size box - type in the point size required or press Alt ↓ then ↑ or ↓ to select the size. Press Enter

### Tips

- In Excel 2013 individual words or characters *in* a cell can contain different formatting e.g. **Sale Prices - December 2013**
- To alter the default font for every workbook, click on **FILE** then click on **Options**. In the General category under *When creating new workbooks* select options from the *Use this as the default font:* and *Font size:* . Click on OK.



## Borders

### Borders Button

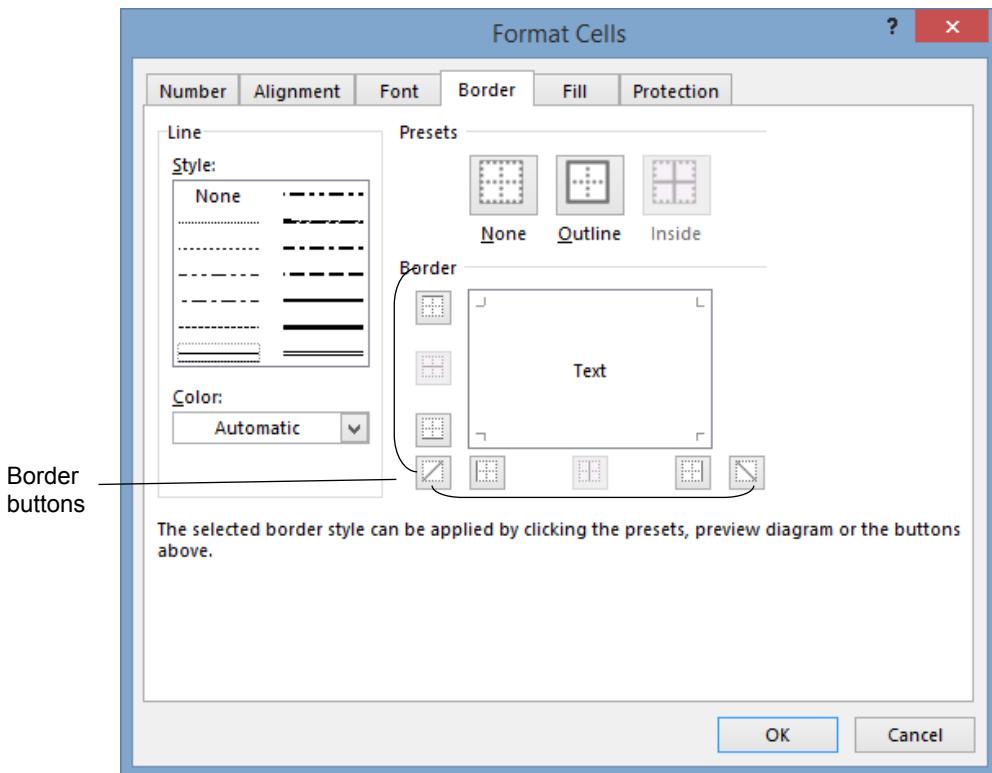
Borders (lines) can be inserted into a worksheet using the Borders button OR through the Format Cells dialog box, Border tab. From the Borders button you can click on and select the style of border required.

Selecting **Draw Border** from the Draw Borders section displays the mouse pointer as a pencil which can be used to draw borders around cells by clicking on the cell edges. Options for Line Color and Line Style can also be selected from this section.

## Format Cells Dialog Box

1 Select the cells required.

Ctrl 1 2 On the Home Ribbon click on the Format button  in the Cells Group and select Format Cells. Click on the Border tab.



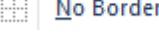
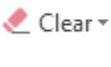
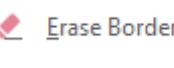
3 Select the line style and line colour required in the Line section.

4 Click on a Presets button OR click on a Border button to apply a border. To remove a border click on the relevant Border button to turn off the border OR select None.

5 Click on OK.

## Removing Borders

Borders can be removed as follows.

- Select the cells with the border style applied. Click on the  of  and choose the option 
- Select the cells with the border style applied. Click on the Format button in the Cells Group and select Format Cells. From the Border tab, click on None. Click on OK.
- Select the cells with the border style applied. On the Home Ribbon in the Editing Group, click on the Clear button  and select  (remember this will also clear number formats and alignments).
- Click on the  of  and choose the option . This turns the mouse pointer into an eraser so lines can be removed by selecting them with the mouse.

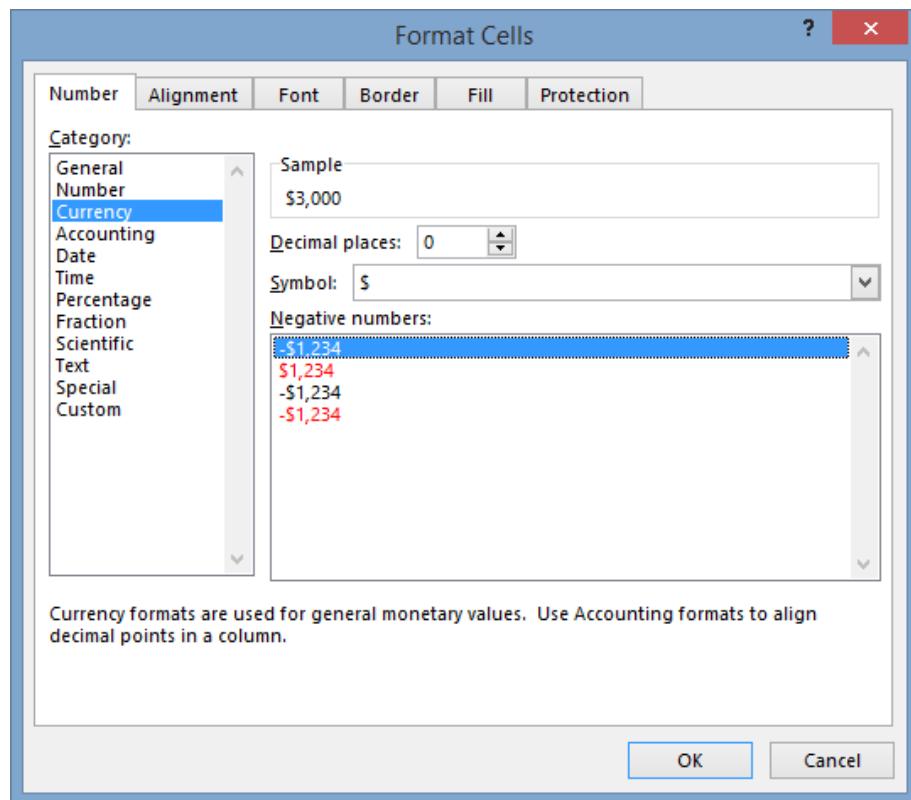
# Formatting Numbers

When a number value is entered into a cell it is formatted to a General style. This means that numbers display in integer format (e.g. 564), decimal format (e.g. 56.4) or if the number is longer than the current width of the cell, in scientific notation (e.g. 56.4E+2).

However, if the data is entered with a dollar (\$) sign as a prefix, Excel will automatically format the cell to currency or if entered with a per cent (%) sign as a suffix, to a percentage format.

Number formats can be manually applied using the buttons on the Number Group of the Home

Ribbon, by clicking on of the Number Format box and selecting the required formatting or from the Format Cells dialog box, Number tab.



The following buttons can be used from the Number group on the Home tab:

	Accounting Number Format	Inserts \$ sign at beginning of column with two decimal places.	e.g. \$ 4,321.00
	Percent Style	Formats to % with no decimal places	e.g. 24%
	Comma Style	Inserts commas to separate numbers with two decimal places	e.g. 1,234.00
	Increase/Decrease Decimal	Click required number of times to increase/decrease decimal places	e.g. 356.1234 → 356.12

#### Exercise 4

- 1 Open the file called **Bondi Office Equipment**.
- 2 Format the worksheet as shown below.
- 3 Calculate the Total Cost column and cell D26.
- 4 Format cells D14 and D26 to currency with \$ signs and zero decimal places.

Bondi Office Equipment			
Quotation			
5 To:	Nixon Group 226 Moore Street BONDI NSW 2026		
10 Quotation Number:	4587		
11 Quotation valid until:	23/09/2013		
13 Item	Quantity	Price	Total Cost
14 Desks	10	300	\$3,000
15 Office Chairs	15	175	\$2,625
16 Bookcases	5	95	\$475
17 Credenzas	8	195	\$1,560
18 Monitor Arms	6	85	\$510
19 Filing Cabinets	4	300	\$1,200
20 Trolley Tables	2	50	\$100
21 Reception Desk	1	1200	\$1,200
22 Reception Chairs	4	75	\$300
23 Lunchroom Table	1	350	\$350
24 Boardroom Table	1	550	\$550
25			
26 TOTAL			\$11,870

- 5 Save and close the workbook.

### **Exercise 5**

- 1 Open the workbook called **Hardware Haven Products**.

A	B	C	D	E	F	G	H
1	<b>Hardware Haven</b>						
2	<b>Product Stock</b>						
Product Number	Product Name	Category Name	Unit Price Incl GST	Units in Stock	Total Value Incl GST	Customer Orders	Balance of Stock
5	5 Metre Tape	Accessories	\$12.99	20		10	
6	Circular Saw 184 mm	Power Tools	\$145.00	17		15	
7	Cordless Drill 12 V	Power Tools	\$199.00	35		25	
8	Cordless Drill 14V	Power Tools	\$235.00	30		18	
9	Drill Set 21 pc	Accessories	\$59.95	35		5	
10	Engineers Vice	Accessories	\$95.00	45		10	
11	Extension Ladder	General Hardware	\$219.00	18		5	
12	Hammer 20 oz	Hand Tools	\$34.95	28		0	
13	Hammer Drill 10 mm	Power Tools	\$79.95	15		5	
14	Hammer Drill 13 mm	Power Tools	\$169.00	25		20	
15	Heat Gun 1400 W	Power Tools	\$69.95	15		10	
16	Heavy Staple Gun	Accessories	\$59.95	42		10	
17	Orbital Sander	Power Tools	\$125.00	18		5	
18	Palm Sander	Power Tools	\$185.00	22		10	
19	Pliers 180 mm	Hand Tools	\$15.95	18		0	

- 2 Click on cell B20 and add the following products to the spreadsheet.

Product Name	Category	Unit Price incl GST	Units in Stock	Customer Orders
PVC Masking Tape	General Hardware	\$4.99	55	25
Sandpaper 120 G	General Hardware	\$18.95	30	18
Socket Set 41 pc	Hand Tools	\$69.95	38	28
Spanner Set 11 pc	Hand Tools	\$64.95	26	2
Wrench 150 mm	Hand Tools	\$11.95	18	10

- 3 Click on cell A5 and type: **1125**
- 4 Use the Ctrl key and fill handle to increment by 1 down the Product Number column. Format to text.
- 5 Add a calculation in cell F5 to give a total value of stock. Use the Fill handle to copy the calculation down the column.
- 6 Save the workbook and leave it open for the next exercise.

### **Exercise 6**

The Customer Orders column records the amount of stock that has already been ordered.

- 1 Using the workbook **Hardware Haven Products**, create a calculation in the Balance of Stock column, to calculate the stock remaining after these orders have been filled.
- 2 In cell A26 type: **Total** and apply bold.
- 3 In this row calculate totals for columns E, F, G and H.
- 4 Add top and bottom borders to these totals.
- 5 Add a heading *Customer Orders Value* to cell I4 (i.e. column I and row 4). Copy the formatting from cell H4 and widen the column.
- 6 Calculate the value of products already ordered by customers.

- 7 Add a total (and lines) to the Customer Orders Value column.
- 8 In cell J4 type: **GST Collected** Apply appropriate formatting and widen the column.
- 9 Use division to calculate the GST component of Customer Orders Value. (GST is 10%; you will therefore divide by 11.)
- 10 Total the GST Collected column and add lines.
- 11 Save the workbook.
- 12 Print the worksheet. Save the workbook and leave it open for the next exercise.

#### **Exercise 7**

- 1 Using **Hardware Haven Products**, click on the Sales Report sheet tab.
- 2 Sales for Power Tools are shown in the sheet for January 2012 and 2013.
- 3 Create the required calculation in the % Increase/Decrease in Sales column.  $(2013 \text{ Year} - 2012 \text{ Year}) / 2012 \text{ Year}$
- 4 Save the worksheet.
- 5 Print and close the workbook.

## **Exponential Numbers**

In Excel, exponential numbers cannot be added to a spreadsheet as calculable values because if  $3^4$  (i.e.  $3 \times 3 \times 3 \times 3$ ) is typed as a calculation, Excel automatically calculates the cell.

#### **Exercise 8**

- 1 In a new workbook click in cell A3.
- 2 Type:  $=3^4$  and press Enter.
- 3 Excel will calculate this and return the value of 81.
- 4 To display an exponential number click in B3 and type:  $3^4$  then press Enter.
- 5 Close the workbook without saving.

The EXP function in Excel returns  $n$  raised to the power of a given number (i.e. multiplied by itself a given number of times). Use the Help feature to learn more about exponential numbers.

## **Combinations**

In Excel calculations, addition can be combined with subtraction, and with multiplication and division. Examples of combining formulas are shown below.

$=(A4+B4)-C4$   
 $=(A4*B4)/C4$   
 $=A4/(B4+C4)$   
 $=A4-(B4*C4)$

The part of the calculation that is set in brackets is calculated first.

# Copying and Moving Data Summary

Buttons on the Home Ribbon

Copy



Cut



Paste



Action	Instruction
<b>Copying</b> (using Copy and Paste)	Select the cell(s) to be copied. On the Home Ribbon click on the Copy button or Ctrl C. Click on the destination cell(s) and click on the Paste button or Ctrl V.
<b>Copying</b> (using Drag and Drop)	Select the cell(s) to be copied. Move the mouse to the edge of the cells, hold down the Ctrl key and drag to the destination cell(s).
<b>Copying</b> (using the Fill handle)	Select the cell(s) to be copied. Move the mouse pointer over the Fill handle. Hold down the left mouse button and drag across cells you are copying to. <b>Note:</b> Months and Days will be incremented rather than copied.  Fill Handle
<b>Moving</b> (using Cut and Paste)	Select the cell(s) to be moved. On the Home Ribbon click on the Cut button or Ctrl X. Click on the destination cell(s) and click on the Paste button or Ctrl V.
<b>Moving</b> (using Drag and Drop)	Select the cell(s) to be moved. Move the mouse to the edge of the cells and drag to the destination cell(s). Use the Shift key to move rows/columns between existing rows/columns.
<b>Moving/Copying to another Worksheet</b> (using Drag and Drop)	Select the cell(s) to be moved/copied. Move the mouse to the edge of the cells. Hold down the Alt key (Ctrl key as well to copy). Click and drag down onto the sheet tab of the worksheet required. Position on worksheet; release the mouse button.

## Using the Right Mouse Button

Selected cells can be dragged to a new location using the *right mouse* button and then options can be chosen from the right mouse menu as described below.

<b>Move Here</b>	Moves data to the new selected location.
<b>Copy Here</b>	Copies the data into the new selected location.
<b>Copy Here as Values Only</b>	Copies the values displayed in the selected cells into the new location.
<b>Copy Here as Formats Only</b>	Copies only the formatting that has been applied to the selected cells to the selected area.
<b>Link Here</b>	Creates a link to the original cell and displays the data in that cell.
<b>Create Hyperlink Here</b>	Inserts a Hyperlink to the original cell.
<b>Shift Down and Copy</b>	Copies the formula from the selected cells into the new location and alters the cell references down the same amount as the formula.
<b>Shift Right and Copy</b>	Copies the formula from the selected cells into the new location and alters the cell references to the right the same amount as the formula.
<b>Shift Down and Move</b>	Moves the formula from the selected cells into the new location and alters the cell references down the same amount as the formula.
<b>Shift Right and Move</b>	Moves the formula from the selected cells into the new location and alters the cell references to the right the same amount as the formula.

### Exercise 9

- 1 Open the workbook called **Stock**.

A	B	C	D	E	F
1	Wilsons Furniture				
3	Category	Name	Description	Cost Price	Quantity
4	Bed	Angelo - Single bunk bed	A bunk bed with ladder in black metal. No mattresses.	\$320	3
5	Bed	Hearts - Single bunk bed	A bunk bed with ladder in pink metal. No mattresses. Can separate into two separate single beds.	\$456	4
6	Bed	Kent Slat	Queen size contemporary slat, solid rimu bed.	\$1,456	4
7	Bed	Woodvale Slat	Queen size slat, traditional solid rimu bed.	\$1,650	5
8	Bed	Tiffany - Single	Single size bed with base	\$880	8
9	Bed	Tiffany - Double	Double size bed with base	\$1,200	5
10	Bed	Tiffany - Queen	Queen size bed with base	\$1,400	10
11	Bed	Tiffany - King	King size bed with base	\$1,600	4
12	Bed	Tiffany - Super King	Super King size bed with base	\$1,800	1
13	Bookcase	900 x 900	Solid rimu	\$256	5
14	Bookcase	1200 x 1200	Solid rimu	\$596	5
15	Coffee Table	Manchester	Sold rimu coffee table	\$130	4
16	Coffee Table	Frankton	Sold rimu coffee table with drawer.	\$460	4
Dining	Tracav - 7 Piece Dining	A solid wood chairs with matching solid wood table.			

- 2 Using the instructions on the previous page complete the following tasks.
  - a Move the Unit Price column to appear between the Cost Price and Quantity columns (Shift key). The Unit Price column is based on the Cost Price plus 40%.
  - b Copy the bed range called **Tiffany** to the bottom of the worksheet. Amend the copied Tiffany range to the following.

Category	Name	Description	Cost	Unit	
			Price	Price	Quantity
Bed	Harris - Single	Single size bed with base	\$420	\$588	8
Bed	Harris - Double	Double size bed with base	\$620	\$868	4
Bed	Harris - Queen	Queen size bed with base	\$895	\$1,253	12
Bed	Harris - King	King size bed with base	\$1,100	\$1,540	3
Bed	Harris - Super King	Super King size bed with base	\$1,320	\$1,848	1

- c Move the dining room furniture category to appear below the lounge suite furniture.
- 3 Print the worksheet.
- 4 Save and close the workbook.

# The Paste Button

So far you have learnt to paste data exactly as it was copied but there are many options to choose from when pasting data in a worksheet. Once you have copied or cut data to the Clipboard you can click on the drop down arrow on the Paste button (as shown at the right) and select what data and how that data is pasted. Each option is described below.

	Paste	Pastes exactly as copied/cut with all formatting, values, formulas, etc., applied.
	Formulas	If data on the Clipboard has formulas, the formulas only will be pasted into the worksheet.
	Formulas and number formatting	Formulas and number formatting will be pasted
	Keep source formatting	Formatting will match that of the source data.
	No Borders	If data on the Clipboard has border styles applied, the data can be pasted into a worksheet with no border styles.
	Column Widths	Column width of initial data will be applied.
	Transpose	If data on the Clipboard has been copied/cut from a column, it can be pasted into a worksheet as a row of data. Similarly if a row was copied/cut, it can be pasted into a worksheet as a column of data.
	Paste Values	If data on the Clipboard has formulas they can be pasted as values - only the final figure will display in the worksheet.
	Values & number formatting	Paste values as well as number formatting
	Values & source formatting	Paste values, number formatting and keep the source formatting
	Formatting	Paste just formatting – like Format Painter
	Paste Link	Paste Link – links the destination cell to the source cell e.g. =B4
	Picture	Pastes the copied/cut cells as a picture object
	Linked picture	Pastes the copied/cut cells as a linked picture object

# Clipboard Task Pane

Data can be copied and pasted normally using the Home Ribbon Clipboard Group (Office Clipboard) buttons, shortcut keys, or the Clipboard Task Pane can be used. The Clipboard Task Pane appears at the left of the screen and can be activated by clicking on the Clipboard Group dialog box launcher. The Clipboard Task Pane holds a maximum of 24 objects.

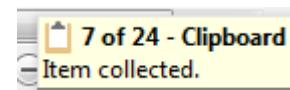
The Clipboard Task Pane allows you to select items that have been copied or cut to the Clipboard from when the Office Clipboard was activated. Clicking on an item on the Clipboard Task Pane will insert it into the current worksheet at the point where the cursor is located OR you can click



on the next to the item (displayed on the Clipboard Task Pane) and select .

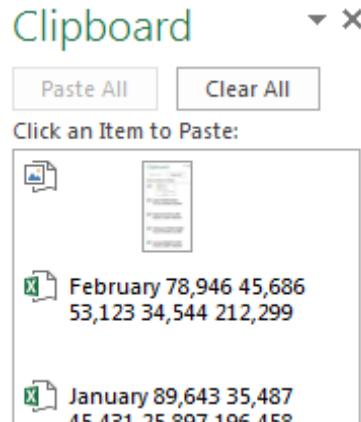
When data is pasted into a worksheet the Paste symbol (Smart Tag) will appear (if Smart Tags is turned on) next to the pasted item. This feature allows you to choose from the paste options described on the previous page.

When the Office Clipboard is active, an icon will appear on the Windows Taskbar. When the mouse pointer is moved over the icon the number of items collected will be displayed.



## Exercise 10

- 1 Open the workbook called **Candy World**.
  - 2 From the Home Ribbon, Clipboard Group, click on the Clipboard dialog box launcher .
  - 3 Click on (if active).
  - 4 Select cells B4 to B9. Click on the Copy button .
- The selected data will be copied to the Windows Clipboard as well as the Office Clipboard (an item will be displayed on the Clipboard Task Pane).
- 
- 5 Click on the Sheet2 tab and ensure cell A1 is selected. Click on the Paste button . Press Esc to close Paste Options then click on cell A6 to view the formula displayed in the Formula bar. Pressing Enter can also be used to paste data to another location.
  - 6 Click on the Sheet1 tab. Notice that the cells you selected previously will be displayed with a moving border. Press Esc. The Paste button becomes dimmed; the contents of the Windows Clipboard have been removed. The copied data is still on the Clipboard Task Pane.
  - 7 Select cells C4 to C9. Click on . (If Enter had not been pressed to clear the Windows Clipboard the contents of the Windows Clipboard would now have been replaced with the new data.)
  - 8 Click on the Sheet2 tab then click on cell B1. Position the mouse pointer over the first option (February) on the Clipboard Task Pane, as shown at the right.
  - 9 Click on the first option (February) on the Clipboard Task Pane to paste the data.



- 10 Click on cell B6 to see that a number is displayed, with no formula in the Formula Bar.  
(Formulas are not pasted from the Clipboard Task Pane, only values.)

11 Click on the Sheet1 tab.

12 Select cells D4 to D9.

13 Click on Copy .

14 Select cells E4 to E9.

15 Click on Copy .

The four items will now be displayed on the Clipboard Task Pane as shown at the right.

16 Click on the Sheet3 tab and ensure cell A1 is selected.

17 Press Enter to insert the last copied text from the Windows Clipboard.

The Windows Clipboard can only hold one copied item at a time but all the data has remained on the Clipboard Task Pane. The data can be inserted into a worksheet as many times as required but remember, formulas will not be copied.

18 Click on cell A9 then click on Paste All on the Clipboard Task Pane.

The Paste All button always pastes items underneath each other from the Clipboard Task Pane.

19 Click on Clear All.

20 Click on the Close button on the Clipboard Task Pane then save and close the workbook.

### **Exercise 11**

- 1 Open the workbook called **Supreme Supermarkets**.
- 2 Using the Clipboard Task Pane copy cells A1 to E4 from the Wines worksheet. Copy the data from the Wines worksheet (cells A5 to E10), Food Products worksheet (cells A5 to E14) and from the Household Cleaning worksheet (cells A5 to E10).
- 3 Click on the Insert Worksheet button at the bottom of the workbook. With cell A1 selected click on Paste All.
- 4 Delete the contents of cell A2 and widen columns.
- 5 Because only *formula results* have been pasted into the worksheet you will need to recalculate the formulas in cell D5 and E5, then copy the formulas down columns D and E. Delete any unnecessary formulas from the Canned heading row. Save and close the workbook.

### **Note**

- When two or more items are copied to the Clipboard Task Pane they will be displayed in all Office 2013 programs.
- Data pasted from the Windows Clipboard will retain formulas but when data is pasted from the Clipboard Task Pane formulas will be pasted as numbers.

# Inserting and Deleting

## Inserting

### Home Ribbon

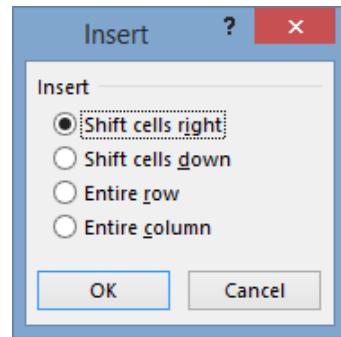
- Cells/rows A cell/row is inserted above a selected cell or row. Click in a cell below where the new cell is to be inserted or select the row below where you want the new row. Click on the Insert button on the Home Ribbon.
- Columns A column is inserted at the left of a selected column. Select the column at the right of where the new column is to be inserted. Click on the Insert button on the Home Ribbon.



### Right Mouse Button

#### Using Row or Column Headers

- Rows/Columns A column is inserted at the left of a selected column. A row is inserted above a selected row. Right click on the header of the row or column and select Insert.



#### Using Cells

- Rows/Columns Right click on the cell below or at the right of where a new row or column is required and select Insert. From the dialog box select either Entire row or Entire column then click on OK.

## Deleting

### Home Ribbon

- Rows/Columns Select the row or column to be deleted. Click on the Delete button on the Home Ribbon.



### Right Mouse Button

#### Using Row or Column Headers

- Rows/Columns Right click on the header of the row or column that requires deleting and select Delete.

#### Using Cells

- Rows/Columns Right click on a cell in the column or row to be deleted and select Delete. From the dialog box select either Entire row or Entire column then click on OK.

## Note

Several rows/columns can be inserted by selecting several rows/columns and using one of the methods described above.

**Exercise 12**

- 1 Open the workbook called **Holiday Options**.

	A	B	C	D	E
1	<b>Holiday Options</b>				
2					
3					
4	<b>Destination</b>	<b>Nights</b>	<b>Cost Per Person</b>	<b>Discounts</b>	<b>Total Cost</b>
5	Gold Coast - Australia	7	\$899	x	
6	Fiji	4	\$1,195		
7	Queenstown - New Zealand	5	\$995		
8	Sydney - Australia	5	\$895	x	
9	Tahiti	5	\$1,795		
10	Honolulu - United States	5	\$1,990	x	
11	Los Angeles - United States	5	\$2,499	x	
12	Cruise - South Pacific	10	\$3,500		

- 2 Calculate the Total Cost for four people for each trip.  
3 Insert the following column between the *Nights* and *Cost Per Person* columns. Wrap the heading text in the cell and align headings appropriately.

<b>Accommodation type</b>
Apartment
Resort bungalow
Hotel
Hotel
Hotel
Resort bungalow
Hotel
Hotel

- 4 Delete the Cruise - South Pacific row.  
5 Insert the following trip below Sydney (i.e. above Tahiti).

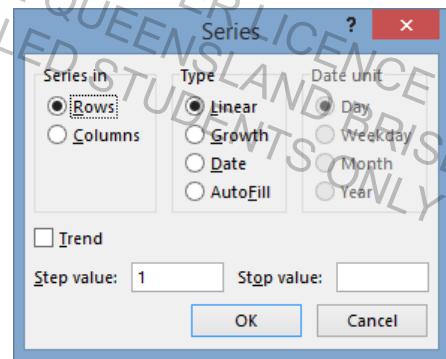
<b>Destination</b>	<b>Nights</b>	<b>Accommodation Type</b>	<b>Cost Per Person</b>
Melbourne - Australia	5	Hotel	\$1,495

- 6 Delete the Discounts column.  
7 Save and close the workbook.

# Series

The Series command fills a range of cells with a sequence of values. This is useful to quickly insert numbers, e.g. numbers from 1 to 10, or enter dates, e.g. Jan to Dec.

A series range starts with a number or date value and increases by a set step value until a stop cell is reached. A series can be entered by using the Fill handle OR by clicking on the Fill button  from the Editing Group on the Home Ribbon and selecting Series.



*Series in* Select *Rows* to fill the series across selected rows or select *Columns* to fill down selected columns.

*Type* Select the type of series required.

*Date unit* If Date is selected in the Type section, the date increments by Day, Weekday, Month or Year are selected in the Date unit section.

*Step value:* The amount by which a series is increased or decreased. A positive number will increase a series and a negative number will decrease a series.

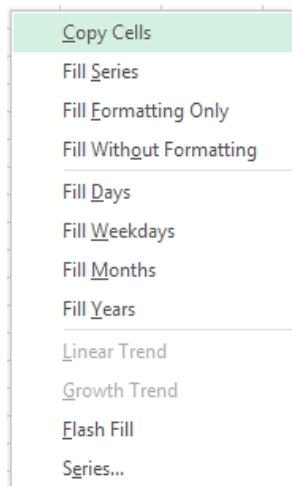
*Stop value:* The value that ends a series.

## Fill Series Options

Description	Instruction
To insert incremented number values	1 Select the number value cells. 2 Hold down the Ctrl key and drag on the Fill handle.
To define step and stop units, i.e. where a fill starts and stops	1 Select the value cells and the range to be filled. 2 Click on  Fill ▾ Series. 3 Click in the Stop value: box and enter the value. 4 Select the type of fill required. Click on OK.
To insert incremented dates and formulas	1 Select the value cells. 2 Click and drag on the Fill handle. OR 3 Select the value cells and the range to be filled. 4 Click on  Fill ▾ Series. Select AutoFill and click on OK.

## Using the Right Mouse Button

Drag the Fill handle with the *right mouse button* to see the options shown at the right which are available from a shortcut menu.



## Revision

The following exercise includes revision of the following Excel features. If you are not sure how to use these use the Help feature to assist you. (Instructions for using the Help feature are included in this book on page 45.)

- Fill Series
- Absolute cell references
- Percentages
- Headers and footers
- Printing a selection

### Exercise 13

- 1 Open the workbook called **Computer Software Pty Ltd**, which is shown below.

	A	B	C	D	E
1	<b>Computer Software Pty Ltd</b>				
2	<i>Sales for May-August, 2013</i>				
3					
4					
5					
6	Davidson, Mark	280	350	365	360
7	Rae, Bruce	225	310	330	345
8	Hindley, Eric	295	360	365	395
9	Donaldson, Greg	310	395	410	450
10	Coleman, Vern	330	340	395	425
11	Eaton, Andrew	325	310	355	395
12	McIver, Scott	315	365	390	425
13	Marks, Greg	285	375	385	400
14	Bennison, Michael	275	320	360	420
15	Denley, David	320	390	400	395

- 2 In cell B5 type: **May**.
- 3 Drag the Fill handle across to cell E5.
- 4 Row 5 will now display May, June, July, August.
- 5 Type the text shown below into the cells indicated.

F5	Total
G5	% Total
H4	5%
H5	Commission
A17	Total

- 6 Calculate the totals in column F and row 17.
- 7 Save the workbook and leave it open for the next exercise.

### **Exercise 14**

- 1 Ensure the workbook **Computer Software Pty Ltd** is open.
- 2 Add an absolute reference to cells G6 to G15 to calculate the percentage of the total in column F, i.e. in cell G6 the formula will read: =F6/\$F\$17. Ensure the F4 key is used to insert the \$ absolute indicators.
- 3 Copy this formula to cell G17.
- 4 Format the data in column G to display a % sign and two decimal places. Delete any data in cell G16.
- 5 Calculate 5% Commission in column H and format to currency with two decimal places.
- 6 Type the following under the worksheet.

5% of Total Sales	
total Sales increased by 5%	
Total Sales decreased by 5%	

- 7 Calculate these amounts in the next column.
- 8 Format the worksheet to present it attractively.
- 9 Add a header at the top right to display today's date and a footer at the bottom left to show the file name of the workbook.
- 10 Print the worksheet excluding the percentage summary under the worksheet.
- 11 Save and close.

### **Exercise 15**

- 1 Create a worksheet for The CD Company Pty Ltd. They are a wholesale company that supplies CDs to retailers.
  - CDs are presently \$0.60 each and on quantity orders The CD Company is prepared to give 10% discount. They would like a worksheet set up with quantities displayed in increments of 25, starting at 25 up to 350.

#### **Tips**

You will need to specify the price and discount in separate cells using absolute cell references.

Suggested columns are:

Quantity, Gross Price, Discount, Net Price.

- 2 Do calculations on the worksheet, save, and print a copy.
- 3 Now make changes to increase the price of CDs to \$0.70 and allow a discount of 15%.
- 4 Print a copy of these forecasts then close without saving.

## Revision

The following exercises include revision of the Excel features listed below.

- Fill Series
- Freezing Panes

### Exercise 16

- 1 Open the workbook called **The Paint Shop**.
- 2 Type **June** in cell C5 and drag the Fill handle across to cell I5 (row I, column 5) to insert the months June to December.
- 3 In cell A7 type: **3050** as the product code. Increment down the column by 1 (hold down the Ctrl key and drag the Fill handle down). Format this column to text.
- 4 Calculate the Total column (Column J) and the Total row (Row 24).
- 5 Save the workbook and leave it open for the next exercise.

## Freezing Panes

### Exercise 17

- 1 Using the workbook **The Paint Shop**, press Ctrl Home to move to cell A1 (to view column titles). Click on cell B7.
- 2 On the View tab click on the Freeze Panes button and select Freeze Panes.
- 3 Click on the  on the vertical scroll bar to move down the worksheet. Notice that rows 6 and above remain fixed.
- 4 Click on the horizontal scroll bar  to move to the right of the worksheet. Notice that column A does not move as it is frozen.



	A	E	F	G	H	I	J	K
1	<b>The P</b>							
2	<b>Produc</b>							
3	<b>June - D</b>							
4								
5	<b>Product</b>							
Code	August	September	October	November	December	Total	Average	
6								
10	3053	480.00	470.00	485.00	310.00	350.00	2,990.83	427.26
11	3054	355.00	378.00	365.00	460.00	422.00	2,660.80	380.11
12	3055	425.00	435.00	376.00	300.00	325.00	2,661.70	380.24
13	3056	150.00	175.00	125.00	160.00	210.00	1,140.30	162.90
14	3057	915.00	886.00	900.00	956.00	865.00	6,272.00	896.00
15	3058	620.00	580.00	650.00	520.00	600.00	4,112.00	587.43
16	3059	305.00	289.00	295.00	254.00	278.00	2,056.00	293.71
17	3060	324.00	278.00	315.00	250.00	268.00	2,075.00	296.43
18	3061	312.00	277.00	287.00	300.00	310.00	2,062.00	294.57
19	3062	385.00	440.00	380.00	420.00	415.00	2,795.00	399.29
20	3063	150.00	100.00	130.50	170.40	184.20	1,310.20	187.17
21	3064	320.00	362.50	312.30	352.40	330.85	2,238.35	319.76
22	3065	405.23	290.00	365.00	305.00	314.60	2,349.83	335.69
23								
24	<b>Total</b>	6,491.23	5,740.50	6,347.80	6,037.80	6,282.65	43,373.71	6,196.24

- 5 Click on the Freeze Panes button and select Unfreeze Panes. Adjust column widths as required.
- 6 Save and close the workbook.

## Revision

- 1 How would you insert the © symbol into a cell?

.....  
.....

- 2 How would you change the font size of a selected cell?

.....  
.....

- 3 Name two methods of removing borders from cells.

.....  
.....

- 4 How would you select non-adjacent cells?

.....  
.....

- 5 Name two ways you can cut and copy cells in a worksheet.

.....  
.....

- 6 Which key must you press to **copy** cells with drag and drop?

.....

- 7 How many items can be stored on the Clipboard Task Pane?

.....

- 8 Explain how you would insert a row within a worksheet.

.....  
.....

- 9 Which key must be used with the Fill handle to increment numbers?

.....

- 10 How would a series of numbers be inserted down a column in the following numeric order – 4, 8, 12, 16?

.....  
.....  
.....

## **Easy Functions Formula Auditing Help and Hyperlinks**

### **Learning Outcomes**

*At the end of this section you should be able to:*

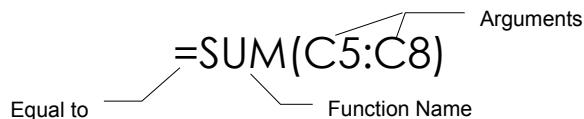
- Use easy functions including Average, Maximum, Minimum and Count
- Understand and use Smart Tags
- Check data accurately
- Understand error messages
- Use the Auditing toolbar to check for errors
- Use cross totals
- Access information on Excel features using Help
- Use hyperlinks in Excel

# Easy Functions

Functions can perform tasks such as additions, calculating the average of a group of values, inserting the date, calculating angles, calculating the value of an investment over a period, etc. Excel supports the following function types:

Mathematical	Statistical
Logical	Database
Financial	Text
Date and Time	Lookup/Reference

A function formula consists of =, the function name and an *Argument* which is in brackets.



You have already used the SUM function with the AutoSum button, i.e.  $=\text{SUM}(\text{A1:A10})$ , which calculates the addition of a range of cells within the brackets.

Within the brackets of an argument there can be multiple arguments separated by commas. The SUM function below adds multiple ranges.

Multiple Arguments  
 $=\text{SUM}(\overbrace{\text{C5}:\text{C8}}, \overbrace{\text{F5}:\text{F8}}, \overbrace{\text{H5}:\text{H8}})$

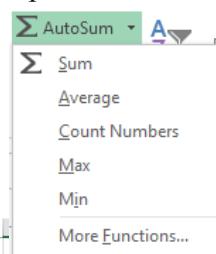
## Average Function

The Average function returns the average value within a selected range of cells.

i.e.  $=\text{AVERAGE}(\text{number1}, \text{number2}, \dots)$ .

### Exercise 18

- 1 Open the workbook called **The Paint Shop**. In cell K5 type: **Average** then press Ctrl Enter.
- 2 Click on cell K7. Click on the  $\Sigma$  of the AutoSum button  $\Sigma$  AutoSum  $\downarrow$ .
- 3 Select Average.
- 4 The Formula Palette will display the AVERAGE function and a suggested range.



A	B	C	D	E	F	G	H	I	J	
1 <b>The Paint Shop</b>										
2 <b>Product Sales</b>										
3 <i>June - December 2013</i>										
Product	Code	Product	June	July	August	September	October	November	December	Total
7	3050	Delex 4 litre Paint	450.55	375.00	560.00	542.00	595.00	515.00	425.00	3,462.55
8	3051	Delex 10 litre Paint	320.65	401.50	375.00	350.00	365.00	305.00	540.00	2,657.15

The suggested range is incorrect as it includes from June to the Total column. The range should be June to December.

- 5 In the worksheet select cells C7 to I7 (column I, row 7).
- 6 The correct formula result will appear in the Formula Bar. Press Ctrl Enter.
- 7 Use the Fill handle to copy the formula down column K to row 24. Delete the formula from cell K23.
- 8 Leave the workbook open for the next exercise.

Alternatively the Insert Function button  could be used to insert the above formula or the function name could be typed directly in the cell/Formula bar.

## Max, Min and Round Functions

### Exercise 19

Insert the following functions as instructed below.

- 1 Using the workbook **The Paint Shop**, insert the heading **Maximum** in cell L5. Calculate the maximum sale for each product for June to December using the MAX function in column L.
- 2 Insert the heading **Minimum** in cell M5. Calculate the minimum sale for each product for June to December using the MIN function in column M.
- 3 Insert the heading **Round** in cell A26. Using the following as a guide, insert the ROUND function in row 26 to round totals to the nearest \$10.

The Round function rounds a number to a specified number of digits and is used as follows:

**=Round(number,digits)**

**Number** is the number to round; **digits** is the number of digits to round the number to.

Examples: cell A1 contains the number 4,662.79

Formula	Rounds	Result
=Round(A1,0)	Rounds to the nearest whole number	Returns 4,663
=Round(A1,1)	Rounds to one decimal point	Returns 4,662.8
=Round(A1,-1)	Rounds to the nearest 10	Returns 4,660
=Round(A1,-2)	Rounds to the nearest 100	Returns 4,700
=Round(A1,-3)	Rounds to the nearest 1000	Returns 5,000

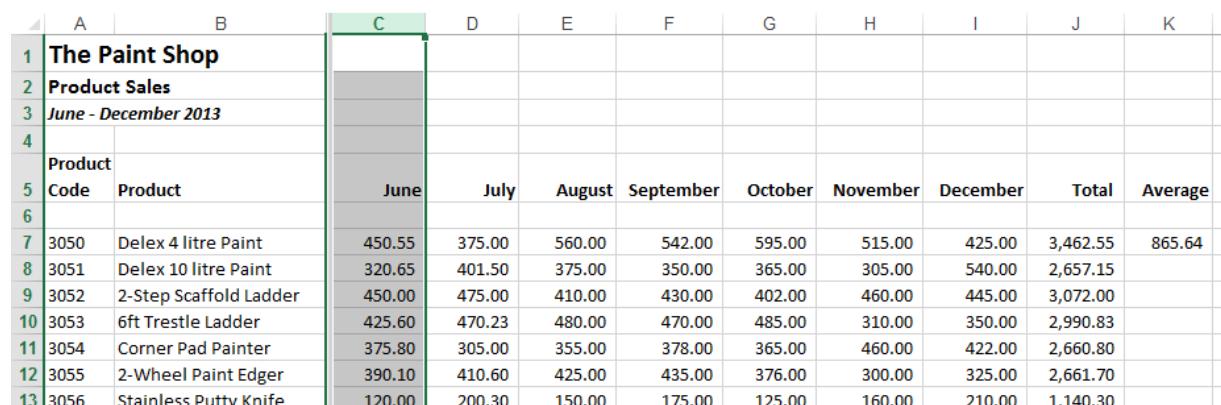
- 4 Insert the heading **Number of Products** in cell A27. Use the COUNT function in cell C27 to count the number of products (use the Product Code column).
- 5 Leave the workbook open for the next exercise.

## Split Screen

You can split the window into panes using the **Split** button on the Ribbon. Select the cell, column or row where you want to place the split, and then click on the View Ribbon and select **Split** from the Window group. You can drag the Split Bar to reposition it.

### Exercise 20

- 1 Using the workbook **The Paint Shop**, select column C.



A	B	C	D	E	F	G	H	I	J	K
1	The Paint Shop									
2	Product Sales									
3	June - December 2013									
4										
5	Product									
6	Code	Product	June	July	August	September	October	November	December	Total
7	3050	Delex 4 litre Paint	450.55	375.00	560.00	542.00	595.00	515.00	425.00	3,462.55
8	3051	Delex 10 litre Paint	320.65	401.50	375.00	350.00	365.00	305.00	540.00	2,657.15
9	3052	2-Step Scaffold Ladder	450.00	475.00	410.00	430.00	402.00	460.00	445.00	3,072.00
10	3053	6ft Trestle Ladder	425.60	470.23	480.00	470.00	485.00	310.00	350.00	2,990.83
11	3054	Corner Pad Painter	375.80	305.00	355.00	378.00	365.00	460.00	422.00	2,660.80
12	3055	2-Wheel Paint Edger	390.10	410.60	425.00	435.00	376.00	300.00	325.00	2,661.70
13	3056	Stainless Putty Knife	120.00	200.30	150.00	175.00	125.00	160.00	210.00	1,140.30

- Click on the **Split** button  on the View Ribbon. The worksheet is split into two panes after column B.
- In the right hand pane, use the horizontal scroll bar to move across the worksheet to column J to view the totals.

	A	B	J	K
1	<b>The Paint Shop</b>			
2	<b>Product Sales</b>			
3	<i>June - December 2013</i>			
4				
	<b>Product</b>			
5	Code	Product	Total	Average
6				
7	3050	Delex 4 litre Paint	3,462.55	494.65
8	3051	Delex 10 litre Paint	2,657.15	379.59
9	3052	2-Step Scaffold Ladder	3,072.00	438.86
10	3053	6ft Trestle Ladder	2,990.83	427.26
11	3054	Corner Pad Painter	2,660.80	380.11
12	3055	2-Wheel Paint Edger	2,661.70	380.24
--				

- Double click on the Split Bar OR click on the Split button  on the View tab to remove the split.
- Save the workbook and leave it open for the next exercise.

### **Exercise 21**

Practise the following on this worksheet.

- Using the workbook **The Paint Shop**, hide columns C to I then preview in Backstage view using Print.
- Exit Print and unhide these columns.
- Change the Page Setup to landscape orientation with top and bottom margins of 1.5 cm.
- Insert a header at the left margin to display the date.
- Insert a footer to display the file name at the right of the page.
- Reduce column widths or reduce font size as needed to ensure the spreadsheet will print on one page.
- Save, print and close the workbook.

## Exercise 22

In June the following properties were sold in the eastern suburbs of Sydney.

47 Wild Street, Maroubra
Type: House
No. of bedrooms: 3
Bathrooms: 1
Separate Dining Room: Yes
Family Room: Yes
Garage: Yes, double
<b>Additional Information:</b>
Close to school
Walking distance to beach
<b>Price Sold:</b> \$300,000

184 Arden Street, Coogee
Type: Town House
No. of bedrooms: 3
Bathrooms: 2
Separate Dining Room: No
Family Room: No
Garage: Yes, single
<b>Additional Information:</b>
Fully furnished
View of the sea
<b>Price Sold:</b> \$380,000

14/460 Bronte Road, Bronte
Type: Apartment
No. of bedrooms: 2
Bathrooms: 1
Separate Dining Room: No
Family Room: No
Garage: No, has carport
<b>Additional Information:</b>
2nd floor, near shops
<b>Price Sold:</b> \$375,000

13 Waltham Street, Coogee
Type: House
No. of bedrooms: 5
Bathrooms: 3
Separate Dining Room: Yes
Family Room: Yes
Garage: Yes, triple
<b>Additional Information:</b>
Lovely sea views
One street back from beach
<b>Price Sold:</b> \$650,000

225 Oberon Street, Coogee
Type: House
No. of bedrooms: 4
Bathrooms: 2
Separate Dining Room: Yes
Family Room: Yes
Garage: Yes, single
<b>Additional Information:</b>
Pool and spa
View of the sea
<b>Price Sold:</b> \$450,000

2/36 Douglas Street, Randwick
Type: Luxury Apartment
No. of bedrooms: 4
Bathrooms: 2
Separate Dining Room: No
Family Room: Yes
Garage: Yes, double
<b>Additional Information:</b>
Tennis court, spa, pool
Gym facilities, near beach
<b>Price Sold:</b> \$550,000

You are required to set up a worksheet to show the address (sorted into suburb), type of property, the price sold, the total revenue from properties sold for the month of June and the average, minimum and maximum prices.

These properties have been sold by James Mitchell and he will earn commission on these properties of 7%. Please calculate the total commission he will get.

# Option Buttons

When certain data is entered or an option is used in Excel one of the symbols shown in the table below may appear. Some of the most common are listed below.

Option Symbol	Option Button	Name	Description
—		AutoCorrect Options	Actions text that can be corrected using AutoCorrect.
		Paste Options	Actions data pasted into a worksheet.
		Insert Options	When rows/columns or cells are inserted into a worksheet different formatting options can be applied to inserts.
		Trace Error	Displays an error when the formula in the cell may be incorrect.
		Auto Fill Options	Used when filling cells with the fill handle. You can select the type of data series required.

## Exercise 23

- 1 Open the workbook called **Westlake**.
- 2 In cell B4 type: **January**
- 3 Format cell B4 to appear right aligned, bold, italics and a bottom border.
- 4 With cell B4 selected drag the fill handle to cell D4. This will fill the cells with months of the year. The Auto Fill Options Smart Tag symbol will appear at the lower right of the last filled cell.
- 5 Position the mouse pointer on the Auto Fill Options symbol; it will change to the Auto Fill Options button.
- 6 Click on the Auto Fill Options button and select Fill Without Formatting. This will display the data without any formatting in cells C4 and D4.

3				
4		January	February	March
5	Red Room	1,400	1,000	850
6	Green Room	650	400	500

### Tip

To access an option button menu via the keyboard, press Alt Shift F10, then use the up and down arrow keys to select the feature required, and press Enter.

- 7 Click on the Auto Fill Options button and select Fill Formatting Only. The names of each month will not appear; only formatting from cell B4 is applied to selected cells.

3				
4		January		Total
5	Red Room	1,400	1,000	850
6	Green Room	650	400	500

- 8 Click on the Auto Fill Options button  and select Copy Cells. The data from cell B4 is copied to all the cells in the fill range.

3					
4		January	January	January	Total
5	Red Room	1,400	1,000	850	 3,250
6	Green Room	650	400	500	1,550

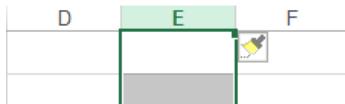
- 9 Click on the Auto Fill Options button  and select Fill Series.

3					
4		January	February	March	Total
5	Red Room	1,400	1,000	850	 3,250
6	Green Room	650	400	500	1,550

- 10 Save the workbook and leave it open for the next exercise.

#### Exercise 24

- Using the workbook **Westlake**, right click on the column E header.
- Click on Insert. A new column will be inserted with the Insert Options Smart Tag symbol displayed at the right.



- Position the mouse pointer on the Insert Options symbol and it will change to the Insert Options button.

- Click on the Insert Options button  and select Format Same As Left. This will copy the formatting of the left column (column D) into the newly inserted column.
- Enter the data as shown at the right, totalling the column in cell E9. Recalculate cell F9.
- The formulas used in the Total column will now include the newly inserted data.
- Save the workbook and leave it open for the next exercise.

March	April	Total
850	1,050	4,300
500	450	2,000
800	900	3,250
2,000	2,000	8,800
\$4,150	\$4,400	\$13,950

#### Exercise 25

- Using the workbook **Westlake**, select cells A4 to F9.
- Click on the Copy button  .



- Click on cell A12 and click on the Paste button

12		January	February	March	April	Total
13	Red Room	1,400	1,000	850	1,050	4,300
14	Green Room	650	400	500	450	2,000
15	Blue Room	850	700	800	900	3,250
16	Hall	2,500	2,300	2,000	2,000	8,800
17		\$5,400	\$4,400	\$4,150	\$4,400	\$13,950
18						
19						

- 4 Position the mouse pointer over the Paste Options symbol and it will change to the Paste Options button.

- 5 Click on the Paste Options button

	January	February	March	April	Total
Red Room	1,400	1,000	850	1,050	4,300
Green Room	650	400	500	450	2,000
Blue Room	850	700	800	900	3,250
Hall	2,500	2,300	2,000	2,000	8,800
	\$5,400	\$4,400	\$4,150	\$4,400	\$13,950

- 6 Select Formatting



Only the formatting will be applied to the cells; no data will be inserted.

- 7 From the Paste Options button select Values



Data is inserted with no formatting applied to cells.

- 8 From the Paste Options button select Values and Number Formatting  This will retain number formatting from the copied data.

	January	February	March	April	Total
12					
13 Red Room	1,400	1,000	850	1,050	4,300
14 Green Room	650	400	500	450	2,000
15 Blue Room	850	700	800	900	3,250
16 Hall	2,500	2,300	2,000	2,000	8,800
17	\$5,400	\$4,400	\$4,150	\$4,400	\$13,950
18					

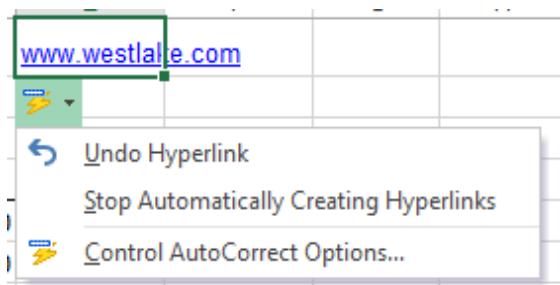
- 9 From the Paste Options button select Values and Source Formatting  This will copy all the formatting and data into the worksheet.
- 10 From the Paste Options button select Formatting .
- 11 Add the following data to the worksheet. Total the columns and rows.

	May	June	July	August	Total
12					
13 Red Room	1,100	950	900	850	3,800
14 Green Room	700	550	600	650	2,500
15 Blue Room	750	800	750	650	2,950
16 Hall	2,250	2,100	2,000	1,850	8,200
17	\$4,800	\$4,400	\$4,250	\$4,000	\$17,450

- 12 Save the workbook and leave it open for the next exercise.

### Exercise 26

- 1 Using the workbook **Westlake**, click on cell E1 and type: **www.westlake.com**
- 2 Press Ctrl Enter. Position the mouse pointer over cell E1 and the AutoCorrect Options symbol will appear.
- 3 Position the mouse pointer on the AutoCorrect Options symbol and it will change into the AutoCorrect Options button.
- 4 Click on the AutoCorrect Options button  Click on Undo Hyperlink.



- 5 Save and close the workbook.

# Checking Data

It is important that data (numbers and formulas) are checked within your worksheet.

- Check formulas by double clicking in a cell and looking at the coloured references. Also check the formula and range on the Formula bar. Adjust and copy formulas as necessary.
- An efficient way to check formulas and numbers within your worksheet is to print the worksheet to display the numbers and formulas. Do this by pressing Ctrl ‘ then print.
- Check totals by cross-totalling.

## Error Checking

The Error Checking feature checks for errors in the current worksheet. Error checking marks any formulas that have references to empty cells, formulas that do not match a row of formulas of similar nature, referencing to cells with text formatting, etc.

### Exercise 27

1 Open the workbook called **Baxter Sports**.

2 Click on **FILE** then click on **Options**.

3 Select Formulas and under *Error checking rules* ensure all options are checked.

4 Click on OK.

A green marker in the top left corner of a cell indicates the formula within the cell may have an error.

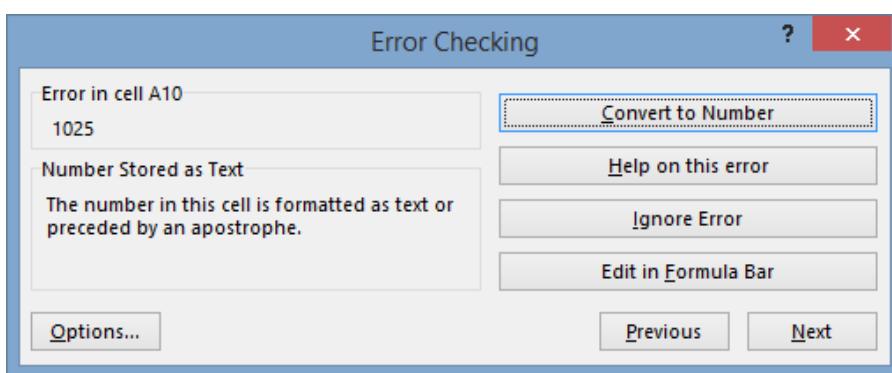
There are two methods you can use when checking for errors in a worksheet.

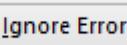
- Click in a marked cell and use the Options symbol (see page 30).
- Use the Error Checking dialog box.

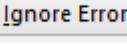
In this exercise you will use the Error Checking dialog box to check for errors in this worksheet.

5 Press Ctrl Home.

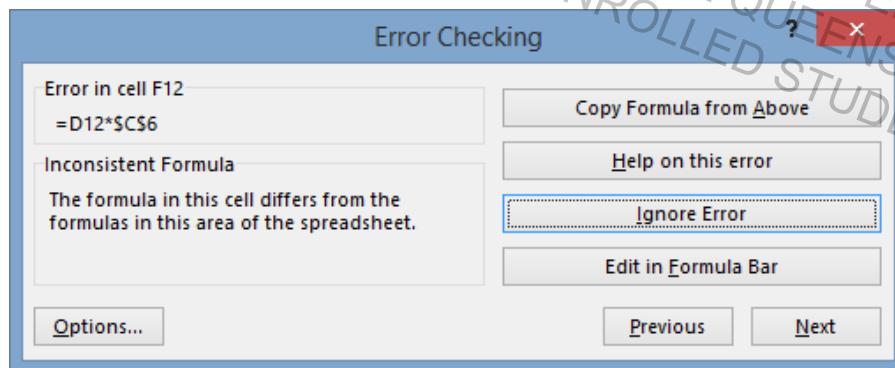
6 On the Formulas Ribbon click on the Error Checking button  Error Checking ▾.



7 The first error indicates that the number in cell A10 has been formatted as text. Click on  because the number is required to be formatted as text.

8 Click on  again to ignore the error in cell A11.

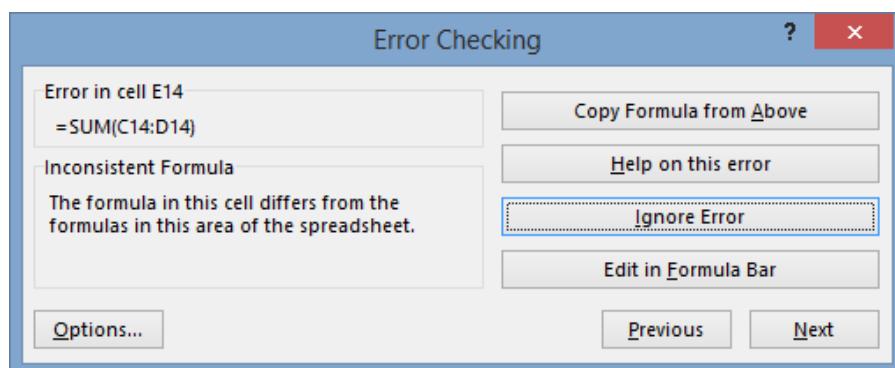
- 9 Click on **Ignore Error** again to ignore the error in cell A12.



- 10 Error checking has picked up that the formula in cell F12 differs from other formulas in the same column. Click on **Copy Formula from Above**. This will copy the formula from cell F11 into cell F12 changing the relevant cell references.

- 11 Click on **Ignore Error** again to ignore the error in cell A13.

- 12 Click on **Ignore Error** again to ignore the error in cell A14.



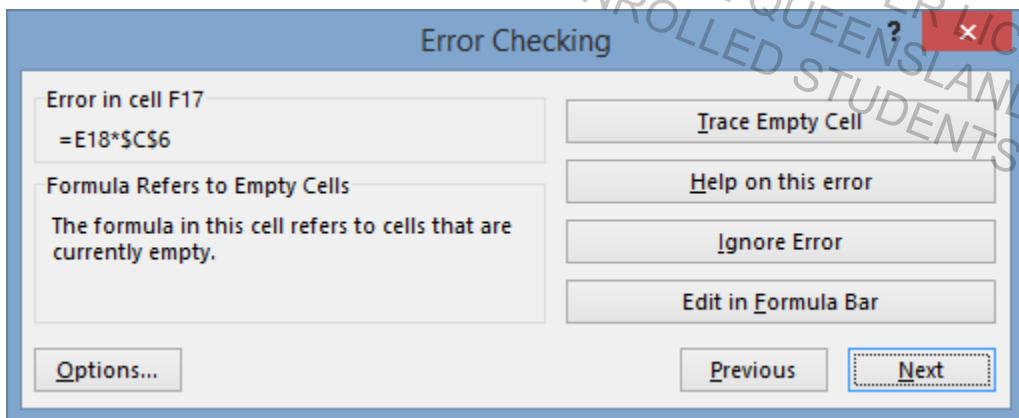
- 13 Error checking has picked up that the formula in cell E14 differs from other formulas in the same column. Click on **Copy Formula from Above**.

- 14 Click on **Ignore Error** again to ignore the error in cell A15.

- 15 Click on **Update Formula to Include Cells**

- 16 Click on **Ignore Error** again to ignore the error in cell A16.

- 17 Click on again to ignore the error in cell A17.



- 18 Click on . A red arrow will display the location of the empty cell in relation to the formula.

15	108	270.00	54.00
0	70	0.00	35.00

- 19 Click on .

- 20 Edit the formula to read =E17\*\$C\$6

- 21 Click on .

- 22 Click on OK.

- 23 Save and close the workbook.

## Error Checking Options

Error Checking options can be changed through the Excel Options, Formulas, Error Checking and Error checking rules sections OR when error checking, clicking on the Options button in the Error Checking dialog box.

### Error checking rules

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Cells containing formulas that result in an error       | <input checked="" type="checkbox"/> Formulas which omit cells in a region |
| <input checked="" type="checkbox"/> Inconsistent calculated column formula in tables        | <input checked="" type="checkbox"/> Unlocked cells containing formulas    |
| <input checked="" type="checkbox"/> Cells containing years represented as 2 digits          | <input checked="" type="checkbox"/> Formulas referring to empty cells     |
| <input checked="" type="checkbox"/> Numbers formatted as text or preceded by an apostrophe  | <input checked="" type="checkbox"/> Data entered in a table is invalid    |
| <input checked="" type="checkbox"/> Formulas inconsistent with other formulas in the region |   |

If an option is turned off, that type of error will be skipped.

The green marker that is used to indicate errors can be changed to a different colour by clicking on and selecting a colour of your choice.

**Exercise 28**

- 1 You are setting up a tour company that takes tourists on adventure camping trips into National Parks. The company needs to purchase camping equipment. The following list gives prices from two different camping stores.
- 2 Create a worksheet listing each camping item, quantity required and the price from each camping store. You will need to calculate the total cost for each store and include the discount given.
- 3 Save the workbook with the file name **Camping Equipment**. Answer the questions in the box at the bottom of the page. Print and close the workbook.

	Camping City	Tents-R-Us
8 tents (3 person)	\$300	\$350
Bed rolls x15	\$10	\$5
X15 Sleeping bags	\$90	\$85
2 Catering tables	\$80	\$95
20 Folding chairs	\$25	\$20
Gas Cooker (1)	\$280	\$310
Cooking pots and pans (1 set)	\$120	\$100
Backpacks x17	\$120	\$110
Water containers x3	\$50	\$60

Camping City are giving 10% discount on all items.

5% discount from Tent-R-Us on all items.

What is the total cost from each store after discount?

.....  
.....

Which store is the cheapest?

.....

Write down two methods you have used to check the calculations.

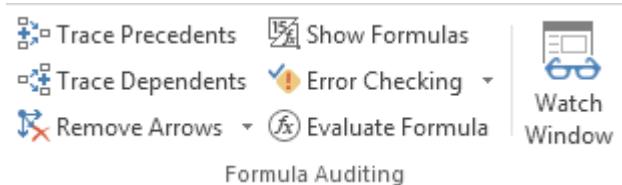
- 1 .....
- 2 .....

# Formula Auditing

Formula auditing allows you to track incorrect cell references in a formula.

## Exercise 29

- 1 Open the workbook called **Endeavour - Canberra**.
- 2 Click on the Formulas Ribbon to display the Formula Auditing Group.



The Formula Auditing Group allows you to quickly trace a formula.

- 3 Look at the following diagram which explains the terms ‘precedents’ and ‘dependents’, used in formula auditing.

*Precedent* Points to cells that are **cell references** to the formula of the current selected cell.

*Dependent* Points to any cells that include a **formula reference** to the current selected cell.

A	B
1	<b>Endeavour Se</b>
2	INCOME STATE
3	
4	Branch: <input type="text"/>
5	
6	
7	<u>January</u>
8	
9	Net Sales \$30,000
10	Cost of Goods sold \$11,000
11	Gross Profit \$19,000
12	
13	<b>Operating Expenses</b>
14	Salaries 5,000
15	Utilities 2,300
16	Rent 2,500
17	Advertising 1,000
18	Total Operating Expenses \$10,800
19	
20	Net Profit \$8,200
21	

**FORMULA**  
=SUM(B14:B17)  
Cells B14 to B17 are ‘precedents’ to this formula.

**FORMULA**  
=B11-B18  
This formula is reliant on cells B11 and B18. Cell B20 has a formula which makes this a ‘dependent’ cell.

Tracer Types	Style	Arrow
Formula	Solid Blue	→
Error	Solid Red	→
External Reference	Black Dashed with icon	→

- 4 Click on cell E9.
- 5 Click on the Trace Precedents button Trace Precedents. A blue arrow displays the range of cells in the current formula of the selected cell (E9).

The box around the Net Sales for January, February and March indicates that these cells are used in the formula in the YTD (Year to date) cell.

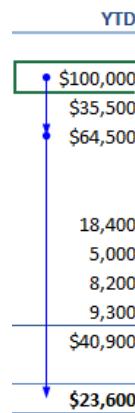
	January	February	March	YTD
Net Sales	\$30,000	\$38,000	\$32,000	\$100,000

The range within the formula starts here

- 6 Click on the Remove Arrows button Remove Arrows to remove the trace.
- 7 With E9 still selected, click on the Trace Dependents button Trace Dependents which traces the dependents of the selected cell. This cell reference is used in cell E11. Click on Trace Dependents again. A reference to E11 is used in cell E20.

If the \$100,000 total in the YTD (Year to Date) column was deleted, the formulas E11 and E20 would be incorrect.

- 8 With cell E9 selected, click on Remove Arrows to remove the trace.
- 9 Click on cell E20.
- 10 Click on Trace Precedents, now click again. This will display the next level of precedent cells.
- 11 Click on Trace Precedents again. The third level of precedent cells is displayed.



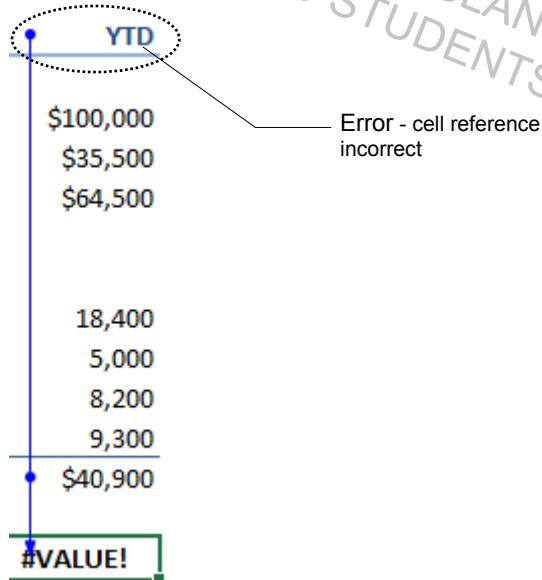
	January	February	March	YTD
Net Sales	\$30,000	\$38,000	\$32,000	\$100,000
Cost of Goods sold	\$11,000	\$12,500	\$12,000	\$35,500
Gross Profit	\$19,000	\$25,500	\$20,000	\$64,500
Operating Expenses				
Salaries	5,000	8,000	5,400	18,400
Utilities	2,300	1,200	1,500	5,000
Rent	2,500	3,200	2,500	8,200
Advertising	1,000	4,500	3,800	9,300
Total Operating Expenses	\$10,800	\$16,500	\$13,200	\$40,900
Net Profit	\$8,200	\$8,600	\$6,800	\$23,600

Third precedent level

- 12 Click on Remove Arrows to remove all auditing.
- 13 Click on cell D20. Click on the Trace Precedents button Trace Precedents which will show that two cells are used in this cell reference.
- 14 Click on Remove Arrows to remove all auditing.
- 15 Click on cell E20 and change the formula to read =E7-E18

- 16 With cell E20 selected, click on the of the Error Checking button Error Checking and select Trace Error

- 17 Cell E7 has been used in error as shown below.



- 18 Change the formula in cell E20 to read =E11-E18.

The auditing arrow will be removed because the formula is now correct.

- 19 Save and close the workbook.

## Finding an Error

### Exercise 30

- 1 Open the workbook called **Active Sports**. If the Formula Auditing Group is not displayed, click on the Formulas Ribbon.
- 2 Click on cell H15.
- 3 Click on the of Error Checking and select Trace Error
- 4 Print the worksheet and you will see that the auditing arrows are also printed.

Week	Total Hours Booked	Hourly Rate	Total Amount
12	42	2	#VALUE!
9	39	2	78
16	57	2	114
11	43	2	86
10	32	2	64
15	63	2	126
	73	276	12 #VALUE!

The red arrow indicates which cell is incorrect.

Cell H8 is selected indicating that this is the cell you should be altering.

- 5 In cell H8 change the formula to read =G8\*F8  
The Auditing trace arrows will change accordingly.
- 6 Click on Remove Arrows .
- 7 Save and close the workbook.

## Auditing Across Worksheets

### Exercise 31

- 1 Open the workbook **Charts - Cleantec**.
- 2 Ensure the Summary worksheet is displayed.
- 3 Click on cell E10. Click on the Trace Precedents button Trace Precedents .
- 4 Click on Trace Precedents again which will show that the cells within the formula are linked to other worksheets as shown above.
- 5 Click on the Sheet1 sheet tab.
- 6 Click on cell F12. Click on Trace Dependents . This cell reference is used in another worksheet.
- 7 Click on the Remove All Arrows button Remove Arrows .
- 8 Close without saving.

The screenshot shows a table with four columns labeled Jan, Feb, Mar, and Apr. The rows contain numerical values: Jan has 2,260, 4,300, and 2,430; Feb has 2,422, 4,222, and 2,365; Mar has 2,415, 4,190, and 2,395; Apr has 2,415, 4,500, and 2,390. Arrows from cell F12 (containing 9,007) point to the corresponding cells in the Jan, Mar, and Apr rows of the previous table. Cell F12 is highlighted with a blue border.

	Jan	Feb	Mar	Apr
	2,260	2,422	2,415	2,415
	4,300	4,222	4,190	4,500
	2,430	2,365	2,395	2,390
	8,990	9,007	9,000	9,305

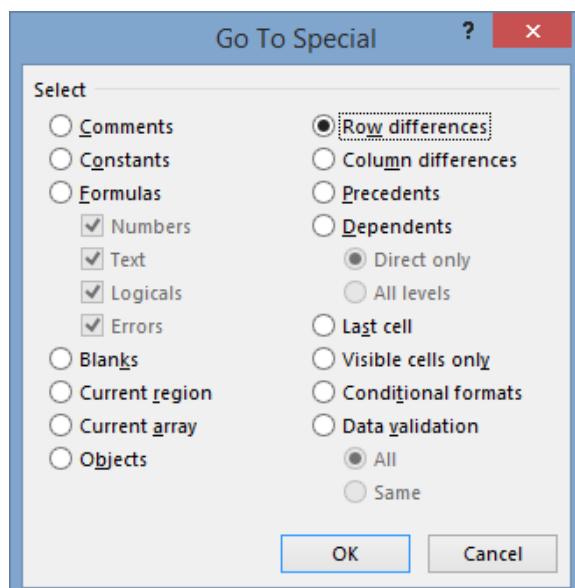
## Checking Cross Totals

### Exercise 32

- 1 Open the workbook called **Recreational Magazines**. There are two formulas within this worksheet that are incorrect.
- 2 Select cells B9 to F9.
- 3 Press Ctrl G ( F5, or on the Home Ribbon click on the Find & Select button).
- 4 Click on [Go To Special...](#) .



click on the Find & Select button).



- 5 Click in the Row differences option to search for row differences in a formula.
- 6 Click on OK.

	A	B	C	D	E	F
1	Recreational Magazines					
2	Sales					
3						
4		Jan	Feb	Mar	Apr	Total
5	Travel	1,456	1,450	1,490	1,390	5,786
6	Health	1,546	1,550	1,590	1,450	4,590
7	Gardening	1,320	1,390	1,420	1,340	5,470
8	Children	1,450	1,490	1,550	1,520	6,010
9	Total	72	4,430	6,050	5,700	21,856

The cells that are incorrect are selected. The main cell that is incorrect is cell C9.

- 7 In cell C9 the formula reads =SUM(C6:C8) instead of =SUM(C5:C8). Correct this formula and press Ctrl Enter.
- 8 Leave the workbook open for the next exercise.

### Exercise 33

- 1 Using the workbook **Recreational Magazines**, select cells F5 to F9.
- 2 Press Ctrl G (or F5, or click on the Find & Replace button).
- 3 Click on [Go To Special...](#).
- 4 Select the *Column differences* option to check each column reference for the formulas you have selected in column F.
- 5 Click on OK.

The incorrect cell is selected, i.e. cell F6.

- 6 To view the actual formulas, on the Formulas Ribbon click on Show Formulas .
- 7 If you scroll along to the right of the worksheet you can see the columns have expanded to display the formulas.
- 8 The formula in cell F6 is incorrect =SUM(C6:E6). It should read =SUM(B6:E6).
- 9 Change the formula in cell F6 to read =SUM(B6:E6).
- 10 Click on Show Formulas .
- 11 Save and close the workbook.

#### Tip

Ctrl ` displays/hides formulas in a worksheet

### Exercise 34

- 1 Create a worksheet from the information given below, with each branch name as a column heading, i.e. Sydney, Melbourne and Perth. Include the data from each product category in the worksheet.
- 2 Give the worksheet an appropriate title.

Fantastic Floors	
Sydney	
<b>MEMORANDUM</b>	
<b>TO:</b>	Sales Manager
<b>FROM:</b>	Branch Manager
<b>DATE:</b>	30 April
<b>SUBJECT:</b>	Sales
<hr/>	
Further to your memo listed below are sales for the Sydney area for April:	
Carpets	30,410
Vinyl	9,101
Wood Flooring	10,235
Tiles	8,550
Rugs	2,235

Fantastic Floors	
Melbourne	
<b>MEMORANDUM</b>	
<b>TO:</b>	Sales Manager
<b>FROM:</b>	Branch Manager
<b>DATE:</b>	30 April
<b>SUBJECT:</b>	Sales Figures
<hr/>	
As requested below are the April sales for all stores in the Melbourne area.	
Carpets	35,234
Tiles	12,345
Rugs	3,345
Wood Flooring	16,314
Vinyl	4,565

Perth Area Sales for April			
Carpets	80,785	Tiles	40,558
Vinyl	12,225	Rugs	6,650
Wood Flooring	9,336		

- 3 Add totals across and down, at the end and bottom of the worksheet.
- 4 Save as **Fantastic Floors - Sales**.
- 5 Make alterations as follows.
  - a Memo from Brisbane has just arrived. Please add a column for Brisbane (after Sydney). Figures are - Carpets 28,990; Wood Flooring 8,333; Tiles 7,110; Vinyl 2,884; Rugs 2,345.
  - b Add a row at the end of the list of products to the worksheet for Cork Tiles - figures are as follows - Sydney 14,550; Brisbane 10,566; Melbourne 11,558; Perth 4,220.
- 6 Adjust totals as necessary. Save the edited worksheet as **Fantastic Floors - Sales 1**.
- 7 Print the worksheet including formulas and check.
- 8 Tick off figures from the information on this page against data entered in the worksheet.
- 9 Check cross totals.
- 10 Make any alterations necessary.
- 11 Save, print the final copy and close the workbook.

### **Exercise 35**

From the information shown at the bottom of the page create a worksheet for an insurance company for short term insurance for a lease company for motor vehicle insurance policies.

The Fire Service Levy will be added to the Company Premium.

- 1 Use column headings as follows.

**Name**

**Policy No.**

**Date of Policy**

**Insurance Period (Days)**

**Expiry Date**

**Premium**

**Fire Service Levy**

- 2 Left align text headings and right align values headings and apply text formatting to the Policy No. Column.
- 3 Wrap text in column headings and change column widths as necessary.
- 4 Change the date format in the Date of Policy and Expiry Date columns to show the year.
- 5 Enter data from the insurance policy forms shown below, with last names first.
- 6 Calculate the Expiry Date by adding the Date of Policy and Insurance Period and enter this information on the policy forms shown below.
- 7 Create a Total column for Premium plus Levy and a Totals row adding Premium, Levy and Total columns.
- 8 Apply currency formats to show \$ signs and two decimal places on the first row of the worksheet data. Two decimal places only for remaining data and \$ signs and two decimal places for the Totals row.
- 9 Add shading and a bottom border to the column headings row. Add a single line at the top of the Totals row and double lines under the Totals row.
- 10 Save the workbook as **MV Insurance**. Print and close.

<b>Apex Insurance Company</b>	
Policy No.	2086760
Name:	Julia Davidson
Date of Policy:	4 April
Insurance Period (Days):	60
Expiry Date:	
Premium:	\$350

<b>Apex Insurance Company</b>	
Policy No.	2089765
Name:	Sonia Small
Date of Policy:	27 March
Insurance Period (Days):	30
Expiry Date:	
Premium:	\$175.50

<b>Apex Insurance Company</b>	
Policy No.	2178543
Name:	Thomas Webster
Date of Policy:	25 May
Insurance Period (Days):	90
Expiry Date:	
Premium:	\$440

<b>Apex Insurance Company</b>	
Policy No.	2365755
Name:	Mary Lacey
Date of Policy:	18 April
Insurance Period (Days):	60
Expiry Date:	
Premium:	\$375

<b>Apex Insurance Company</b>	
Policy No.	2480965
Name:	Janice Green
Date of Policy:	2 May
Insurance Period (Days):	90
Expiry Date:	
Premium:	\$475

<b>Apex Insurance Company</b>	
Policy No.	2310895
Name:	James Ahern
Date of Policy:	19 April
Insurance Period (Days):	120
Expiry Date:	
Premium:	\$550

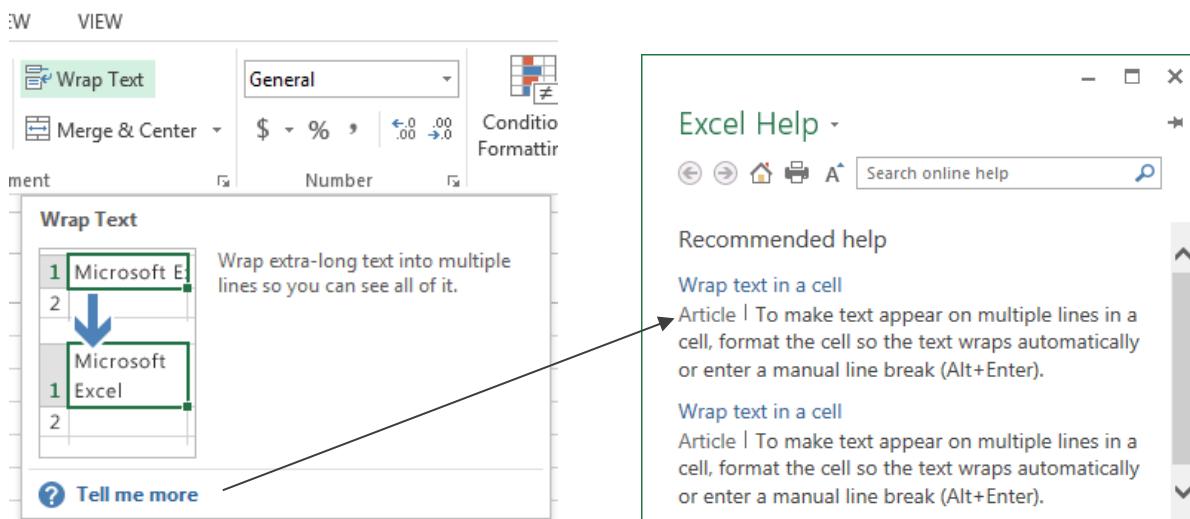
# Help

If you need to know more about a feature or are having problems with a task, Help may be able to provide answers to your questions.

## Accessing Help Window

You can display the Excel Help window by:

- Clicking on the Microsoft Office Excel Help button  at the top right of the Ribbon.
- Pressing F1.
- Clicking on the Help button in a dialog box  . The window will display Help articles specific to that dialog box.
- When the mouse is positioned over some of the Ribbon buttons, the screen tip displays a  **Tell me more** button. Click on the button to display Help articles specific to that command.



## Excel Help Window Layout

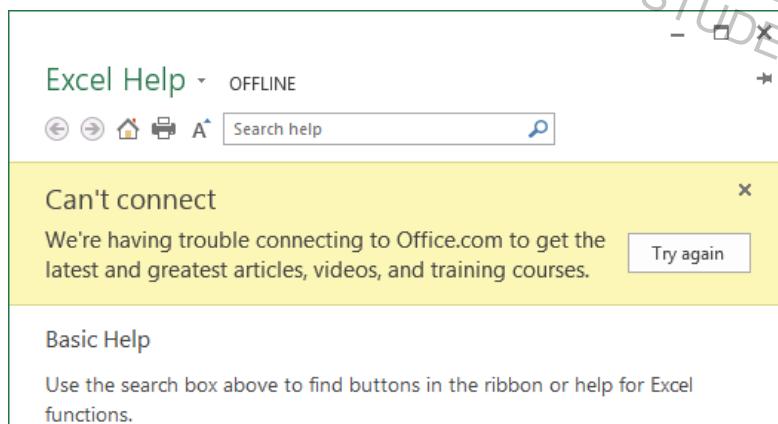


	Back	Moves back to the previous screen
	Forward	After moving back, will move forward to the previous screen
	Home	Moves back to the Home page for Excel Help
	Print	Prints a Help topic
	Use large text	Displays the Help page in a larger font.

To search for help on a topic, type in the key word/s into  . Click on  . A list will display which may include articles, videos or training sessions – click on your choice to view more information.

To close the Excel Help window, click on  at the top right of the window.

When accessing Excel Help if you are not connected to the Internet, Basic Help is available as shown below. This will provide limited help on a small range of topics.



### Exercise 36

In order to complete the following exercises successfully you must be connected to the internet.

- 1 In a new workbook, click on  to open the Excel Help window.

- 2 In  type: **columns**

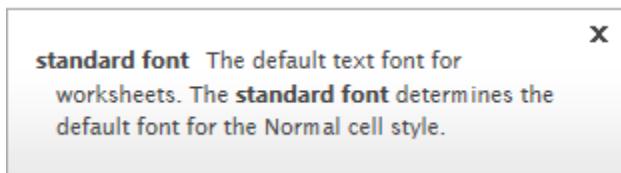
- 3 Click on  (or press Enter).

The search result topics/subjects will be listed in main window area.

- 4 Click on [Change the column width and row height](#)

In the topic content you can click on any text that appears in a different colour to get a definition of that text.

- 5 Click on [standard font](#) within the first paragraph to display a definition.



**standard font** The default text font for worksheets. The **standard font** determines the default font for the Normal cell style.

- 6 Click on  to hide the definition.

If there is more information about this topic, a right hand scroll bar enables you to scroll down and view these topics.

The Help Topic may display a list of topics under a heading of [In this article](#). Alternatively it may list a number of options under a heading of [What do you want to do?](#)

Where text appears with a  , it indicates that this is linked to information further down the page.

- 7 Scroll down the Help screen until you see the list of topics under [What do you want to do?](#). Click on  [Set a column to a specific width](#). The hyperlink will display that information.
- 8 Click on  [TOP OF PAGE](#) to return to the list at the top of the window.

- 9 Click on [Change the row height to fit the contents](#) then scroll through this help topic section.
- 10 Click on the Top of Page button [TOP OF PAGE](#) to return to the top of the topic page.
- 11 Click on to close the Excel Help window.



Header

- 12 On the Insert Ribbon hold the mouse pointer over the Header & Footer button A Screen Tip will display with a short explanation Header & Footer. Click on [Tell me more](#) at the bottom of the Screen Tip.
- 13 The Excel Help window will open displaying content relating to headers and footers.
- 14 Click on to close the Excel Help window.

## Help with Functions

When working with a function, the Help feature can be used to find out how the function works. At the bottom of the Function Arguments dialog box, [Help on this function](#) provides information that can be copied from the Help window into a worksheet to learn about that function.

The exercise below uses the Count function as an example. The COUNT function counts the number of cells that contain numbers.

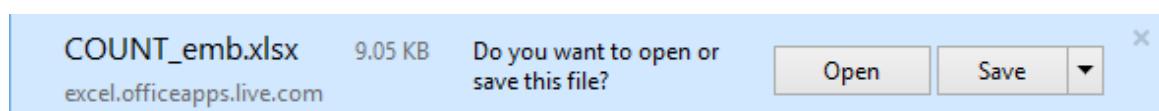
### Exercise 37

- 1 Open the workbook called **Box Up Supermarkets**.
- 2 Click on the Food Products sheet tab.
- 3 Click on cell A16 and type: **Number of Products** then press Enter.
- 4 Click in cell B16 then click on the Insert Function button .
- 5 In the *Search for a function box* type **Count**.
- 6 Click on .
- 7 In the *Select a function:* click on COUNT.
- 8 At the bottom left of the Function Arguments dialog box, click on [Help on this function](#).
- 9 Click on the Maximise button to maximise the Help window.
- 10 Scroll down the screen until an example of an Excel worksheet is displayed.

The following bar appears under the worksheet.



- 11 Click on . The View Downloads – Internet Explorer dialog box will display.
- 12 Check COUNT\_emb.xlsx is selected as shown below.



- 13 Click on next to COUNT\_emb.xlsx . Click on in the Function Arguments dialog box and then the file will open.

- 14 Click on **Enable Editing**.

	A	B	C
1	Data		
2	12/8/08		
3			
4	19		
5	22.24		
6	TRUE		
7	#DIV/0!		
8	Formula	Description	Live Result
9	=COUNT(A2:A7)	Counts the number of cells that contain numbers in cells A2 through A7.	3
10	=COUNT(A5:A7)	Counts the number of cells that contain numbers in cells A5 through A7.	2
11	=COUNT(A2:A7,2)	Counts the number of cells that contain numbers in cells A2 through A7, and the value 2	4

- 15 Click on cell C9 and the function =COUNT(A2:A7) will display on the Formula Bar. If you are unsure what this function is calculating read the description in the Description column, cell B9, i.e. Counts the number of cells that contain numbers in the list above.
- 16 Click on cells C10 and C11 in turn and read the descriptions of the functions in the relevant cells in column B.
- 17 Close the Count workbook.
- 18 With **Box Up Supermarkets** displayed, click on cell B16.
- 19 Type: **=count**  
The drop-down function Help will display.
- 20 Click on **COUNT** from this display and the Excel Help window will open, giving help on the COUNT function.
- 21 Close the Help window.
- 22 Select cells B6 to B14 and press Enter. The Count function has counted all the cells in the range B6 to B14 that contain numbers; the result will be 9.
- 23 Save the workbook and leave it open for the next exercise.

### Exercise 38

- Using the workbook **Box Up Supermarkets**, click on cell A17 and type: **Maximum Retail Price**
- Select cell B17 then click on . Ensure Statistical is selected in the *Or select a category:* box.
- Select MAX from the *Select a function:* box.
- Click on [Help on this function](#).
- Scroll down the screen until an example of an Excel worksheet is displayed.
- Using the instructions from the previous exercise, open the worksheet.
- Read the Description column for each example.
- Close the Max worksheet and with the **Food Products** worksheet displayed complete the calculation correctly.
- Save and close the workbook.

# Hyperlinks

A hyperlink allows users to jump from one location to another; in a worksheet, a workbook, open another workbook or file, or display an internet website. When a hyperlinked website address is clicked on, the default internet browser will automatically start and the website will be displayed on screen (useful for inserting links to websites with current share prices, currency rates, etc.).

## Insert a Hyperlink

### Exercise 39

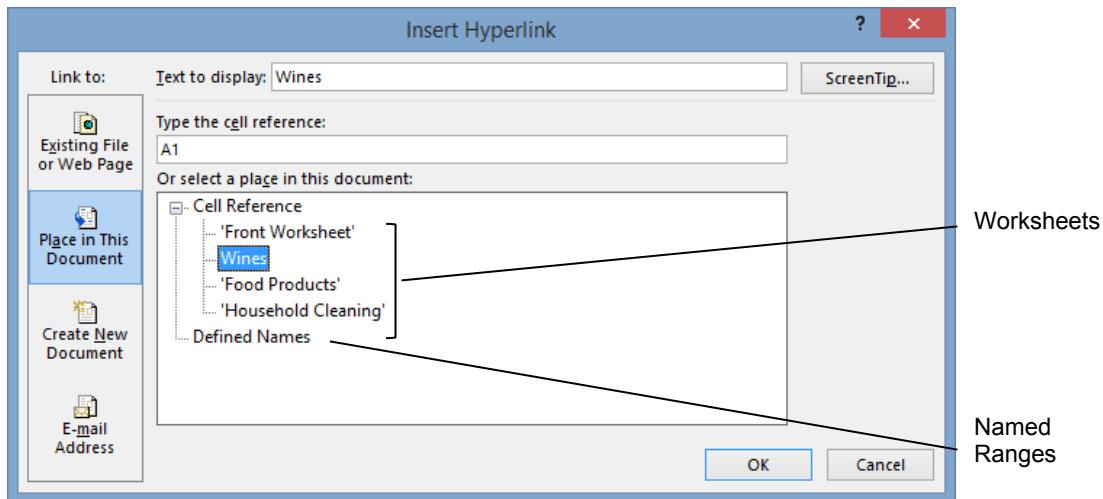
- 1 Open the workbook called **Supermarket**. Ensure the Front Worksheet is displayed.



Hyperlink

- Ctrl K 2 Click on cell A4 and on the Insert Ribbon click on the Insert Hyperlink button Hyperlink.

- 3 Click on as shown below.



- 4 Select the worksheet called Wines.
- 5 Click on OK. Wines will be displayed in blue to indicate it is a hyperlink.
- 6 Click on the *Wines* hyperlink. The Wines worksheet will automatically appear on screen.



- 7 In the Wines worksheet, click on cell E1. Click on Hyperlink and repeat steps 4 and 6 selecting *Front Worksheet* as the location to jump to.
- 8 Click on the Front Worksheet hyperlink to jump to the front of the workbook. Insert hyperlinks to jump to the other worksheets and back.
- 9 Save the workbook and leave it open for the next exercise.

## Hyperlink to a Website

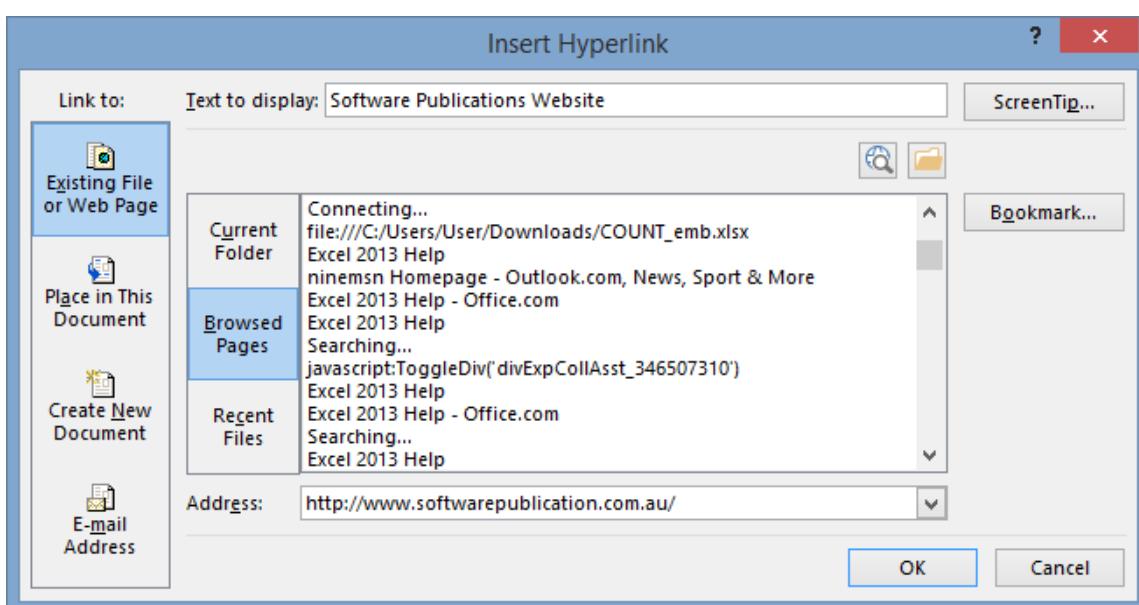
### Exercise 40

- 1 Using the workbook **Supermarket**, click in cell A8 on the Front Worksheet.

2 Click on  **Hyperlink**.



- 3 Click on **Existing File or Web Page** and **Browsed Pages**. These are the web pages and system files that have been viewed recently and can be selected to link to. (The list displayed will vary.)
- 4 With the cursor in the **Address:** box type: **www.softwarepublications.com.au** (`http://` will automatically be inserted in the Address box as shown below).



- 5 Adjust the **Text to display:** as shown above.
- 6 Click on **OK**. The text **Software Publications Website** will appear in the cell.
- 7 Click on the hyperlink in cell A8. If you are connected to the Internet, the Internet Browser will automatically start and display the Software Publications website.
- 8 Close the Internet Browser and switch back to Excel 2013. Save the work book and leave it open for the next exercise.

## Change a Hyperlink to Ordinary Text

Hyperlinks can be changed to ordinary text by using the following steps.

### Exercise 41

- 1 Using the workbook **Supermarket**, right click on the **Software Publications Website** hyperlink in cell A8.
- 2 Select  **Remove Hyperlink**. The hyperlink will be removed and the text will return to normal.
- 3 Close the workbook without saving.

## Scenario

### Exercise 42

- 1 Jack needs to get his cheques into order and record the details of each cheque. His cheque butts are shown below. They need to be sorted into a logical order and recorded on a worksheet. He needs to list the items in groups (e.g. one column per expense). He has a rough idea of how he would like his worksheet arranged. (Hint: Enter each amount in the relevant category column and reference that cell in the Total column.)

Date	Payee	Chq No.	Total	Wages	Power	Rent	etc.....
13 Oct	Power Plus	7333	\$120.00		\$120.00		
		Total					

- 2 Sort the worksheet into date order and print.

Fill in the following totals:

Rent \$      Wages \$      Drawings \$

<p>Date: 14 Oct Payee: Sally Green (wages) Bal B/Fwd \$ Deposits _____  This Cheque <b>320.00</b> Bal B/Fwd <b>177334</b></p>	<p>Date: 26 Oct Payee: Michael Roberts (wages) Bal B/Fwd \$ Deposits _____  This Cheque <b>25.00</b> Bal B/Fwd <b>177341</b></p>	<p>Date: 12 Oct Payee: John Brown Pty Ltd (Rent) Bal B/Fwd \$ Deposits _____  This Cheque <b>670.00</b> Bal B/Fwd <b>177331</b></p>
<p>Date: 21 Oct Payee: Sally Green (wages) Bal B/Fwd \$ Deposits _____  This Cheque <b>300.00</b> Bal B/Fwd <b>177338</b></p>	<p>Date: 13 Oct Payee: Power Plus (Power) Bal B/Fwd \$ Deposits _____  This Cheque <b>120.00</b> Bal B/Fwd <b>177333</b></p>	<p>Date: 24 Oct Payee: Paper Plus (stationery) Bal B/Fwd \$ Deposits _____  This Cheque <b>105.00</b> Bal B/Fwd <b>177339</b></p>
<p>Date: 17 Oct Payee: John Brown Pty Ltd (Rent) Bal B/Fwd \$ Deposits _____  This Cheque <b>670.00</b> Bal B/Fwd <b>177335</b></p>	<p>Date: 17 Oct Payee: Telephone City (phone) Bal B/Fwd \$ Deposits _____  This Cheque <b>110.00</b> Bal B/Fwd <b>177336</b></p>	<p>Date: 18 Oct Payee: Drawings Bal B/Fwd \$ Deposits _____  This Cheque <b>250.00</b> Bal B/Fwd <b>177337</b></p>
<p>Date: 19 Oct Payee: Paper Plus (stationery) Bal B/Fwd \$ Deposits _____  This Cheque <b>75.00</b> Bal B/Fwd <b>177332</b></p>	<p>Date: 25 Oct Payee: Drawings Bal B/Fwd \$ Deposits _____  This Cheque <b>180.00</b> Bal B/Fwd <b>177340</b></p>	

## Revision

- 1 Explain how you can check that the formulas in your worksheet are correct.

.....  
.....

- 2 How can formulas in a worksheet be printed?

.....  
.....

- 3 Explain the term 'cross-totalling'.

.....  
.....

- 4 How can you obtain Help in a dialog box?

.....  
.....

- 5 What is a hyperlink?

.....  
.....

- 6 Describe two uses in Excel for Hyperlinks.

.....  
.....

- 7 Name two methods of inserting a function into a worksheet.

.....  
.....  
.....  
.....

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## **Learning Outcomes**

*At the end of this section you should be able to:*

- Identify different chart types
- Create and customise a chart
- View a chart
- Print and save a chart
- Create a pie chart
- Create quick charts
- Create a chart within a worksheet

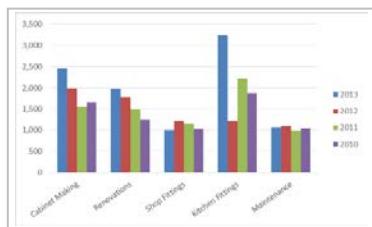
# Charts

Worksheet data can be illustrated using charts that are automatically linked to the worksheet. Alterations made to worksheet data will redraw the chart accordingly.

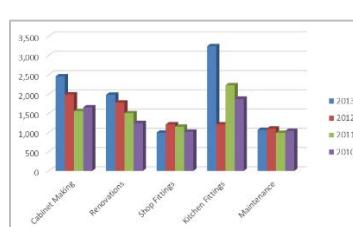
Charts are used to:

- Illustrate trends, comparisons and relationships
- Emphasise the values of individual items
- Study the differences between large amounts of data
- Present data in an effective way.

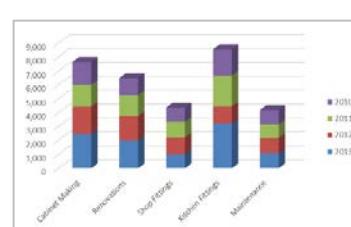
## Types of Charts



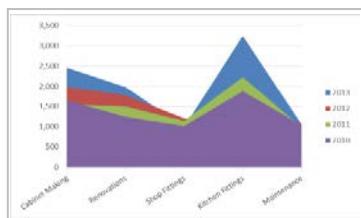
Clustered Column



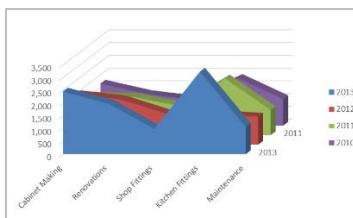
3-D Clustered Column



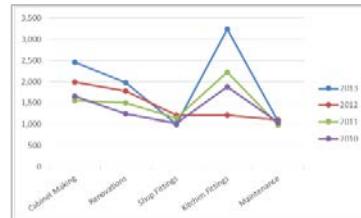
3-D Stacked Column



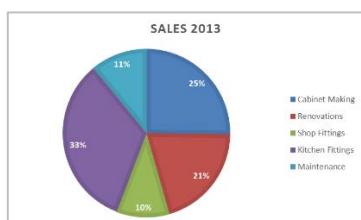
Stacked Area



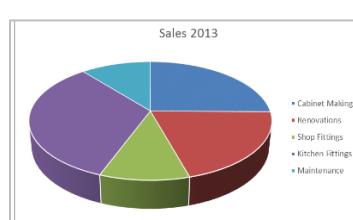
3-D Area



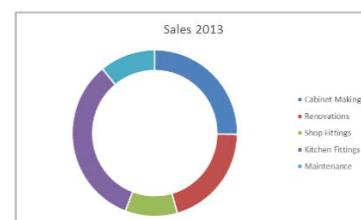
Line with Markers



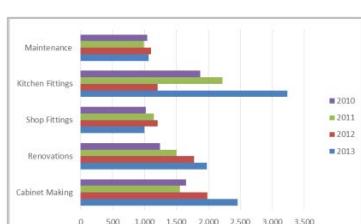
Pie



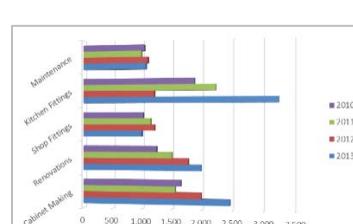
Pie in 3-D



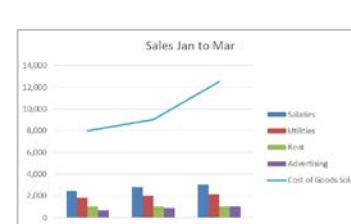
Doughnut



Clustered Bar



3-D Clustered Bar



Combo

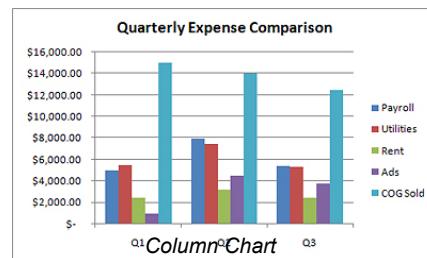
# Which Chart Do I Use?

Before starting to create a chart you need to analyse what you want the chart to show, e.g. the gradual increase/decrease of sales, which branch is doing well out of the four branches, comparison of last year's sales with this year's sales so far or the level of student grades. Excel 2013 now makes this decision easier when you use Recommended Charts. You can scroll through the list of suggested charts and select the chart that best suits you or choose from the full range of charts.

The most commonly-used charts are described below.

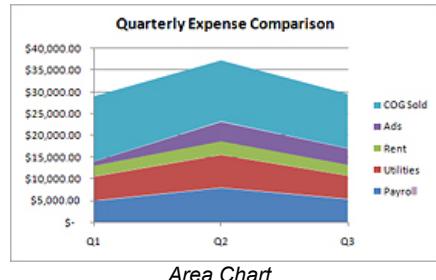
## Column/Bar Chart

A column or bar chart displays data that is arranged in columns and rows on a worksheet. A column chart displays categories along the horizontal (category) axis and values along the vertical (value) axis. This type of chart is one of most commonly used charts.



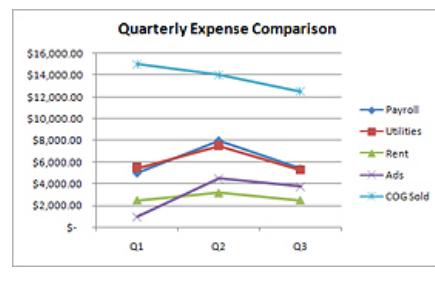
## Area Chart

An area chart displays data that is arranged in columns and rows in a worksheet. Area charts display data relating to numbers or percentages over a period of time and shows the relationship of parts to a whole.



## Line Chart

Used to display trends and comparisons between different groups of data over a period of time. It is also used for showing large amounts of data.



## Pie Chart

A pie charts displays data that is arranged in one column or row on a worksheet. Data is displayed in proportion to the total amount of data. This type of chart allows a user to compare one portion of data against an entire group.



# Charts Group

The Charts Group on the Insert Ribbon is used to create charts.

In traditional two-dimensional charts, the primary horizontal axis is used to reflect categories and the primary vertical axis to reflect values. A feature of Excel is three-dimensional charts; a number of which will be used throughout this section. In a three-dimensional chart, a third axis, known as the depth axis, is used which replaces the legend.

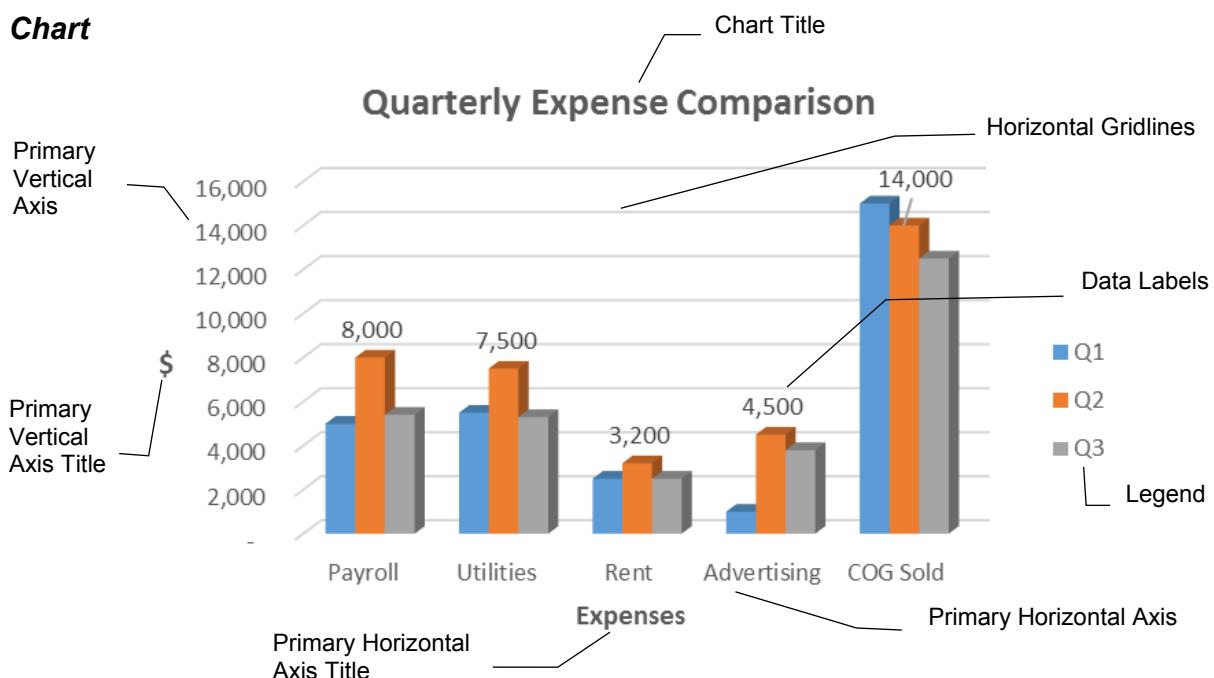
## Chart Worksheets

Charts can be embedded into your current worksheet or added as a new worksheet to a workbook file. Chart worksheets are displayed full screen and when printed do not include worksheet data.

### Chart Data

	A	B	C	D	E
1	Income Statement 2013				
2	Goodwind's Sports Supply				
3					
4		Q1	Q2	Q3	Total
5					
6	Net Sales	30,000	38,000	32,000	100,000
7					
8	Operating Expenses				
9	Payroll	5,000	8,000	5,400	18,400
10	Utilities	5,500	7,500	5,300	18,300
11	Rent	2,500	3,200	2,500	8,200
12	Advertising	1,000	4,500	3,800	9,300
13	COG Sold	15,000	14,000	12,500	41,500
14					
15	Total Operating Expenses	29,000	37,200	29,500	95,700
16					
17	Operating Income	1,000	800	2,500	4,300

### Chart



# Column Charts

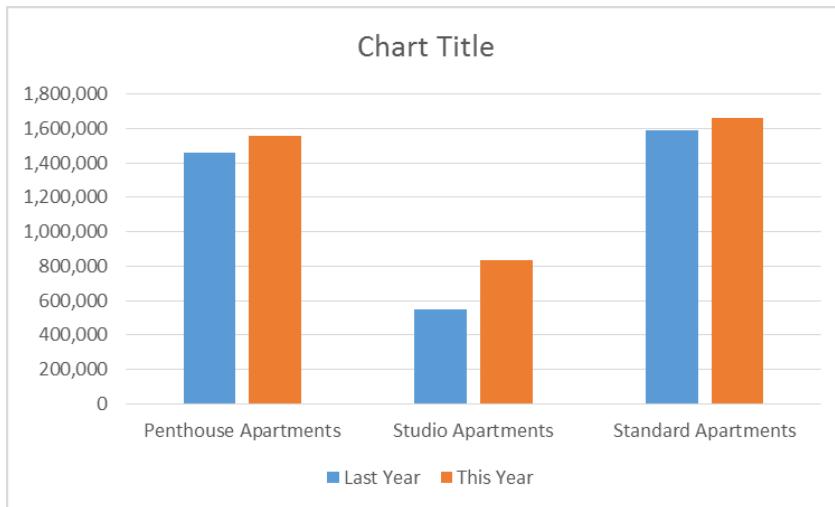
## Exercise 43

- 1 Open the workbook called **Fiji Landing Apartments**.
- 2 Select cells A5 to C8.



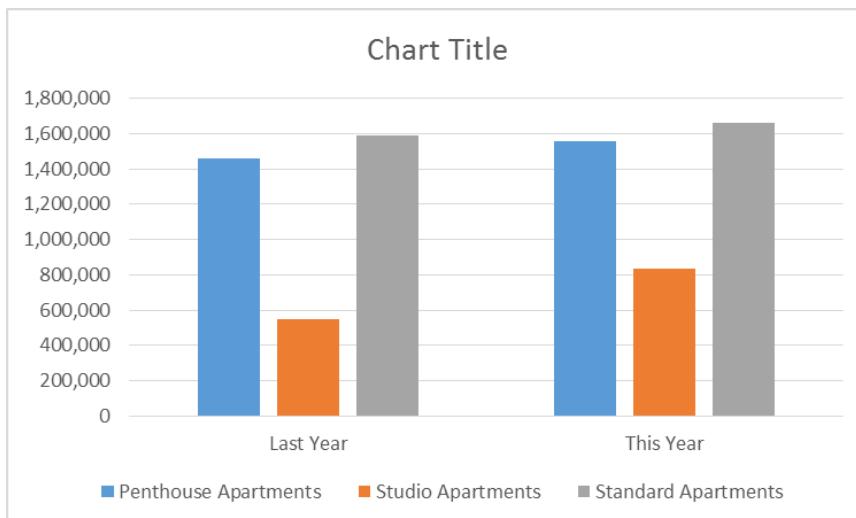
- 3 On the Insert Ribbon click on **Charts** in the Charts group. Click on each of the recommended charts to see how the data will be displayed.
- 4 Select the fourth option, a clustered column chart. Click OK.

The chart will display on the worksheet as an embedded object.



**Switch Row/  
Column** to

- 5 On the Chart Tools Design Ribbon click on the Switch Row/Column button to view the chart by rows.



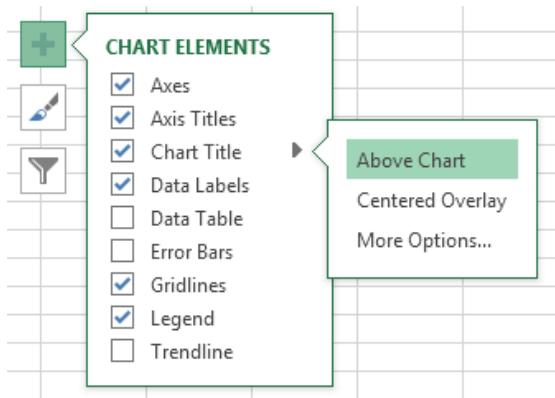
**Switch Row/  
Column**

- 6 Click on the Switch Row/Column button again to view the chart by columns.
- 7 Save the workbook and leave it open for the next exercise.

## Chart Elements

When a chart is selected, three buttons display at the right of the chart whether the chart is embedded in the worksheet or is a new worksheet.

The top button is Chart Elements . When you click on the button a list of chart elements will display allowing you to add, remove or change chart elements such as the title, legend, gridlines and data labels. Clicking on the arrow at the right of the element will display further options. Different chart types have different elements.



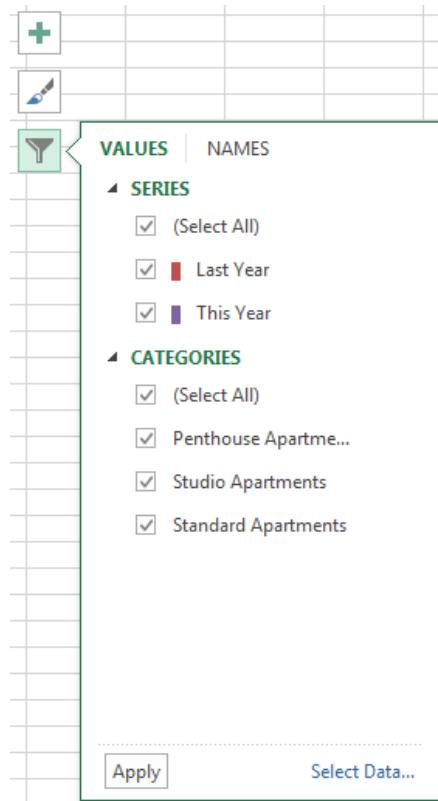
## Chart Styles

The second button to the right of the chart is Chart Styles . This allows a style and colour scheme to be applied to the chart. The Style tab displays a variety of styles for your chosen chart type. The Color tab allows you to change the colours in your chart.



## Chart Filters

The third button to the right of the chart is Chart Filters . This allows you to edit which data points and names are visible on your chart. If you want to remove one of the series or categories, deselect and then click on the Apply button.



## Chart Tools Design Tab

As well as using the three buttons attached to the chart, the Chart Tools Design Tab provides options for adjusting a chart.



Click on the drop-down arrow on the Add Chart Element button. A list of chart elements will appear with arrows to further menu items where a selection can be made.



Click on the drop-down arrow on the Change Colors button. A list of chart colour schemes will display; click to apply a different colour scheme.

The Chart Styles group provides a number of pre-formatted chart styles.



Chart Styles



The Switch Row/Column button switches data being charted on the horizontal axis with that being charted on the vertical axis.



Select Data Shows the original selection of data on the worksheet. To change the range, click and drag over required data.



Once a chart has been created, it is possible to change the Chart Type.



When a chart is created, it is embedded in your worksheet. The chart can be moved to a new sheet where the chart will display on its own.

## Chart and Axis Titles, Legend and Chart Location

### Exercise 44

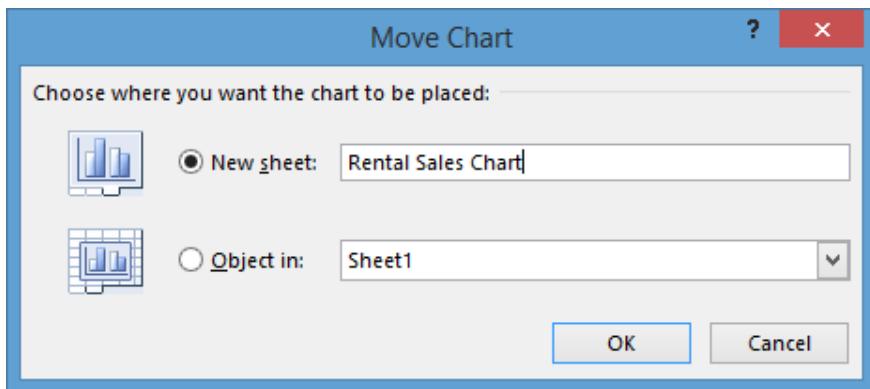
- 1 Using the workbook **Fiji Landing Apartments** click on the Chart Title placeholder and type: **Rental Sales**. Press Enter. (Note that the title is entered into the Formula bar, and when Enter is pressed, the chart is updated.)
- 2 Click on and select Axis Titles. Placeholders appear for both the horizontal and vertical axes.
- 3 Click to select the vertical axis title and type: **\$**. Press Enter.
- 4 Click to select the horizontal axis title and type: **Apartments**. Press Enter.

- 5 Click on  and select Legend. Click on the  and select Top.



Move  
Chart

- 6 On the Chart Tools Design Ribbon click on the Move Chart button .



- 7 Click on the **New sheet:** option to place the chart on a separate worksheet. Name the new worksheet: **Rental Sales Chart**. Click on OK.  
 8 Save the workbook and leave it open for the next exercise.

## Formatting the Chart and Axis Titles

### Exercise 45

- Using the workbook **Fiji Landing Apartments**, right click on the Chart Title and select **A Font...** from the shortcut menu.
- Increase the font size to 16 pt and apply bold. Change the colour of the font to dark green.
- Format both Axis Titles to bold, italic and dark green.
- Save the workbook and leave it open for the next exercise.

## Changing the Chart Type

### Exercise 46

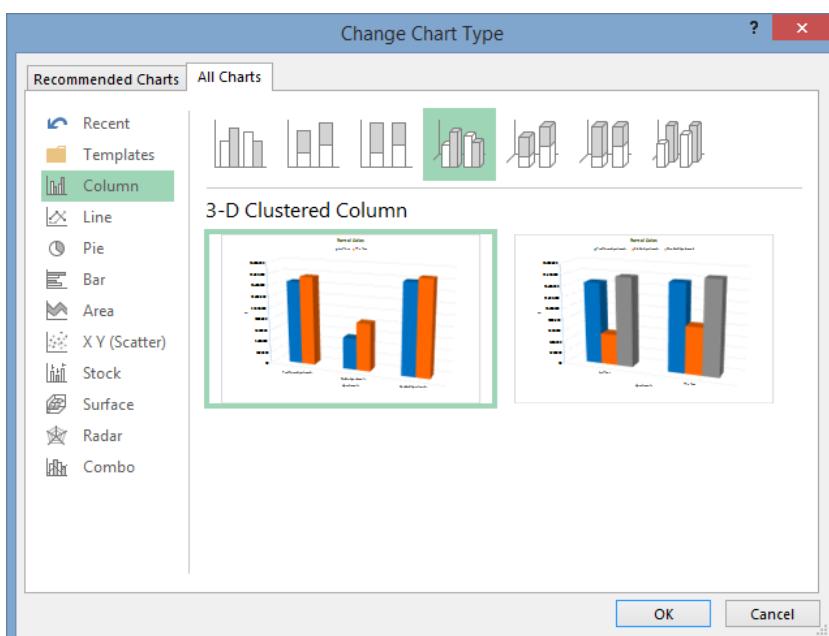
- Using the workbook **Fiji Landing Apartments**, click on the white background of the chart to select it.

- 2 Click on the **Change Chart Type** button on the Chart Tools Design Ribbon. The Change Chart Type dialog box will display.

- 3 From the All Charts tab, select Line and then Line with Markers . Two layout options are displayed where the rows and columns are switched. The default chart is on the left. Select the default chart and click on OK. The chart will automatically reformat.



- 4 With the chart still selected, click on .
- 5 Select Column and then 3-D Clustered Column . With the chart on the left selected, click on OK.



- 6 Save the workbook and leave it open for the next exercise.

## Printing a Chart

### Exercise 47

- 1 Using the workbook **Fiji Landing Apartments**, click on **FILE** then on **Print**.
- 2 Click on [Page Setup](#). Click on the Chart tab.
- 3 The quality of print used to print the chart can be changed in the **Printing quality** section.

<i>Draft quality</i>	Turns off the printing of graphics and gridlines, reduces printing time and produces a lower quality of print.
<i>Print in black and white</i>	Prints the chart in black and white (colours are changed to patterns). If this feature is turned off the chart will be printed in colour if a colour printer is used, or in shades of grey on a black ink printer.
- 4 Click on OK.

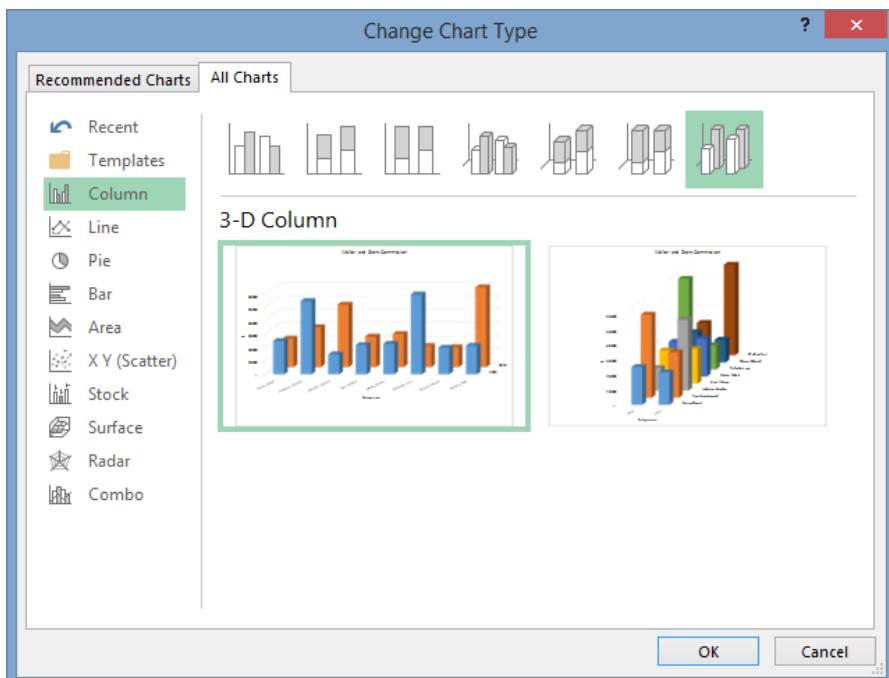


- 5 Click on the Print button **Print**.
- 6 Click on the Sheet1 tab.
- 7 Save and close workbook.

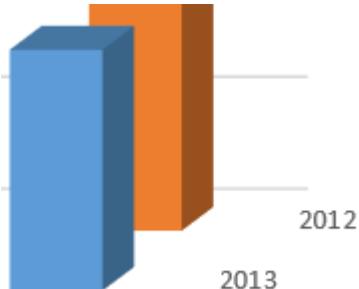
## 3-D Charts

### Exercise 48

- 1 Open the workbook called **Walker and Grant Commission**.
- 2 Select cells A4 to C12.
- 3 On the Insert Ribbon click on Recommended Charts, All Charts tab. Select Column and then 3-D Column. With the sample on the left selected, click on OK.



- 4 Select the Chart Title and type: **Walker and Grant Commission** and press Enter.
- 5 Insert the Horizontal Axis Title as **Salesperson**
- 6 Insert the Vertical Axis Title as **\$**.
- 7 Move chart to a new sheet and name the sheet **Commission Chart**.
- 8 Click on OK.
- 9 The 3-D chart shows a depth axis with the years.



- 10 The Legend is not required. Click on and remove the tick from the Legend button.
- 11 Leave the workbook open for the next exercise.

## Chart Task Pane

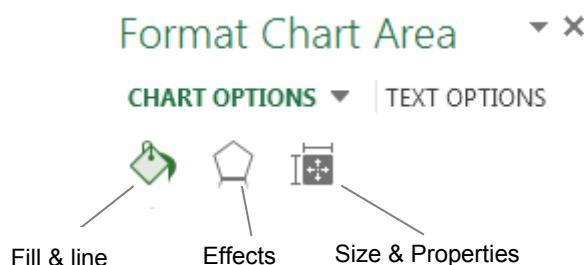
To customise an element of a chart, the Chart Task Pane provides more options. The Task Pane will open by:

- Selecting *More Options ...* from one of the Chart Elements.
- Right clicking on a chart element and selecting Format from the shortcut menu.
- Double clicking on a chart element.

When a different chart element is selected, the options on the Task Pane automatically update to provide options for the selected chart element.

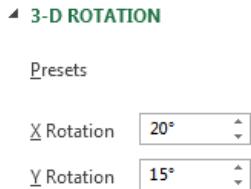
### Exercise 49

- 1 Using **Walker and Grant Commission**, right click on the white space next to the Chart Title.
- 2 Select from the shortcut menu.
- 3 The Chart Task Pane opens and displays at the right of the screen.



- 4 Click on each icon at the top of the pane, and view the options available.

- 5 Click on the Effects icon and then 3-D Rotation.



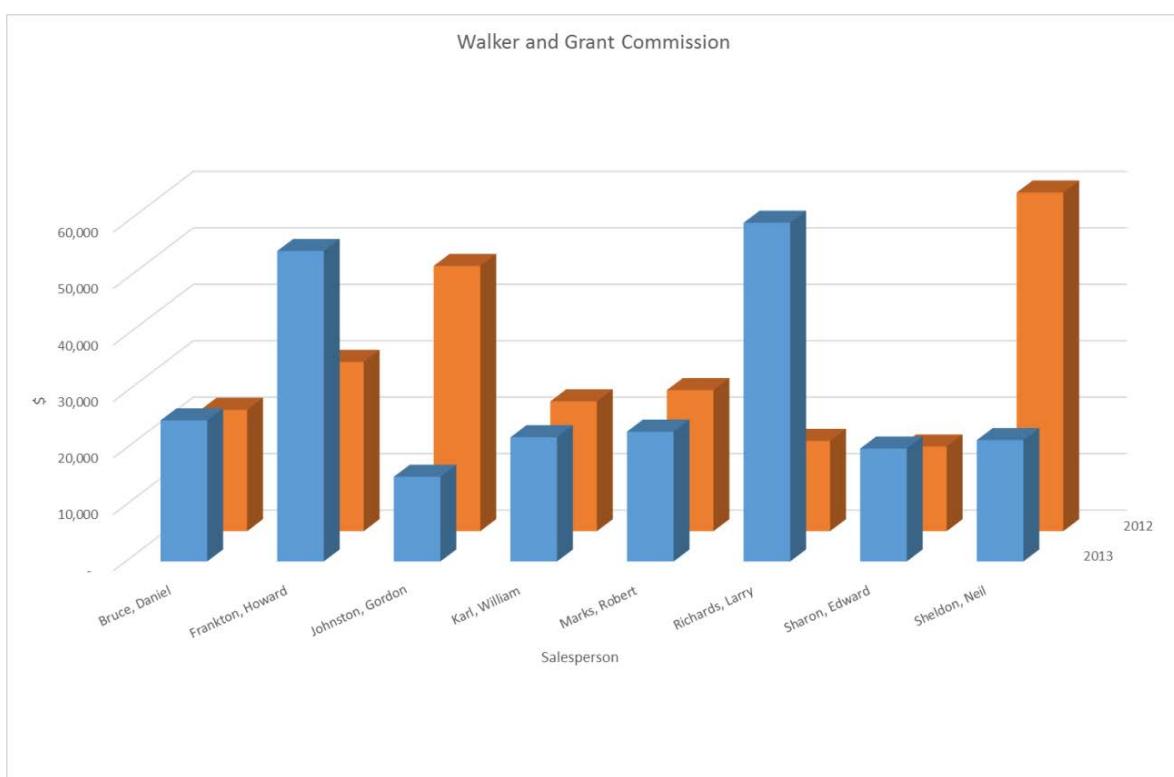
- 6 Adjust the X Rotation to 10° and the Y rotation to 10° and view the change.  
7 Close the Task Pane by clicking on the **X** in the corner.  
8 Preview and print the chart in Backstage view.  
9 Save the workbook and leave it open for the next exercise.

## Changing the Orientation of Labels

### Exercise 50

- 1 Using the workbook **Walker and Grant Commission**, select the Horizontal Axis Title (names of salespersons).
- 2 Change the font size to 10 pt.
- 3 Double click on the Horizontal Axis Title; the Task Pane will display.
- 4 Select **TEXT OPTIONS** and click on Textbox .
- 5 In the Custom Angle box, type **-45**.  
The labels now appear as shown below.

### TEXT BOX



- 6 Save the workbook and leave it open for the next exercise.

## Chart Styles and Chart Filters

### Exercise 51

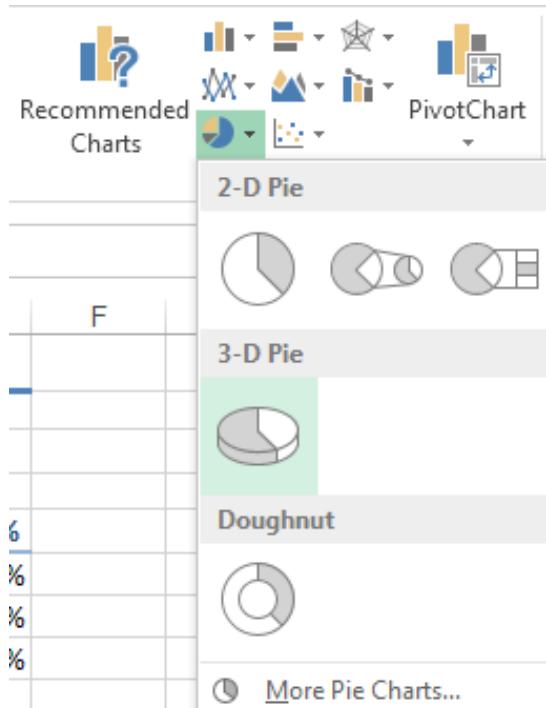
- 1 Using the workbook **Walker and Grant Commission**, click on the Chart Styles button next to the chart.
- 2 With **STYLE** selected at the top of the menu, click on each of the styles to view your chart then select the style at the top.
- 3 Click on **COLOR** at the top of the menu and view the different colour schemes. Select a colour scheme of your choice.
- 4 Click on the Chart Filters button  next to the chart. Deselect 2012 and click . Click away from the menu. Your chart now just shows the data for 2013.
- 5 Click on  again and select 2012 and click .
- 6 Save and close your file.

## Pie Charts

A pie chart is used to compare data within a single data range.

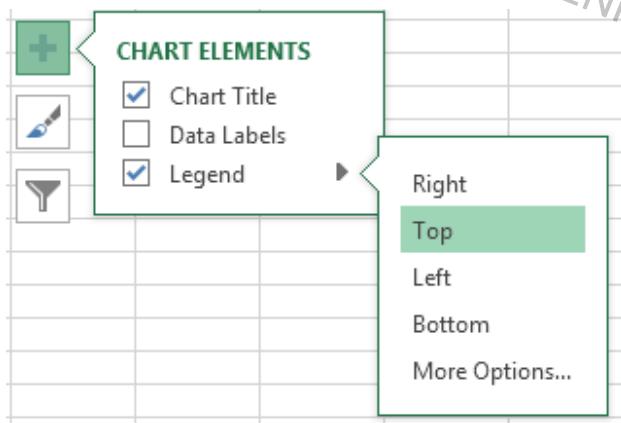
### Exercise 52

- 1 Open the workbook called **Fiji Landing Apartments**.
- 2 On Sheet1 select cells A6 to A8. Hold down the Ctrl key and select cells C6 to C8.
- 3 On the Insert Ribbon click on the Pie button  and select 3-D Pie

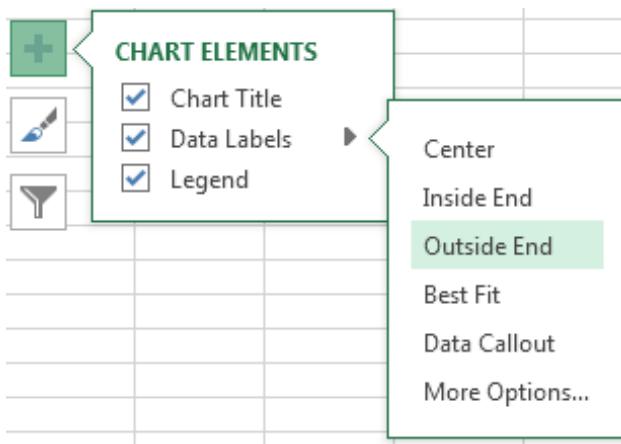


- 4 Click on the Chart Title and type: **Rental Sales For This Year** and press Enter.

- 5 Click on Chart Elements , click on the arrow next to Legend and select Top.



- 6 Click Chart Elements , Data Labels and select Outside End.



- 7 Move the chart to a new sheet and name the sheet **Pie Chart**.

- 8 Save the workbook and leave it open for the next exercise.

## Formatting the Pie Chart

Chart objects can also be selected by clicking on the object required.

### Exercise 53

- 1 Using the workbook **Fiji Landing Apartments**, click on the Chart Title. Using the Home Ribbon, change the font size to 20 pt.
- 2 Click on the legend and change the font size to 12 pt. The Legend will automatically resize to show the larger font.
- 3 Click on one of the data labels, e.g. 1,658,744, to select all labels. Change the font size to 12 pt.
- 4 Save the workbook and leave it open for the next exercise.

## Changing Data

When figures are altered in a worksheet the chart will change to represent the new figures.

### Exercise 54

- 1 Using the workbook **Fiji Landing Apartments**, click on the Sheet1 tab. Alter the Studio Apartments figure (C7) to 2,500,000.
- 2 Click on the Pie Chart sheet tab to see the change made to the Studio Apartments figure.

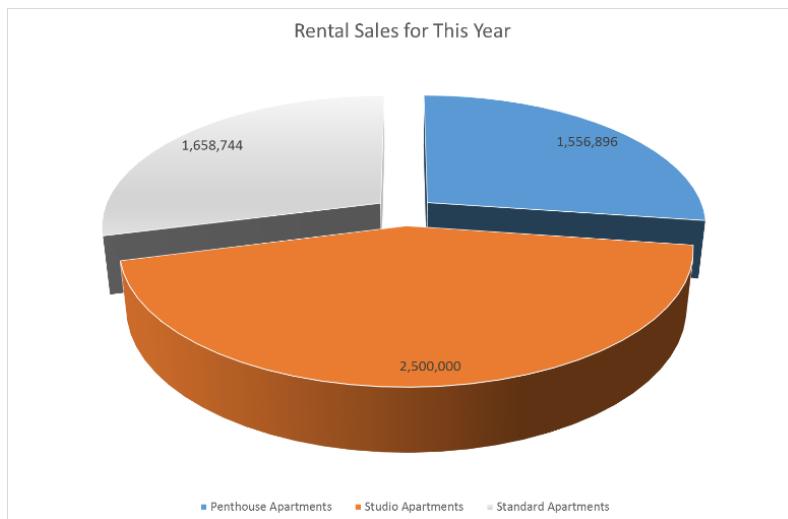
- 3 Click on the Rental Sales Chart. The Studio Apartments column for This Year has increased and a new figure of 2,500,000 is displayed on the Value Axis.
- 4 Print each chart.
- 5 Save the workbook and leave it open for the next exercise.

## Exploding Segments

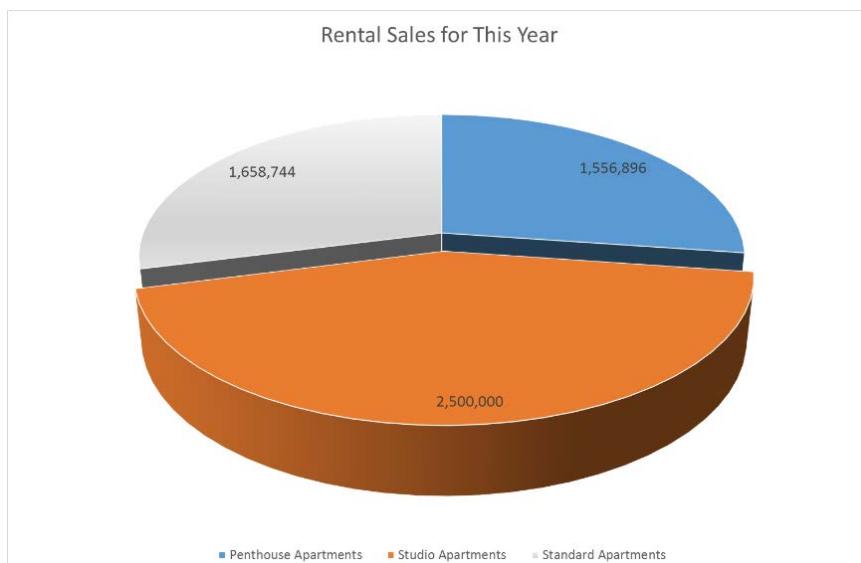
A segment of a pie chart is often ‘exploded’ to emphasise, for example, the highest sales or value.

### Exercise 55

- 1 Using the workbook **Fiji Landing Apartments**, click on the Pie Chart tab.
- 2 Click once on the edge of the chart to select the whole chart object.
- 3 Click and drag one of the segments away from the centre of the chart. All segments will separate.



- 4 Click on the edge of the chart again, then rejoin the segments by clicking and dragging any one of the segments towards the centre. Note that if an individual segment is selected, the segments will not rejoin.
- 5 Click to select the Studio Apartments segment and drag it away from the chart. Only this segment will be separated.



- 6 Save the workbook and leave it open for the next exercise.

## Applying a Fill Effect to a Segment

### Exercise 56

- 1 Using the workbook **Fiji Landing Apartments**, click on the exploded segment to select it. Right click and select Format Data Point from the shortcut menu.

- 2 In the Task Pane, select the Fill & Line icon  and then select **FILL**.

- 3 Select Gradient fill.

- 4 Click on **Preset gradients**  and select a gradient of your choice.

- 5 Close the Task Pane .

- 6 With the Sheet1 tab displayed save the workbook and close.

Format Data Point

#### SERIES OPTIONS



#### FILL

- No fill
- Solid fill
- Gradient fill
- Picture or texture fill
- Pattern fill
- Automatic
- Vary colors by slice

## Quick Charts

Selecting a data range and pressing F11 creates a column chart as a new worksheet quickly and easily. The chart can then be formatted.

### Exercise 57

- 1 Open the workbook called **Best Deals for Charts**.
- 2 Create a quick chart by selecting from A3 to D8 and pressing F11.
- 3 Insert the Chart Title **Appliance Prices**.
- 4 Insert the Primary Horizontal Axis Title **Appliance** and the Primary Vertical Axis Title **\$**.
- 5 Change the Chart Title to 24 pt and the Axis Titles to 12 pt.
- 6 Position the Legend on the right and increase the font size to 12 pt.
- 7 Save the workbook and leave it open for the next exercise.

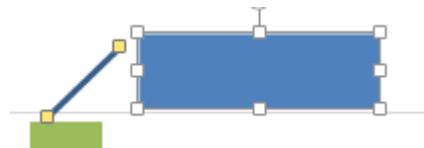
## Adding a Message Arrow

### Exercise 58

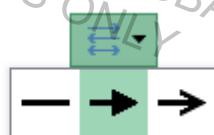
- 1 Using the workbook **Best Deals for Charts**, display the Chart Tools Format Ribbon. From the Insert Shapes group.
- 2 Click on the More button  to show all shapes.
- 3 From the Callouts section select Line Callout 1 (No border).



- 4 Click and drag from the last Fridge column outward as shown at the right.
- 5 Type: **Most Expensive Item**. Resize the shape if necessary.



- 6 Right click on the Callout and select Format Object. The Task Pane will display.
- 7 From **TEXT OPTIONS**, click on **TEXT FILL**. Click on  and change the text colour to black.
- 8 From **SHAPE OPTIONS**, click on  and then from the Fill section, select No Fill.
- 9 Click on **LINE**. From *End arrow type* select the second option.
- 10 Click and drag on the yellow handles on the arrow to reposition it as necessary.
- 11 Click anywhere in the chart area to view the completed callout.

**End Arrow type****End Arrow size**

- 12 Save the workbook and leave it open for the next exercise.

## Changing Colours

### Exercise 59

- 1 Using the workbook **Best Deals for Charts**, double click on one of the columns for '*General Store*'.
- 2 Click on  and from the Fill option, select Solid Fill. Change the colour  to yellow.
- 3 There is another way to change colours. Right click on one of the columns for '*Homewares*'.
- 4 At the top of the shortcut menu, click on the drop down button next to Fill and change the colour to light green.
- 5 Change the colour for '*Fred's Electrical*' to red.
- 6 Save the workbook and leave it open for the next exercise.



## Adding a Data Table

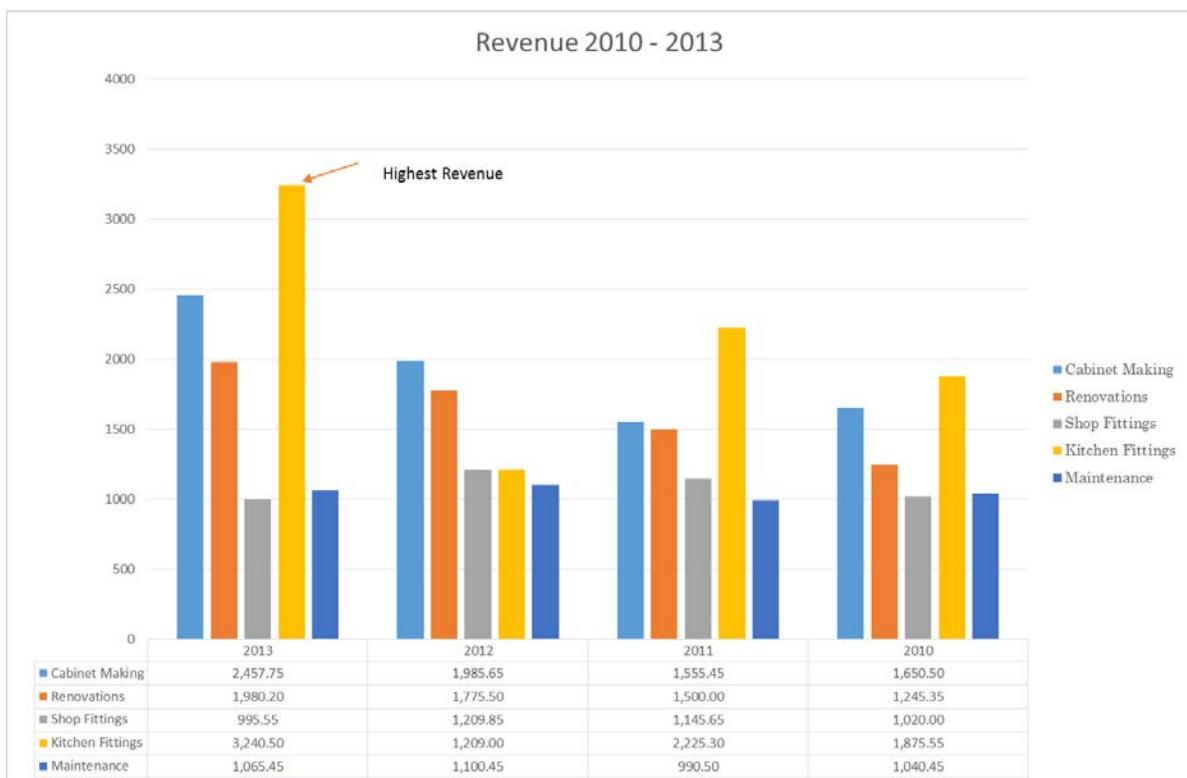
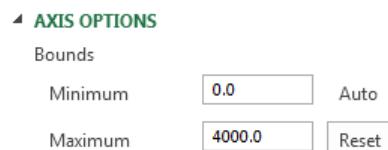
A data table displays the actual figures used to create the chart and is usually positioned underneath the Category Axis (X Axis).

### Exercise 60

- 1 Using the workbook **Best Deals for Charts**, click on and select  Data Table
- 2 Legends may not be required when data tables are inserted. Leave the initial legend in this chart though, so a visual comparison can easily be made.
- 3 Delete the Axis Title of '*Appliance*'. Reposition the callout.
- 4 Save and close the workbook.

### Exercise 61

- 1 Open the workbook called **Albany Joinery for Charts**.
- 2 Create a chart as shown below which includes a data table and a callout with an arrow to indicate the highest revenue.
- 3 Double click on the Primary Vertical Axis.
- 4 Under **AXIS OPTIONS** ▾ click on the Axis Option button Click on Axis Option and adjust the Bounds to have a maximum value of 4000.
- 5 Click on Number and adjust **Decimal places:** 0
- 6 Reposition the callout appropriately.
- 7 Save and print. Close the workbook.



# Bar Chart

## Exercise 62

- 1 Open the workbook called **Spencer Jones Furniture**.
- 2 Click on the Sales sheet tab and select cells A4 to D8.



- 3 On the Insert Ribbon click on **Charts**. With the first option selected click on OK.
- 4 Move the chart to a new sheet called **Bar Chart**.
- 5 Position the Legend at the top and add titles to the chart as shown below.
- 6 Adjust font sizes for Titles and Legend



- 7 Save the workbook and leave it open for the next exercise.

# Combo Chart

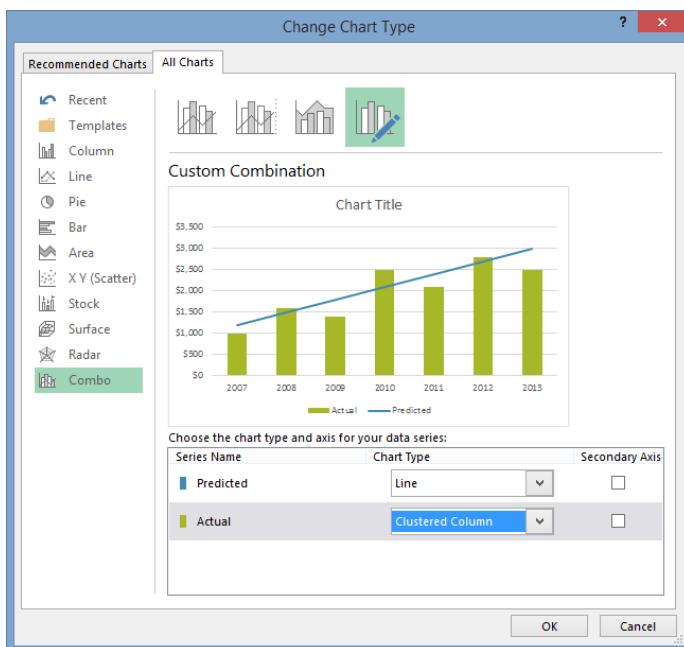
## Exercise 63

- 1 Using the workbook **Spencer Jones Furniture**, click on the Conrad Predicted Sales sheet tab.
- 2 Select cells A5 to C12.

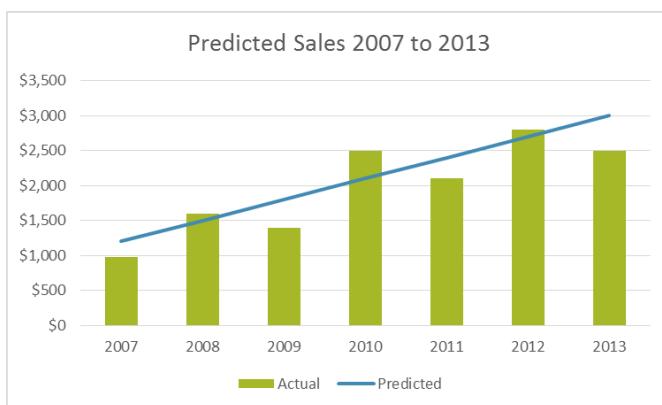


- 3 On the Insert Ribbon click on **Change Chart Type**. With the first option selected, click on OK.

- 4 Click on **Change Chart Type** and select **Combo**.
- 5 From *Choose the chart type and axis for your data series:* change the **Predicted** series to Line chart type, and **Actual** to Clustered Column chart type. Click in **OK**.



- 6 Move the chart to a new sheet called **Combo Chart**.
- 7 Add titles to the chart as shown below.



- 8 Save the workbook and leave it open for the next exercise.

# Line Chart

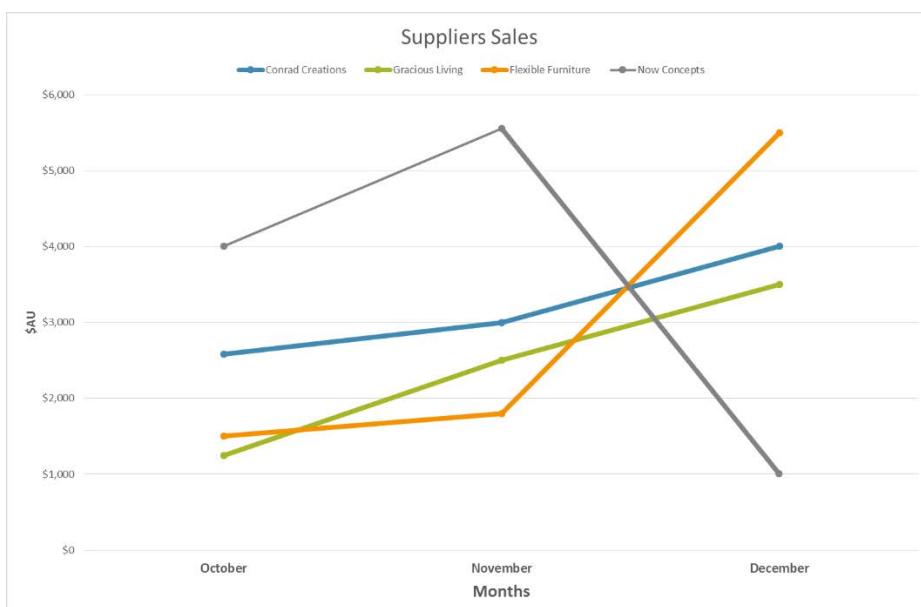
## Exercise 64

- 1 Using the workbook **Spencer Jones Furniture**, click on the Sales sheet tab. Select cells A4 to D8.
- 2 On the Insert Ribbon in the Charts group, click on Line chart  and select Line with Markers .
- 3 Move the chart to a new sheet and name the sheet **Line Chart**.
- 4 Position the Legend at the top.



Switch Row/  
Column

- 5 On the Chart Tools Design Ribbon click on .
- 6 Add titles to the chart as shown below.
- 7 Double click on the line representing Now Concepts.
- 8 On the Task Pane, click on , click on Line and change the Width  to 4 pt
- 9 Modify the other lines by clicking on them and using F4 to repeat formatting.



- 10 Print the chart. Save and close the workbook.

# Altering the Location of a Chart

## Exercise 65

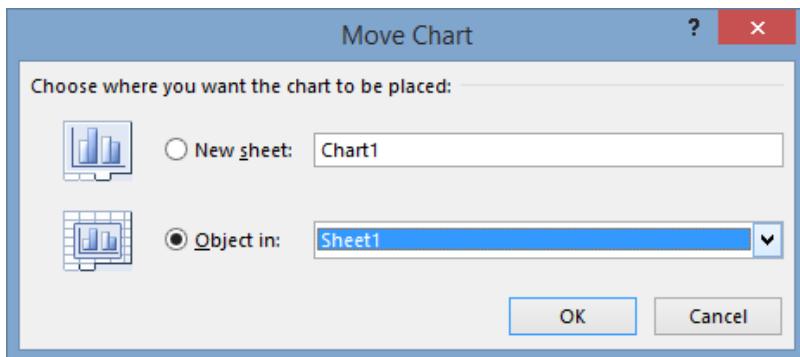
- 1 Open the workbook called **Fiji Landing Apartments**.

The Pie chart needs to appear on Sheet1.

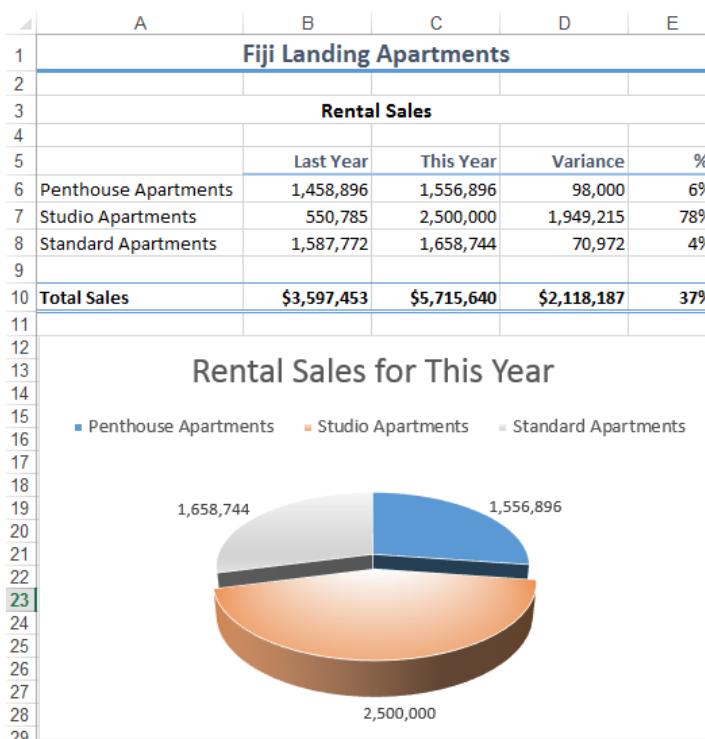


Move  
Chart

- 2 Select the chart and click on .



- 3 Click in the *Object in:* option. Click on and select Sheet1.
- 4 Click on OK. This changes the pie chart from being an individual worksheet to being an object in the Sheet1 worksheet.
- 5 Position the chart below the data. Resize and format the text to appear as shown below.



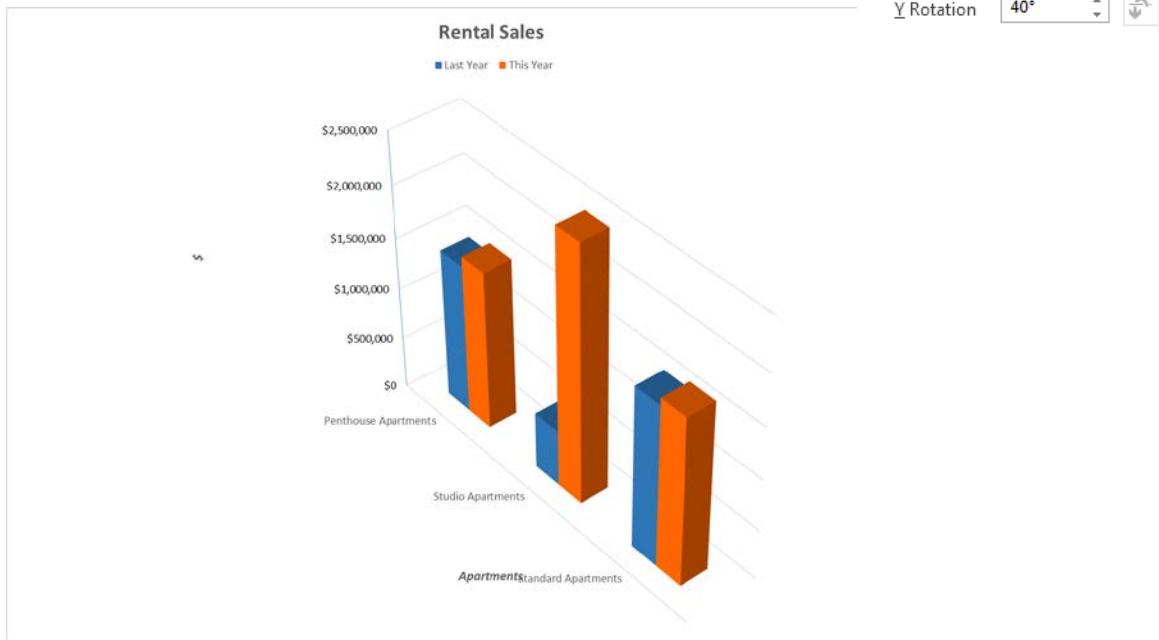
- 6 Save the workbook and leave it open for the next exercise.

**Note:** To change an embedded chart to a new sheet, right click on the chart and choose Move Chart. Select the *New sheet:* option, then click on OK.

# Changing the 3D View of a Chart

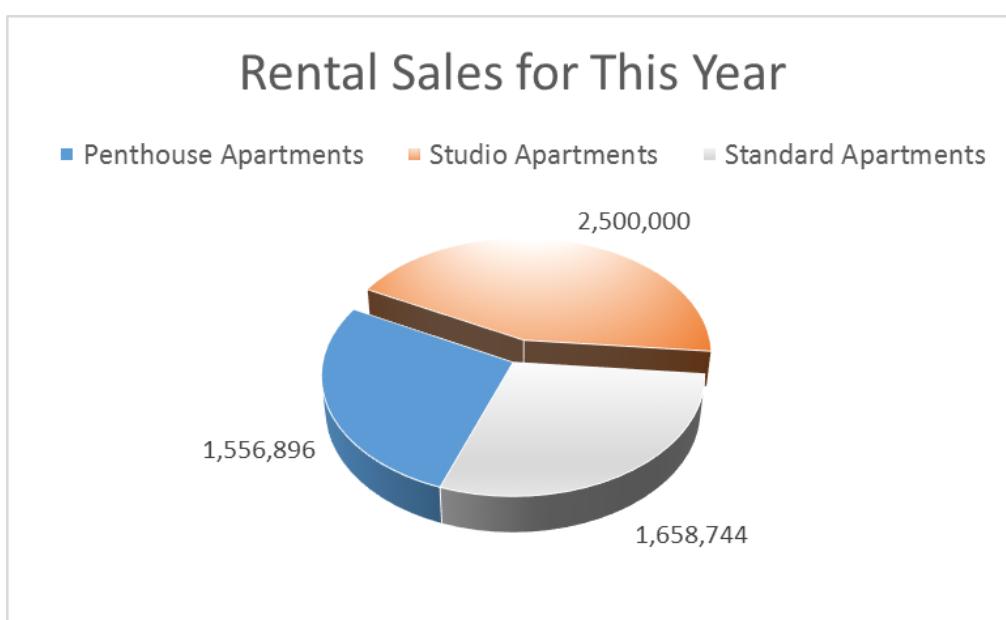
## Exercise 66

- 1 Using the workbook **Fiji Landing Apartments**, click on the Rental Sales Chart tab
- 2 Double click on a white space in the chart to open the Task Pane.
- 3 In **Format Chart Area** click on the Effects button .
- 4 Click on **3-D Rotation** and make the following changes.



- 5 Click on **Default Rotation** to restore the chart.
- 6 Click on the Sheet1 tab and click on the pie chart.

7 Adjust the 3-D rotation  

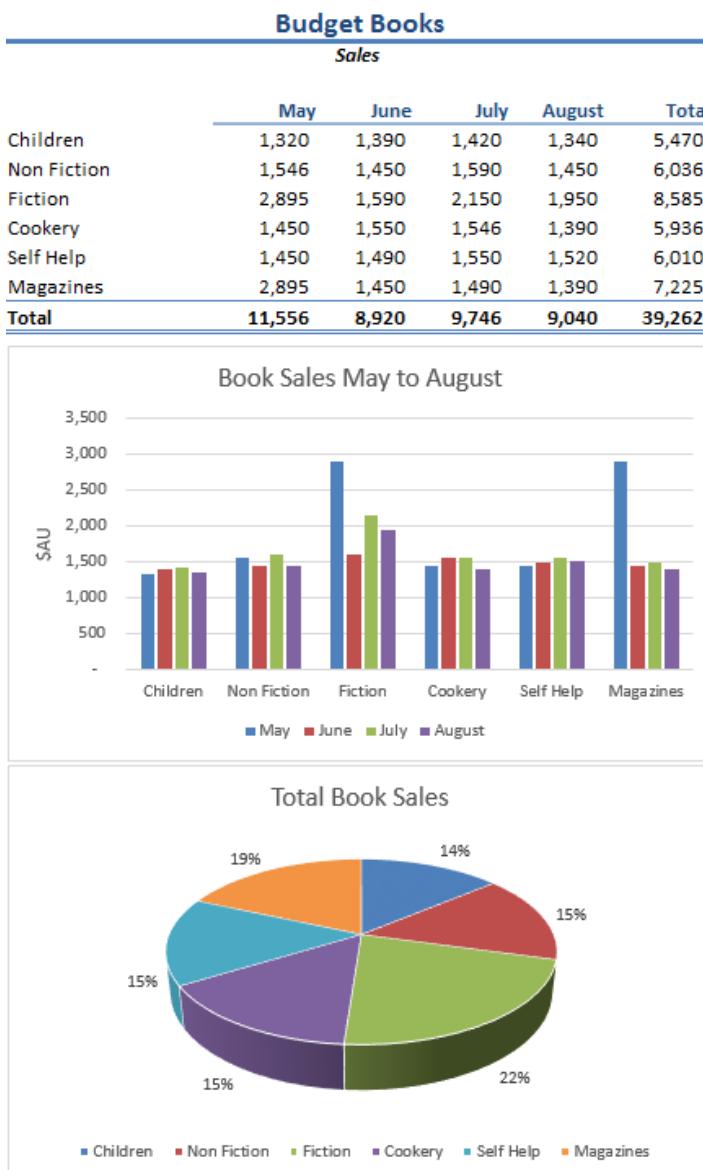


- 8 Save and close the workbook.

### Exercise 67

In this exercise the charts will be placed under the worksheet data.

- 1 Open the workbook called **Budget Books**.
- 2 Apply formatting to improve the appearance of the worksheet.
- 3 Create a Clustered Column chart as an object in the worksheet to show sales of all books over the four months. Position the chart underneath the worksheet data.
- 4 Add chart and axis titles and show the legend at the bottom.
- 5 Create a 3-D pie chart showing total sales of books for each category and position it under the column chart.
- 6 Show the legend at the bottom and add percentage labels to display on each pie segment. Insert a Chart Title as shown below.



- 7 An error has been made in the sales of Fiction books for June. Change the figure on the worksheet to 2590. Print the worksheet.
- 8 Save the workbook as **Budget Books May-August**.
- 9 Close the workbook.

## Revision

- 1 Write a description of the following chart elements:

Legend .....

Axis Titles .....

Series .....

.....

- 2 Explain the difference in selecting data for a column chart and a pie chart.

.....

.....

- 3 Briefly explain how you would create the following:

Quick chart .....

.....

A pie chart as an object in a worksheet .....

.....

.....

- 4 How would you explode a segment of a pie chart?

.....

.....

- 5 Explain the purpose of adding a data table to a chart.

.....

.....

- 6 Explain how you would change the location of a chart.

.....

.....

- 7 How would you change the colour of a data series?

.....

.....

- 8 What is the difference between a bar and column chart?

.....

.....

- 9 How would you change a line chart to a column chart?

.....

.....

## Section

# 4

## **Names, Multiple Worksheets**

### **Linking Workbooks**

### **Consolidating Data**

USED UNDER LICENCE  
FOR TAFE QUEENSLAND BRISBANE  
ENROLLED STUDENTS ONLY

## **Learning Outcomes**

*At the end of this section you should be able to:*

- Work with named ranges
- Manage multiple worksheets (copy, move, delete and insert worksheets)
- Create formulas across worksheets
- Insert/remove page breaks
- Link workbooks
- Consolidate data

# Names

A cell or a range of cells can be given a name which can be used instead of cell references. Some advantages of using names are listed below.

- Easier identifier than cell references.
- Reduces the risk of using an incorrect cell reference in a formula.
- Enables you to move quickly to an area within the worksheet.
- Can be used to reference across worksheets.

## Defining a Name

### Exercise 68

- 1 Open the workbook called **Te Kea Trading**.

In this exercise, names will be assigned for the columns containing figures. These names will then be inserted when using Sum and Average functions.

- 2 Click on cell B7 and drag down to B14.
- 3 Click in the Name Box at the left of the Formula bar (which presently displays **B7**).
- 4 Type: **cost**
- 5 Press Enter.
- 6 Define names for the following ranges.

**retail** C7:C14

**margin** D7:D14

**quantity** E7:E14

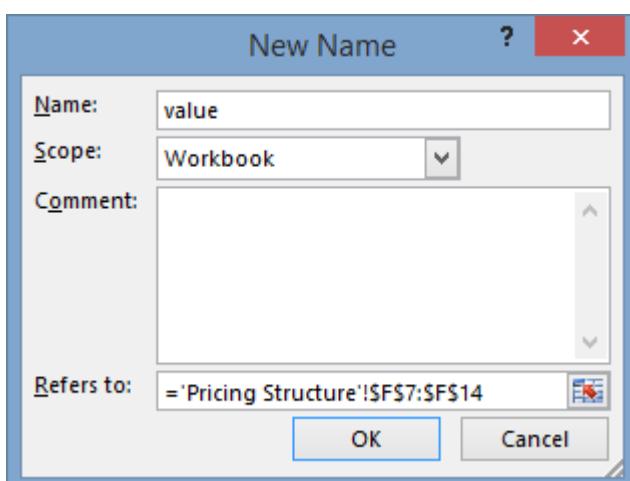
- 7 An alternative method is to use the Define Name dialog box as follows.

- a Select the range F7:F14.

- b On the Formulas Ribbon click on in the Defined Names Group. Type: **value**

Name Box

Product	Cost Price
Calendars	\$11.00
Saucepans	75.00
Electric Jug	42.00
Men's Sweatshirt	24.00
Weedeater	185.00
T-Shirts	15.00
Garden Shed	295.00
Crockpot	120.00



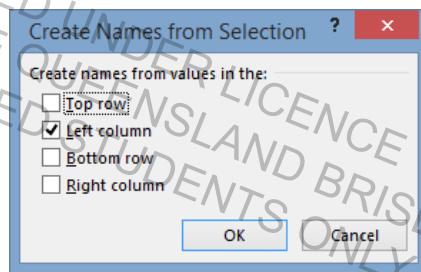
- c Click on OK.
- 8 Save the workbook and leave it open for the next exercise.

## Create a Name

A name can be assigned to a cell in a column or row that has previously been entered into the worksheet. Product names can be assigned to each of the costing/calculation cells as follows.

### Exercise 69

- 1 Using the workbook **Te Kea Trading**, click on cell A7 and drag diagonally to G14.
- 2 On the Formulas Ribbon click on in the Defined Names Group. Ensure *Left column* is selected.
- 3 Click on OK.
- 4 Click on the Name Box ▾ and the names will display as shown at the right.
- 5 Click on a name to see the cells that have been assigned to that product name.
- 6 Save the workbook and leave it open for the next exercise.



A7	▼
Calendars	
cost	
Crockpot	
Electric_Jug	
Garden_Shed	
Men_s_Sweat.	
Saucepans	
T_Shirts	
value	
Weedeater	

## Using a Name with a Formula

### Exercise 70

- 1 Using the workbook **Te Kea Trading**, in cell B16, type: **=sum(cost**
- 2 Press Ctrl Enter.
- 3 Format cell B16 to Currency by pressing Ctrl 1 and selecting Currency. Click on OK.  
The Total Cost displays the result \$767.00 and the Formula bar shows the entry as  
**=SUM(cost).**
- 4 Click on cell C16.
- 5 Type: **=sum(retail** and press Ctrl Enter to display the result for the total price.
- 6 Format to Currency as in step 3.
- 7 Save the workbook and leave it open for the next exercise.

### Exercise 71

Calculate the Total %Margin formula as follows.

- 1 Using the workbook **Te Kea Trading**, click on cell D16 and type: **=(C16-B16)/C16**
- 2 Press Ctrl Enter. Alternatively insert the operators into the Formula bar and click on the required cells.
- 3 Format cell D16 to Percentage and two decimal places by clicking on the Percent Style button **%** on the Home Ribbon, then on the Increase Decimal button **.00** twice to display 27.82%.
- 4 Click on cell E16 and type: **=sum(quantity**
- 5 Press Tab.
- 6 In cell F16 type: **=sum(value**
- 7 Press Ctrl Enter.
- 8 Format F16 to Currency.
- 9 Save the workbook and leave it open for the next exercise.

## Using a Name in the Formula Palette

In the following exercise you will add a formula to calculate the average of the %Margin column.

### Exercise 72

- 1 Using the workbook **Te Kea Trading**, click on cell A18 and type: **Average Margin** in bold then press Tab.
- 2 In cell B18 click on of **Σ AutoSum** and select Average.
- 3 Type: **margin**

Product	Cost Price	Retail Price	% Margin
Calendars	\$11.00	\$18.95	41.95%
Saucepans	75.00	95.00	21.05%
Electric Jug	42.00	75.50	44.37%
Men's Sweatshirt	24.00	42.95	44.12%
Weedeater	185.00	269.90	31.46%
T-Shirts	15.00	24.85	39.64%
Garden Shed	295.00	375.50	21.44%
Crockpot	120.00	159.90	24.95%
	\$767.00	\$1,062.55	27.82%
<b>Average Margin</b>	=AVERAGE margin)		
			AVERAGE(number1, [number2], ...)

- 4 Press Ctrl Enter.
- 5 Format to Percentage and two decimal places. The average margin result displays as 33.62%.
- 6 Delete the contents of cells B16 to D16 then press Ctrl Home (to return to cell A1).
- 7 Save the workbook and leave it open for the next exercise.

## Using a Name with Go To

Names can be used to move quickly to a designated area of your worksheet.

### Exercise 73

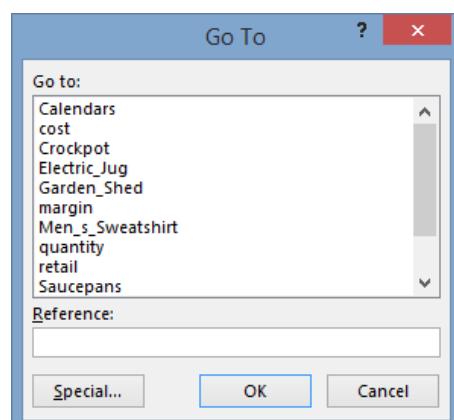
- F5 1 Using the workbook **Te Kea Trading**, press Ctrl G OR on the Home Ribbon click on the



Find & Select button **Select** and select **Go To...**.

The Go To dialog box displays a list of all names in the worksheet and all past cell references that have been used to move to a cell quickly.

- 2 Double click on **retail**. Cells C7 to C14 will be selected.
- 3 Press Ctrl G. Type: **F16** and click on OK.
- 4 Save the workbook and leave it open for the next exercise.

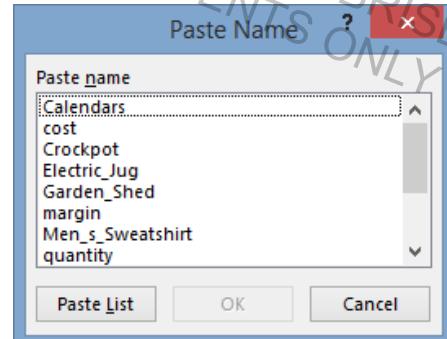


## Pasting a List of Names

A list showing the name, the worksheet name and the cell reference(s) can be pasted into your worksheet as follows.

### Exercise 74

- 1 Using the workbook **Te Kea Trading**, click on cell A21.
- 2 On the Formulas Ribbon click on Use in Formula and select [Paste Names...](#). The Paste Name dialog box will display.
- 3 Click on **Paste List**.
- 4 Click away from the list to deselect. The list will be displayed as shown below.



21	Calendars	=Pricing Structure'!\$B\$7:\$G\$7
22	cost	=Pricing Structure'!\$B\$7:\$B\$14
23	Crockpot	=Pricing Structure'!\$B\$14:\$G\$14
24	Electric_Jug	=Pricing Structure'!\$B\$9:\$G\$9
25	Garden_Shed	=Pricing Structure'!\$B\$13:\$G\$13
26	margin	=Pricing Structure'!\$D\$7:\$D\$14
27	Men_s_Sweatshirt	=Pricing Structure'!\$B\$10:\$G\$10
28	quantity	=Pricing Structure'!\$E\$7:\$E\$14
29	retail	=Pricing Structure'!\$C\$7:\$C\$14
30	Saucepans	=Pricing Structure'!\$B\$8:\$G\$8
31	T_Shirts	=Pricing Structure'!\$B\$12:\$G\$12
32	value	=Pricing Structure'!\$F\$7:\$F\$14
33	Weedeater	=Pricing Structure'!\$B\$11:\$G\$11

- 5 Save the workbook and leave it open for the next exercise.

#### Note

Names can be specified from any worksheet; all names will be displayed in the Name box and the relevant worksheet name will appear when the list is pasted.

## Deleting Names

### Exercise 75

- 1 Using the workbook **Te Kea Trading**, on the Formulas Ribbon click on the Name Manager



Name  
Manager

- 2 Select the *Garden\_Shed* name.

Electric_Jug	{"42.00","75.50","44.... = 'Pricing Structure'... Workbo...
Garden_Shed	{"295.00","375.50",..." = 'Pricing Structure'... Workbo...
margin	{"41.95%";"21.05%";..." = 'Pricing Structure'... Workbo...

- 3 Click on **Delete** and click on OK. Click on Close.
- 4 Save the workbook and close.

# Working with Multiple Worksheets

The following exercises will show you how to work across worksheets, copy data, format worksheets, insert formulas across worksheets, etc.

## Moving Data across Worksheets

### Exercise 76

- 1 Open the workbook called **Flower Shop** and select cells A11 to E17.
- Ctrl X 2 Click on  Cut and click on the Sheet2 tab.
- 3 Click on cell A3 and press Enter to paste into the cell. When data is pasted into the worksheet it is removed from the Clipboard.
- 4 Click on the Sheet1 tab and click on A1.
- 5 Copy the heading to the Clipboard.
- 6 Click on the Sheet2 tab (cell A1) and paste the heading.
- 7 Rename Sheet1 as **Jan-Apr** and Sheet2 as **May-Aug**.
- 8 Save and close the workbook.

## Copying Data from Worksheet to Worksheet

### Exercise 77

- 1 Open the workbook called **Jessie's Clothing Stores**.
- 2 On the Sydney worksheet click on cell A13 and type the following:  
The above figures are net figures for the months indicated.
- Ctrl C 3 Press Ctrl Enter and click on  Copy .
- Ctrl V 4 Click on the Auckland sheet tab. Click on A13 and click on  Paste .
- 5 Click on the Christchurch sheet tab. Click on A13 and click on  Paste .
- 6 Save the workbook and leave it open for the next exercise.

## Moving, Copying and Inserting New Worksheets

Sometimes it may be necessary to insert, copy or delete a worksheet.

### Exercise 78

- 1 Using the workbook **Jessie's Clothing Stores**, click on the Sydney sheet tab, then on the  Home Ribbon click on ▾ of the Insert button ▾ and select  Insert Sheet . A worksheet is inserted in front of the current worksheet.
- 2 Rename Sheet1 as **Summary**.
- 3 Save the workbook and leave it open for the next exercise.

### Note

A worksheet can also be inserted by clicking on  + next to the sheet names at the bottom on the screen. A new sheet will be inserted to the right of the active sheet.

### Exercise 79

- 1 Using the workbook **Jessie's Clothing Stores**, click and drag the Sydney sheet tab across to the end of the Christchurch sheet tab. The Sydney sheet is moved to that position.

You will now move the Christchurch worksheet so it is before Auckland.

- 2 Click on the Christchurch sheet tab to display the worksheet.



- 3 On the Home Ribbon click on and select Move or Copy Sheet, and click on Auckland as shown at the right.

- 4 Click on OK.

- 5 Move the Christchurch worksheet back between the Auckland and Sydney worksheets using either the dialog box or the mouse.

- 6 Click on the Sydney sheet tab.

- 7 Hold down the Ctrl key, and click and drag the Sydney sheet tab to the far right. A copy of the Sydney sheet tab will be named as Sydney (2).

- 8 Double click on Sydney (2) and rename as **Brisbane**.

- 9 Modify the subheading to *Brisbane* instead of *Sydney*.

- 10 Select cells A6 to D9 and enter the following data. Widen column A as necessary.

A	B	C	D	E	
1	Jessie's Clothing Stores				
2	Sales for 1st Quarter 2013 - Brisbane Area				
3					
4	January	February	March	Totals	
5					
6	Redcliffe	2,561	1,954	2,675	7,190
7	Mount Gravatt	1,859	2,010	2,987	6,856
8	Slacks Creek	1,245	1,654	1,745	4,644
9	West End	1,675	1,773	2,134	5,582
10					
11	Total	7,340	7,391	9,541	24,272
12					
13	The above figures are net figures for the months indicated.				

- 11 Click on the Summary sheet tab.

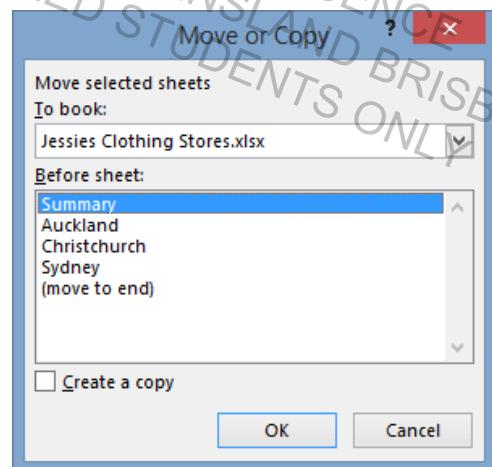
#### Note

The sheet tab scrolling buttons at the bottom left corner of the screen are used to navigate between worksheets by right clicking on the buttons and selecting a sheet name. The buttons will scroll across tabs if they exceed the screen width.

- 12 On the Home Ribbon, click on the of the Delete button and select **Delete Sheet**.

(If the worksheet contained data you would need to click on to confirm the deletion.) Sheets can also be deleted by right clicking on the sheet name and selecting **Delete** from the shortcut menu.

- 13 Save and close the workbook.



## Formatting Across Worksheets

### Exercise 80

- 1 Open the workbook **Cleantec**.
- 2 Select cells A1 to F5 and copy the data to the Clipboard.
- 3 Click on the Sheet2 tab. With cell A1 selected, click on the Paste button .
- 4 Click on the Sheet3 tab. With cell A1 selected, click on .
- 5 Click on the Sheet1 tab. Press Esc. In cell B3, type: **Devonshire**
- 6 Click on the Sheet2 tab. In cell B3, type: **Cheltenham**
- 7 Insert and proofread data as shown below, widening column A as necessary.

3	Branch:	Cheltenham				
4						
5		Jan	Feb	Mar	Apr	Total
6	Windows	2000	1562	1860	2020	
7	House Exteriors	1550	1820	1450	1580	
8	Gutters	300	340	250	310	
9	WaterBlasting	450	500	630	590	

- 8 Click on the Sheet3 tab. In cell B3, type: **Stanley Bay**
- 9 Insert and proofread data as shown below, widening column A as necessary.

3	Branch:	Stanley Bay				
4						
5		Jan	Feb	Mar	Apr	Total
6	Carpet Cleaning	600	630	625	650	
7	Stain Removal	95	120	100	80	
8	Shower Proofing	350	290	360	400	
9	Vehicle Interiors	480	440	430	460	
10	Boat Interiors	560	550	525	500	
11	Boat Exteriors	345	335	355	300	

- 10 Save the workbook and leave it open for the next exercise.

## Grouping Worksheets

In rows 1 to 5 the same data has been inserted and modified slightly. When data is in the same cells across several worksheets, data can be formatted once across all worksheets, (e.g. Jan is in cell B5 in each worksheet). When several worksheets are grouped, any formatting will apply to the entire group.

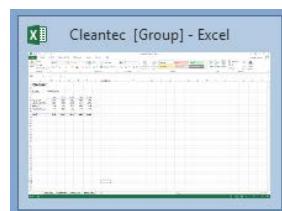
### Exercise 81

- 1 Using the workbook **Cleantec**, click on the Sheet1 tab and select cells B5 to F5.
- 2 Hold down the Ctrl key and click on the Sheet2 tab, then the Sheet3 tab. All selected sheet tabs will display with a coloured bar under worksheet name at the bottom of the screen.



#### Note

Holding the mouse pointer over the Excel icon on the Taskbar will display as shown at the right.



- 3 From the Styles group on the Home Ribbon, select **Heading 3**. Apply right alignment to selected cells.
- 4 Right click on a grouped sheet tabs and select Ungroup Sheets.
- 5 Move to Sheet2 and Sheet3 in turn to view the formatting changes.
- 6 Click on the Sheet1 tab. Hold down the Ctrl key and click on the Sheet2 and Sheet3 tabs.
- 7 Click on cell A1 and format to Calibri 20 pt, bold. Click on cell A3 and apply bold.
- 8 Right click on the grouped sheet tabs and select Ungroup Sheets. Each worksheet will show the following formatting.

	A	B	C	D	E	F
1	<b>Cleantec</b>					
2						
3	<b>Branch:</b>	Devonshire				
4						
5		Jan	Feb	Mar	Apr	Total

- 9 Save the workbook and leave it open for the next exercise.

## Format Painter

### Exercise 82

- 1 Using the workbook **Cleantec**, add a Total row at the bottom of Sheet2 and Sheet3. (Ensure a blank row separates the data from the Total row.) Using the AutoSum button  calculate the total column and row in each of the three sheets.
- 2 Click on the Sheet1 tab and select cells A12 to F12.
- 3 From the Styles group on the Home Ribbon, select **Total**.
- 4 With the cells selected, double click on  . The mouse pointer will display a paintbrush.
- 5 Click on the Sheet2 tab. Use the paintbrush to select cells across the Total row.
- 6 Click on the Sheet3 tab and use the paintbrush to select cells across the Total row.
- 7 Press Esc OR click on  to turn off Format Painter.
- 8 Save the workbook and leave it open for the next exercise

The formatting from the cells in Sheet1 has been copied and applied to the selected cells in Sheet2 and Sheet3.

## Formulas across Worksheets

### Exercise 83

- 1 Using the workbook **Cleantec**, rename Sheet1, Sheet2 and Sheet3 to match their branch names.
- 2 At the bottom of the worksheet, click on the New Sheet button .
- 3 Double click on the newly inserted sheet tab and rename as **Summary**
- 4 Move the **Summary** sheet tab so that it is the first worksheet.
- 5 Insert the following on the **Summary** worksheet. (Some of the data can be copied from the **Devonshire** worksheet if desired.)

	A	B	C	D	E
1	<b>Cleantec</b>				
2					
3	<b>Summary</b>				
4					
5		<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>
6	Devonshire				
7	Cheltenham				
8	Stanley Bay				
9					
10	<b>Total</b>				
...					

- 6 Save the workbook.
- 7 Click on cell B6 and type: =
- 8 Click on the **Devonshire** sheet tab.
- 9 Click on cell B12 (total for January for the Devonshire branch).
- 10 Press Enter. The value from cell B12 on the **Devonshire** worksheet will appear in cell B6.
- 11 Select cell B6 and drag the fill handle across to E6.
- 12 Click on cell B7 and type: = then click on the **Cheltenham** sheet tab.
- 13 Click on cell B11 (total for January for the Cheltenham branch). Press Enter. The Total for January for the Cheltenham branch will appear in cell B7.
- 14 Select cell B7 and drag the fill handle across to E7.
- 15 Click on cell B8 and type: = then click on the **Stanley Bay** sheet tab.
- 16 Click on cell B13. Press Enter. The Total for January for the Stanley Bay branch will appear in cell B8.
- 17 Select cell B8 and drag the fill handle across to E8.
- 18 Total cells B10 to E10.

		<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>
5					
6	Devonshire	2260	2420	2415	2415
7	Cheltenham	4300	4222	4190	4500
8	Stanley Bay	2430	2365	2395	2390
9					
10	<b>Total</b>	<b>8990</b>	<b>9007</b>	<b>9000</b>	<b>9305</b>

- 19 Save the workbook and leave it open for the next exercise.

## **Creating a Formula using Named Ranges across Worksheets**

A formula can be created by adding the totals of the different months into the Summary worksheet. The exercise on the next page shows how to use named ranges in a formula across several worksheets.

### **Exercise 84**

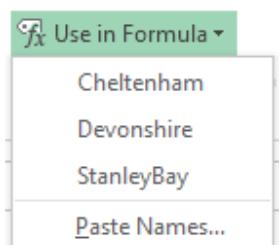
- 1 Using the workbook **Cleantec**, on the *Summary* sheet insert the following text into cell A12:  
**Total sales for the period**
- 2 Click on the Devonshire sheet tab and click on cell F12 (total for the Devonshire branch).
- 3 Click in the Name Box, as shown at the right.
- 4 Type: **Devonshire** and press Enter.
- 5 Click on the Cheltenham sheet tab and click on cell F11 (total for the Cheltenham branch).
- 6 Click in the Name Box and type: **Cheltenham** then press Enter.
- 7 Click on the Stanley Bay sheet tab and click on cell F13 (total for the Stanley Bay branch).
- 8 Click in the Name Box and type: **StanleyBay** then press Enter.



#### **Note**

Cell names cannot have spaces in the Name Box.

- 9 Click on the Summary tab. Click on cell C12 and type: =
- 10 On the Formulas Ribbon, click on Use in Formula .
- 11 Click on Cheltenham and type: +
- 12 Click on Use in Formula and click on Devonshire. Type +
- 13 Click on Use in Formula and click on StanleyBay, then press Enter. The total of all worksheets is displayed in cell C12.
- 14 Save the workbook and leave it open for the next exercise.



#### **Note**

F3 is the keyboard shortcut to display the *Paste Names...* dialog box.

## Viewing Different Sheets within One Workbook

A new window will be created for each worksheet so all worksheets can be viewed at the same time.

### Exercise 85

- 1 Using the workbook **Cleantec**, on the View Ribbon click on the New Window button Repeat this step two more times.



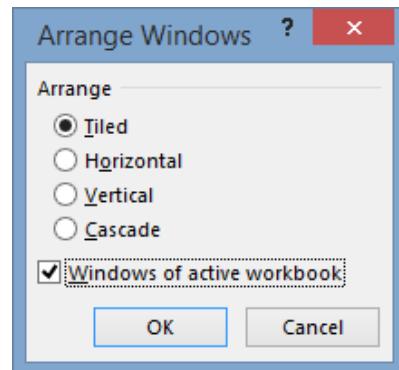
Switch Windows

- 2 Click on the Switch Windows button . A list of the four windows is displayed.



Arrange

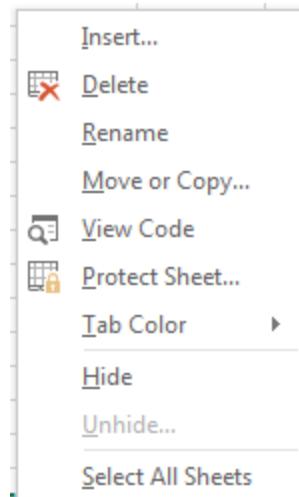
- 3 Click on the Arrange All button and ensure the *Tiled* option is selected as shown at the right.
- 4 Click in the *Windows of active workbook* check box and click on OK.
- 5 Four **Cleantec** windows appear on screen. Click in each window and select a sheet tab, e.g. in one window click on the Summary sheet tab, in another window click on the Devonshire sheet tab, etc.
- 6 Save and close the workbook.



## Using the Right Mouse button on Sheet Tabs

By right clicking on a sheet tab the following options can be selected.

<i>Insert...</i>	Allows you to select from inserting a Worksheet, Chart, MS Excel 4.0 Macro or MS Excel 5.0 Dialog.
<i>Delete</i>	Deletes the current worksheet.
<i>Rename</i>	Renames the current worksheet.
<i>Move or Copy...</i>	Allows the current worksheet to be moved or copied.
<i>View Code</i>	Displays the Visual Basic Editor.
<i>Protect Sheet...</i>	Allows a password to be set for protected sheets.
<i>Tab Color...</i>	Allows you to change the colour of the current sheet tab.
<i>Hide/Unhide...</i>	Hides or displays worksheets
<i>Select All Sheets</i>	Selects all worksheets in the current workbook.
<i>Ungroup Sheets</i>	Deselects all grouped worksheets. (Only appears if worksheets have been grouped.)



### Exercise 86

- 1 Open **Jessie's Clothing Stores**.
- 2 Practise right clicking to rename sheets, move and copy sheets, ungroup sheets, and change the colour of the sheet tabs.
- 3 Close the workbook without saving.

## Multiple Worksheets

### Exercise 87

- 1 Open the workbook called **Lifestyle Books**. Ensure column headings are right aligned.
- 2 Rename the Sheet1 tab as **Jan-Apr** and change the subheading to **Sales – January to April**.
- 3 Copy the data from the first worksheet to Sheet2 and rename it **May-Aug**. Change the subheading to **Sales – May to August**. Change figures and column headings as shown below.

	A	B	C	D	E	F
1	<b>Lifestyle Books</b>					
2	<b>Sales - May to August</b>					
3						
4		<b>May</b>	<b>June</b>	<b>July</b>	<b>August</b>	<b>Total</b>
5	Travel	1,555	1,225	1,295	1,256	5,331
6	Health	1,656	1,660	1,278	1,275	5,869
7	Gardening	1,120	1,100	1,595	1,445	5,260
8	Children	1,360	1,300	1,235	1,660	5,555
9	<b>Total</b>	<b>5,691</b>	<b>5,285</b>	<b>5,403</b>	<b>5,636</b>	<b>22,015</b>

- 4 Copy the data from the Jan-Apr worksheet to Sheet3 and rename it **Sep-Dec**. Change the subheading to **Sales, September-December**. Change figures as shown below.

	A	B	C	D	E	F
1	<b>Lifestyle Books</b>					
2	<b>Sales - September to December</b>					
3						
4		<b>September</b>	<b>October</b>	<b>November</b>	<b>December</b>	<b>Total</b>
5	Travel	1,660	1,665	1,235	1,445	6,005
6	Health	1,895	1,558	1,690	1,225	6,368
7	Gardening	1,235	1,445	1,550	1,195	5,425
8	Children	1,550	1,555	1,655	1,665	6,425
9	<b>Total</b>	<b>6,340</b>	<b>6,223</b>	<b>6,130</b>	<b>5,530</b>	<b>24,223</b>

- 5 Insert a worksheet as the first in the workbook and rename it **Summary**. Copy the data from the Jan-Apr worksheet to the Summary worksheet.
- 6 Change the subheading to **Sales Summary 2013**
- 7 Change the column headings in this worksheet to **Jan-Apr, May-Aug, Sep-Dec**. Delete column E, then cells B5 to D8.
- 8 On the Summary worksheet bring forward the totals from the other three worksheets and calculate totals.
- 9 Add currency formatting with no decimal places, to the Total row and Total column on each of the worksheets.

What is the Total Sales figure for all branches? .....

.....

- 10 Save the workbook as **Book Sales for 2013**.
- 11 Practise viewing all worksheets at the same time, then close without saving.

## Heading Rows

If a worksheet spans beyond one page, column heading rows can be automatically repeated on subsequent pages.

### Exercise 88

- 1 Open the workbook called **Staff Listing**.

FILE

Print

- 2 Click on then click on .

- 3 Click on the preview then press the Page Down key three times and you will see the worksheet stretches over four pages.



- 4 Click on to exit Backstage View.



Margins

- 5 On the Page Layout Ribbon click on the Margins button and select [Custom Margins...](#). Change the left and right margins to 1 cm.

- 6 Click on the Sheet tab of the Page Setup dialog box.



- 7 Click on the *Rows to repeat at top:* Collapse Dialog button .

- 8 Click in row 1, which will display \$1:\$1 in the Page Setup - Rows to repeat at top: box.

1	Lastname	F firstname	Department	Date Hired	Age
2	Armstrong	Alan	Personnel	3/08/1989	36
3					
4					
5					

Page Setup - Rows to repeat at top: ?

\$1:\$1

- 9 Click on the Expand Dialog button then click on OK.

- 10 Preview the worksheet in Backstage View again. The column headings will be repeated at the top of every page.

- 11 Save the workbook and leave it open for the next exercise

## Adding a Footer

### Exercise 89

- 1 Using the workbook **Staff Listing**, click on and to go to Backstage View.

FILE

Print

- 2 Click on the Page Setup link to display the Page Setup dialog box.

Page Setup

- 3 Click on the Header/Footer tab.

[Custom Footer...](#)

- 4 Click on .



- 5 Click in the Left section: box. Click on the Insert File Name button .



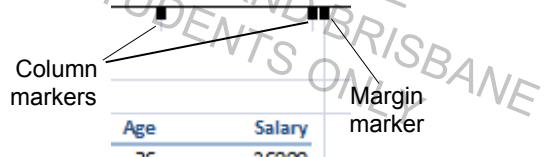
- 6 Click in the Right section: box. Click on the Insert Page Number button .

- 7 Click on OK. Click on OK to exit the Page Setup dialog box. The file name and page number of the worksheet are now displayed at the bottom of the page.

- 8 Save the workbook and leave it open for the next exercise.

## Altering the Column Widths in Backstage View

### Exercise 90

- 1 Using the workbook **Staff Listing**, go to Backstage View.
- 2 Click on the Show Margins button  in the bottom right hand corner. Display page one.
- 3 Margin and column markers indicating column boundaries are displayed at the top of the page. You can click and drag on these markers to change margins and column widths.

Column markers  
Margin marker
- 4 Click on the Zoom to Page button .
- 5 Ensure you can see the Age column and the column markers. (You may need to scroll upwards and across.) Move the mouse pointer to the marker indicated. Click and drag the marker to the left to reduce the width of the Age column.
- 6 Click on the Zoom to Page button .
- 7 Practise changing margins and column widths to ensure data is displayed evenly on the page.

Lastname	Firstname	Department	Date Hired	Age	Salary
Armstrong	Alan	Personnel	3/08/1989	36	26000

- 8 Click on the Show Margins button  to remove margin and column markers, then click on  to exit Backstage View.
- 9 Save the workbook and leave it open for the next exercise.

## Inserting/Removing a Page Break

### Exercise 91

- 1 Using the workbook **Staff Listing**, insert three rows at the top of the worksheet and insert the heading **Supertec Services Ltd** in cell A1. Format to 18 pt, bold.



- 2 Select row 15 and on the Page Layout Ribbon click on the Breaks button  and select Insert Page Break.
- 3 Click in another cell in the worksheet to see the solid grey break line above row 15.
- 4 Preview the worksheet in Backstage View and you will only down to line row 14 on page 1.
- 5 Click on  to view the next page. Click on .



- 6 Select row 15, click on the Breaks button  and select Remove Page Break.
- 7 Preview in Backstage View then return to the worksheet.
- 8 Save the workbook and leave it open for the next exercise.

## Page Break Preview

Page breaks can be adjusted in Page Break Preview, which scales the worksheet to fit columns and rows across the page.

### Exercise 92

- 1 Using the workbook **Staff Listing**, on the View Ribbon click on the Page Break Preview button. Click on OK.

53	Vickery	Bernice	Sales	11/01/1992	45	31000
54	Hunter	Mele	Sales	12/01/1992	46	26000
55	Harrison	Paul	Personnel	6/03/1992	25	35000

- 2 Adjust the automatic page break by dragging the blue dash line (row 53) upwards to row 48 to fit the worksheet evenly on two pages.



- 3 From the View Ribbon, click on the Normal View button .
- 4 Save, print and close the workbook.

# Linking Workbooks

There are several methods of linking workbooks - the following exercise will show how to calculate data in one workbook and display the result in another.

## Exercise 93

- Click on **FILE** then click on **Open**. Navigate to your working folder.
- Click on the workbook called **Fire Shop - Brisbane**. Hold down the Ctrl key and click on the following files:  
**Fire Shop - Melbourne**  
**Fire Shop - Perth**  
**Fire Shop - Sydney**
- Click on **Open ▾**. Excel will automatically open all files selected in the Open dialog box. (The open files are listed on the View Ribbon Switch Windows menu.)

	A	B	C
1			
2			
3			
4			
5			
6			
7			

- Click on **FILE** then click on **New**. Click on **Blank workbook**.
- Create and format the worksheet as shown below.

	A	B	C	D	E
1	<b>The Fire Shop</b>				
2	<i>All Regions</i>				
3					
4	Region	October	November	December	Total
5	Perth				
6	Sydney				
7	Melbourne				
8	Brisbane				
9	<b>Total</b>				
10					
11		Average per month	Minimum per month	Maximum per month	
12	Perth				
13	Sydney				
14	Melbourne				
15	Brisbane				

- Save the workbook as **Fire Shop – Summary** and leave it open for the next exercise.

## Calculate across Workbooks

### Exercise 94

- 1 Using the workbook **Fire Shop – Summary**, click on cell B5 and type: =  
  
Switch Windows
- 2 On the View Ribbon click on the Switch Windows button and choose **Fire Shop - Perth**.
- 3 Click on cell B9 and press Enter. Excel will automatically return the screen to display the **Fire Shop - Summary** workbook.
- 4 Double click on cell B5.
- 5 The file name of the workbook, the Sheet name and cell reference appear in the cell.

4	Region	October	November	December	Total
5	Perth	='[Fire Shop - Perth.xlsx]Sheet1'!\$B\$9			

- 6 Delete the \$ signs that represent absolute references so the formula can be copied. Press Ctrl Enter.
- 7 Drag the fill handle across the November and December cells.
- 8 Repeat the same procedure for cells B6 to D8.
- 9 Calculate the Total row and column.

4	Region	October	November	December	Total
5	Perth	110,345	113,175	113,180	336,700
6	Sydney	135,745	106,500	116,885	359,130
7	Melbourne	142,435	141,890	110,440	394,765
8	Brisbane	109,190	113,985	108,085	331,260
9	<b>Total</b>	<b>497,715</b>	<b>475,550</b>	<b>448,590</b>	<b>1,421,855</b>

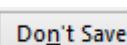
- 10 Save the workbook and leave it open for the next exercise.

## Formulas across Workbooks

### Exercise 95

- 1 Using the workbook **Fire Shop – Summary**, click on cell B12 and type: =average()
- 2 Select cells B5 to D5 then press Ctrl Enter.
- 3 Drag the fill handle down to cell B15.
- 4 Calculate the Minimum and Maximum cells in the same way.
- 5 Right align headings.

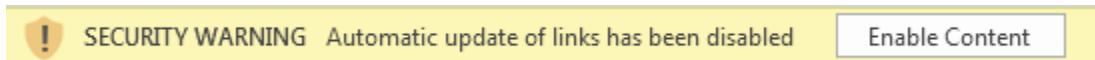
11		Average per month	Minimum per month	Maximum per month
12	Perth	112,233	110,345	113,180
13	Sydney	119,710	106,500	135,745
14	Melbourne	131,588	110,440	142,435
15	Brisbane	110,420	108,085	113,985

- 6 Save the workbook.
- 7 Close all workbooks. (Click on  if asked to save changes to the workbooks.)

## Updating Links

### Exercise 96

- 1 Open the workbook called **Fire Shop - Brisbane**.
- 2 Change BBQs for October to 125,455.
- 3 Save and close the workbook.
- 4 Open the workbook called **Fire Shop - Summary**. The following Security Warning is displayed.



- 5 Click on **Enable Content** to update all linked cells.
- 6 Double click on cell B8.

A	B	C	D	E	F	G
1	The Fire Shop					
2	All Regions					
4	Region	October	November	December	Total	
5	Perth	110,345	113,175	113,180	336,700	
6	Sydney	135,745	106,500	116,885	359,130	
7	Melbourne	142,435	141,890	110,440	394,765	
8	Brisbane	=E:\Software Publications\402A\[Fire Shop - Brisbane.xlsx]Sheet1!B9				
9	Total	497,715	475,550	448,590	1,321,855	
10		Average per month	Minimum per month	Maximum per month		
11						
12	Perth	112,233	110,345	113,180		
13	Sydney	119,710	106,500	135,745		
14	Melbourne	131,588	110,440	142,435		
15	Brisbane	110,420	108,085	113,985		

#### Note

The path is displayed as part of the formula so Excel knows precisely where the file is located. (The path will vary according to where your documents are stored.)

When files are moved, Excel 2013 changes the path to that workbook and any other workbooks that are linked. It is, however, important to check that the path in each linked cell is correct.

- 7 Press Ctrl Enter.
- 8 Close and save changes to the workbook.

# Consolidating Data

The Data Consolidate feature consolidates multiple ranges on the same worksheet, different worksheets in a workbook, or information stored in different workbooks. The information can be linked if desired and can be expanded using the Outline feature.

It is wise to use a template when using separate workbooks to ensure that the variable data is contained in the same range of cells, or copy the data and then alter figures.

The four workbooks used in the following exercise are displayed below.

The image shows four separate Microsoft Excel windows side-by-side, each displaying a table of sales data for Williams Appliances Ltd. The top-left window (G1) shows data for 'Sales - Canberra'. The top-right window (H10) shows data for 'Sales - Cairns'. The bottom-left window (I1) shows data for 'Sales - Sydney'. The bottom-right window (A4) shows data for 'Sales - Brisbane'. Each window has a title bar, a ribbon menu, and a data table with columns for Product, October, November, December, and Total. The data tables are identical across all four windows, showing sales figures for various products like Washing Machines, Dishwashers, Refrigerators, and Ovens.

## Exercise 97

- 1 Open the workbook called **Williams - Canberra**.



- 2 On the View Ribbon click on **Zoom**, select 75% and click on OK (this makes it easier to select the range to be consolidated).
- 3 Now open the following workbooks and change the view of each to 75%.

**Williams - Cairns**

**Williams - Brisbane**

**Williams - Sydney**

- 4 Click on **FILE**, click on **New** then Blank workbook.
- 5 Click in cell A4 which is the top left cell of the data to be consolidated in each workbook.



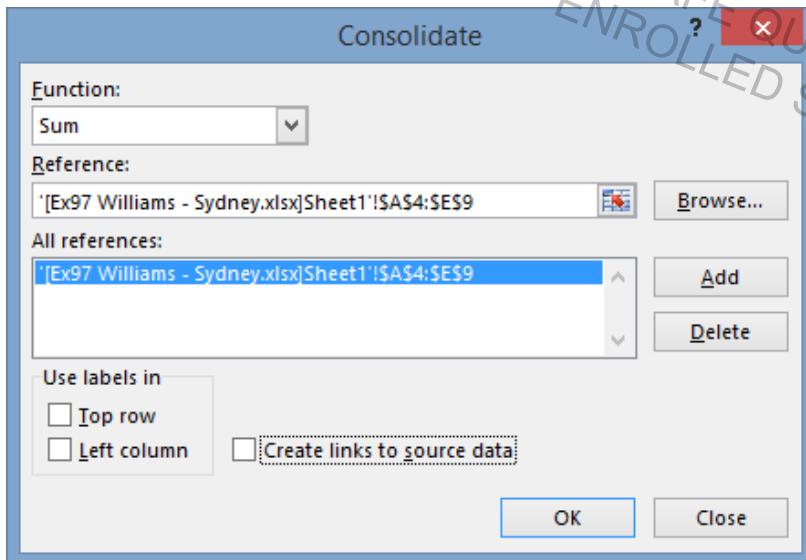
- 6 On the Data Ribbon click on **Consolidate** in the Data Tools Group.



**Switch**

- 7 On the View Ribbon click on the **Switch Windows** button and choose **Williams - Sydney**. If necessary move the Consolidate dialog box by clicking and dragging on the Title bar so the data is displayed.

- 8 Select cells A4 to E9. This range will appear in the dialog box.



- 9 Click on .



Switch

- 10 Click on the Switch Windows button and choose **Williams - Brisbane**.

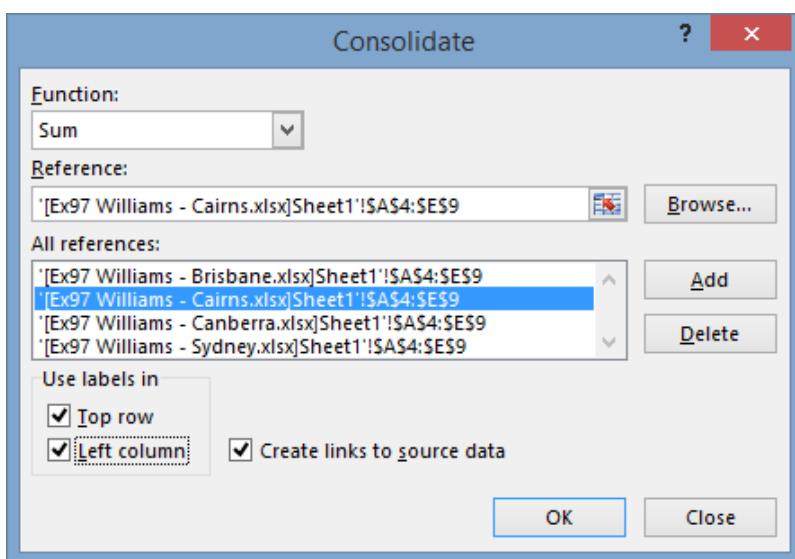


- 11 Select the range A4 to E9 then click on .

- 12 Repeat the above steps to add the same ranges for **Canberra** and **Cairns**.

- 13 Click in the *Top row* and *Left column* check boxes to base the consolidation on products.

- 14 Click in the *Create links to source data* check box. When data is changed in the linked workbooks (or ranges, worksheets, etc.) the data will be updated automatically.



- 15 Click on OK.

- 16 From the Formulas Ribbon, click on **Show Formulas**. Data has been linked to the four workbooks. Click on **Show Formulas** again to view the data.

- 17 Save the workbook as **Williams - AUS 4th Quarter Sales** and leave it open for the next exercise.

## Viewing Consolidation Levels

### Exercise 98

- 1 Using the workbook **Williams - AUS 4th Quarter Sales**, add headings as shown below and adjust column widths. Bold and right align column headings and bold the Total row.

The worksheet contains outline symbols which are automatically added when links are created to source data. The outline symbols in the left margin allow data to be expanded/collapsed.

The buttons at the top allow viewing of one level or two levels.

	A	B	C	D	E	F
1						
2						
3						
4						
9	Washing Machines		October	November	December	Total
14	Dishwashers		91,330	102,060	98,755	292,145
19	Refrigerators		147,730	128,170	107,850	383,750
24	Ovens		128,950	134,870	127,880	391,700
29	Total		497,715	475,550	448,590	1,421,855

- 2 Click on and each branch will be displayed for each product (which is taken from the file name).  
3 Adjust column widths appropriately, bold product total lines and add borders as shown below.

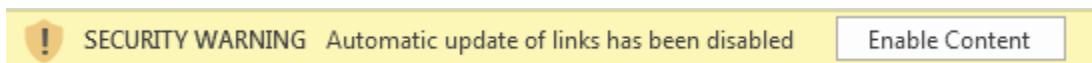
	A	B	C	D	E	F
1						
2						
3						
4						
5	Williams - Brisbane		29,950	29,950	30,550	92,450
6	Williams - Cairns		25,455	26,500	28,560	80,515
7	Williams - Canberra		38,650	29,000	28,550	96,200
8	Williams - Sydney		35,650	23,000	26,445	85,095
9	Washing Machines		129,705	108,450	114,105	354,260
10	Williams - Brisbane		19,995	22,500	23,550	66,045
11	Williams - Cairns		22,235	25,500	24,425	72,160
12	Williams - Canberra		26,550	34,560	28,225	89,335
13	Williams - Sydney		22,550	19,500	22,555	64,605
14	Dishwashers		91,330	102,060	98,755	292,145
15	Williams - Brisbane		28,000	27,500	26,750	82,250
16	Williams - Cairns		32,500	29,335	26,550	88,385
17	Williams - Canberra		44,675	39,885	21,665	106,225
18	Williams - Sydney		42,555	31,450	32,885	106,890
19	Refrigerators		147,730	128,170	107,850	383,750
20	Williams - Brisbane		32,400	31,225	32,330	95,955
21	Williams - Cairns		29,000	32,650	28,550	90,200
22	Williams - Canberra		32,560	38,445	32,000	103,005
23	Williams - Sydney		34,990	32,550	35,000	102,540
24	Ovens		128,950	134,870	127,880	391,700
25	Williams - Brisbane		110,345	113,175	113,180	336,700
26	Williams - Cairns		109,190	113,985	108,085	331,260
27	Williams - Canberra		142,435	141,890	110,440	394,765
28	Williams - Sydney		135,745	106,500	116,885	359,130
29	Total		497,715	475,550	448,590	1,421,855

- 4 Each section can be collapsed as desired. Click on each  button to collapse each product.
- 5 Each  button will expand each product.
- 6 Expand the consolidation by clicking on the  button
- 7 Print, save the workbook and close.
- 8 Close all workbooks. If asked to save, click on Save.

## Updating Consolidation Links

### Exercise 99

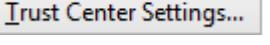
- 1 Open the workbook called **Williams - Sydney**.
- 2 Change the Washing Machines sales for October to 135,650.
- 3 Save and close.
- 4 Open **Williams - AUS 4th Quarter Sales**. The following Security Warning is displayed.



- 5 Click on  to update all linked cells.

#### Note

To prevent this message appearing in a worksheet:

- a click on , 
- b select [Trust Center](#)
- c click on 
- d select External Content
- e select *Enable automatic update for all Workbook Links (not recommended)*
- f click on OK twice.
- 6 Check the figures against the previous printout to see that the workbook has been updated.
- 7 Save and close.

## Consolidating Data Exercises

### Exercise 100

- 1 Consolidate data in a new workbook using the following files.
  - Spartacus - Sydney**
  - Spartacus - Brisbane**
  - Spartacus - Melbourne**
  - Spartacus - Adelaide**
- 2 Give the consolidated worksheet an appropriate heading.
- 3 Format the worksheet to improve readability.
- 4 Save with an appropriate file name.
- 5 Create a 3-D Pie Chart to display total Net Sales for each month. Show the labels for percentage and give the chart an appropriate name. Display the chart in a new sheet.
- 6 The January Net Sales for Spartacus Sydney has increased to 60,000. (Remember to change this number in the Spartacus Sydney workbook). What is the Total Net Sales for January?
- 7 Print the consolidation and the pie chart. Close all workbooks.

### Exercise 101

- 1 Open the workbook called **VitaHealth Products**. (Click on Enable Content if a macro Security Warning is displayed.)
- 2 This workbook contains sales for 2013, 2012 and 2011 on the first worksheet.
- 3 Under the 2011 sales section, insert a heading **Sales Summary 2011-2013**.
- 4 Consolidate data for each year under this heading.
- 5 Do **not** check the box for  Create links to source data.
- 6 Format the worksheet to improve readability. Print only the consolidated area of the worksheet.
- 7 Save and close the workbook.

## Revision

- 1 How would you delete a name for a named range?

.....  
.....

- 2 Write down two advantages of using names for referencing cells in a worksheet.

.....  
.....

- 3 How are multiple sheets grouped and ungrouped in a workbook?

.....  
.....  
.....

- 4 Name two ways to copy a worksheet in a workbook.

.....  
.....

- 5 If a worksheet spans beyond one page how would you change the worksheet so the column heading would appear on every page?

.....  
.....

- 6 How would you remove a page break?

.....  
.....

- 7 Describe how formatting can be applied to grouped worksheets.

.....  
.....

- 8 Explain linking data from separate workbooks.

.....  
.....  
.....  
.....

- 9 What is the purpose of consolidating data?

.....  
.....  
.....  
.....

## Section

# 5

## Functions Data Tables Array Formulas

## Learning Outcomes

*At the end of this section you should be able to:*

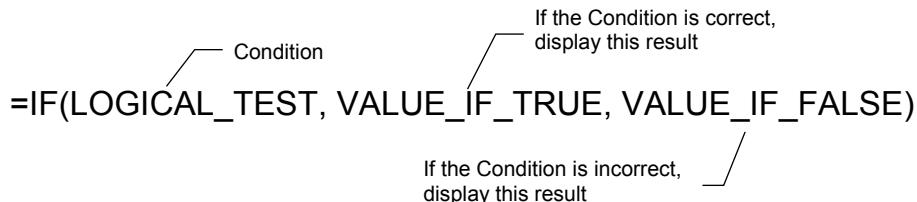
- Use the IF and Lookup functions
- Use the PMT and FV functions
- Use nested functions
- Use the SUMIF, COUNTIF and NOW() functions
- Use Data Tables and lookup values
- Use array arguments

# Functions

Excel 2013 includes a wide range of functions. The Function Arguments dialog box automates the formula building process by giving step by step instructions.

## IF Function

The IF function is used to test the condition of a cell and return one result if the condition is true, and another (different) result if it is false.



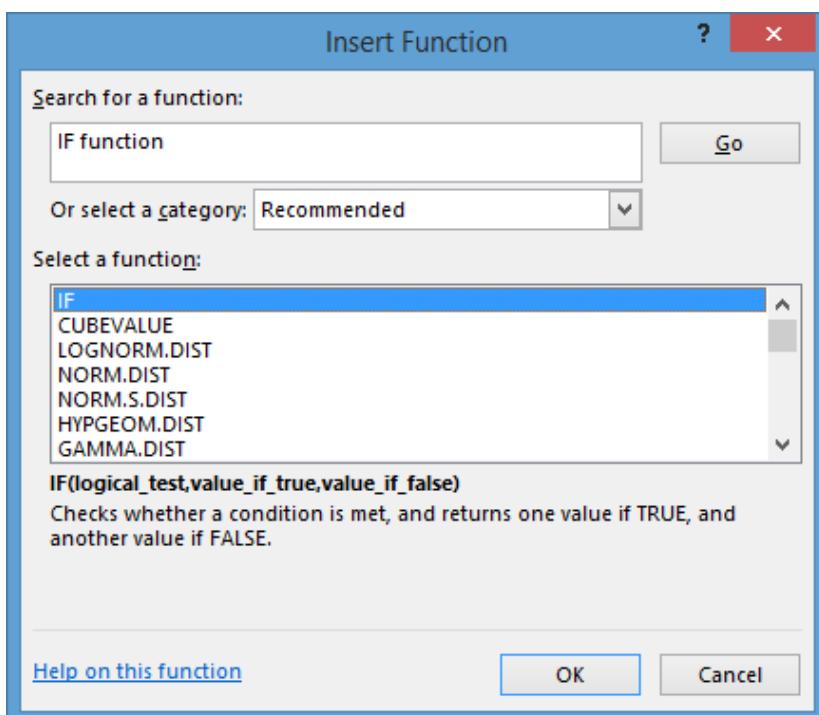
In the following exercise the IF function is used to determine the sale price for quantities exceeding the stock limit of 30, i.e.

If the Quantity in Stock (E7) is greater than 30 multiply the Retail Price (C7) by 75% otherwise display the Retail Price. The formula will be =IF(E7>30,C7\*75%,C7).

Notice that commas separate the different sections of the function.

### Exercise 102

- 1 Open the workbook called **Te Kea Trading** last used in Exercise 75 and click on cell G7.
- 2 Click on the Insert Function button  $f_x$  at the left of the Formula Bar.
- 3 Within the *Search for a function:* box type: **IF function**
- 4 Click on **Go**. (This will search for the IF function.)



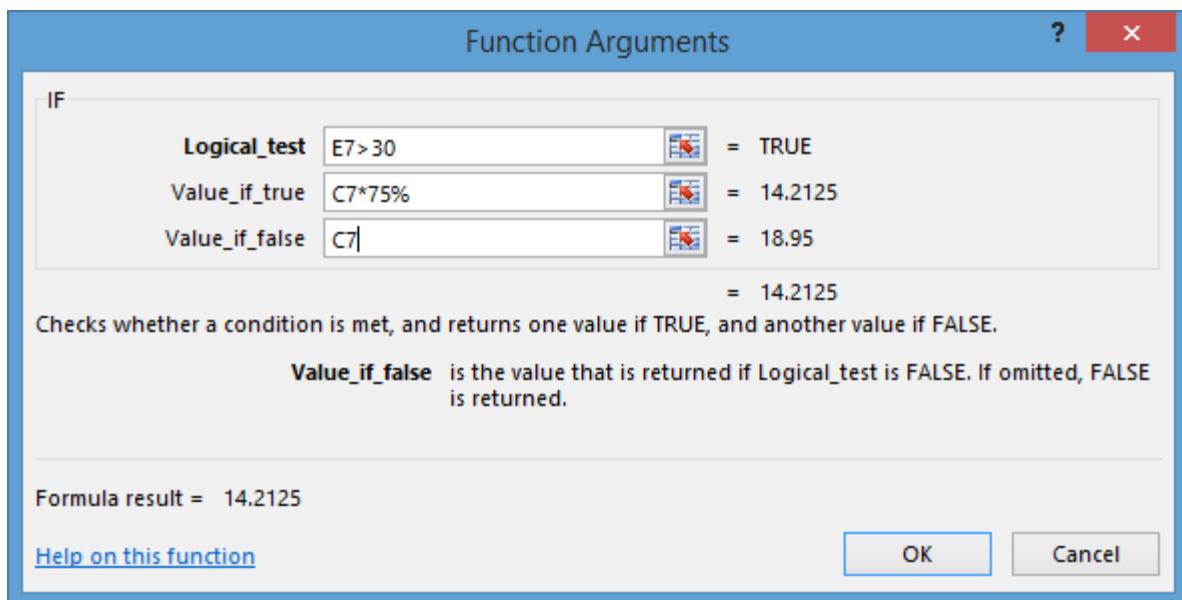
- 5 With IF selected in the *Select a function:* box click on OK.

Once a function has been chosen, the Function Arguments dialog box appears.

- 6 The Function Arguments dialog box can be moved around the screen by clicking and dragging on the Title bar. Drag the Function Arguments dialog box so that row 7 can be seen. Cells can be selected or cell references typed into the text boxes of the Function Arguments dialog box.

The cursor is positioned in the *Logical\_test* box.

- 7 Type: **E7** OR click on cell E7. Look at the Formula Bar to see the function build as you enter data.
- 8 Type: **>30** (greater than 30).
- 9 Press Tab OR click in the *Value\_if\_true* box.
- 10 Type: **C7** OR click on cell C7.
- 11 Type: **\*75%** (multiplied by 75 percent).
- 12 Press Tab OR click in the *Value\_if\_false* box.
- 13 Type: **C7** OR click on cell C7.



The dialog box above ‘in English’ means:

If cell E7 is greater than 30, multiply cell C7 by 75%, otherwise insert the value of cell C7.

- 14 Click on OK.
- In cell G7 the result is displayed as true and the value has been multiplied by 75%. The new sale price is 14.2125.
- 15 With cell G7 selected, drag the fill handle down to cell G14.
- 16 Click on cell G7 and on the Home Ribbon in the Number Format Group select Currency from the Number Format drop down list.
- 17 Select cells G8 to G14 and select Number from the Number Format drop down list.
- 18 Add a total to cell G16.
- 19 Save the workbook and leave it open for the next exercise.

#### Note

If the logical test refers to text and not a number (e.g. if cell C12 = Auckland) you must surround the text with quotation marks, e.g. IF(C12="Auckland",D12\*25%,D12\*20%).

## Multiple IF Function Criteria

Sometimes there may be more than one criteria for an IF statement, for example:

If the Quantity in Stock is greater than or equal to 30, multiply the Retail Price by 55%, otherwise display the Retail Price.

The formula will be =IF(E7>=30,C7\*55%,C7).

If the Quantity in Stock is greater than or equal to 20, multiply the Retail Price by 65%, otherwise display the Retail Price.

The formula will be =IF(E7>=20,C7\*65%,C7).

If the Quantity in Stock is greater than or equal to 10, multiply the Retail Price by 75%, otherwise display the Retail Price.

The formula will be =IF(E7>=10,C7\*75%,C7).

When all the above IF statements are combined into one function, it looks like the following.

=IF(E7>=30,C7\*55%,IF(E7>=20,C7\*65%,IF(E7>=10,C7\*75%,C7)))

When the above IF statement is used, if the Quantity in Stock is between 10 and 20 the Retail Price will be multiplied by 75%; if the Quantity in Stock is between 20 and 30 the Retail Price will be multiplied by 65%; if the Quantity in Stock is above 30 the Retail Price will be multiplied by 55%, and if the Quantity in Stock is below 10 the Retail Price will remain the same.

To create this function you would use the following steps.

### Exercise 103

1 Using the workbook **Te Kea Trading**, delete the contents of cells G7 to G14. Click on cell G7.

2 Type: = then click on the Functions ▾ at the left of the Formula Bar and select IF.



3 In the *Logical\_test* box type: E7>=30

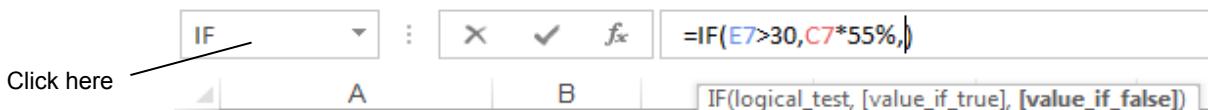
Functions

4 Press Tab to move to the *Value\_if\_true* box and type: C7\*55%

5 Click on OK.

6 With cell G7 selected click between the % and the ) on the Formula Bar.

7 Insert a comma then click on IF at the left of the Formula Bar.



8 In the *Logical\_test* box type: E7>=20

9 Press Tab to move to the *Value\_if\_true* box and type: C7\*65%

10 Click on OK.

11 Repeat steps 6 to 10 and insert the following into the formula.

Logical\_test E7>=10

Value\_if\_true C7\*75%

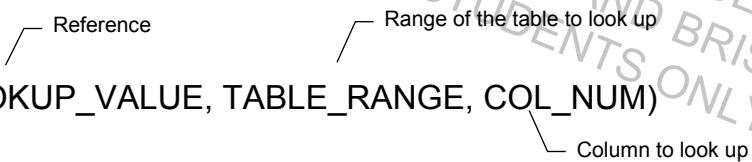
Value\_if\_false C7

12 Use the fill handle to copy the formula down the column to cell G14. Change formatting as required. Save the workbook and leave it open for the next exercise.

## LOOKUP Function

The Vertical Lookup function is used to search a table for a given value and then return a value from a corresponding column within the table, e.g. to return a value from a commission table.

=VLOOKUP(LOOKUP\_VALUE, TABLE\_RANGE, COL\_NUM)



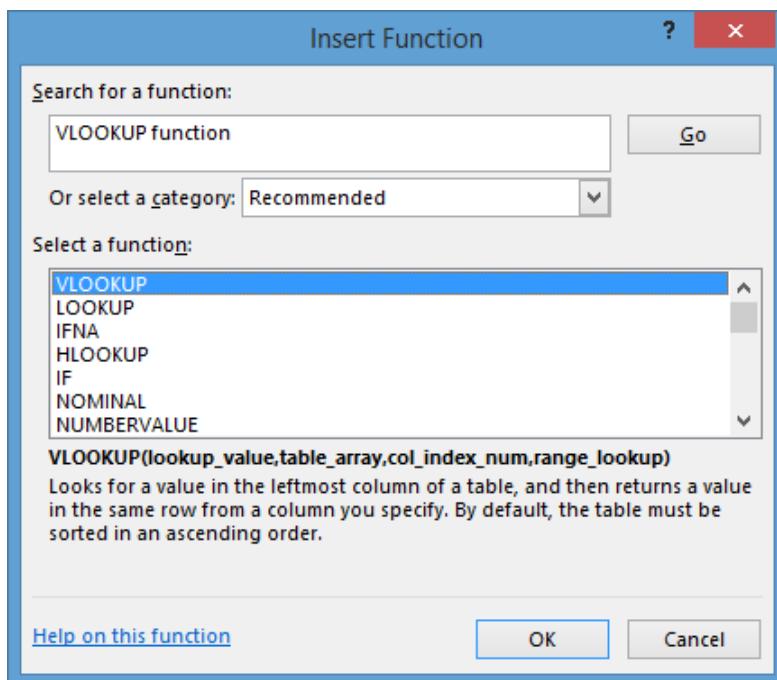
The HLOOKUP function works in a similar way but returns a value from a corresponding *row*.

The **Te Kea Trading** workbook uses the VLOOKUP function to return the commission as a percentage given when the sales value has been determined. The information that will be used in the VLOOKUP function is contained on the Sales Commission worksheet.

### **Adding a VLOOKUP Function**

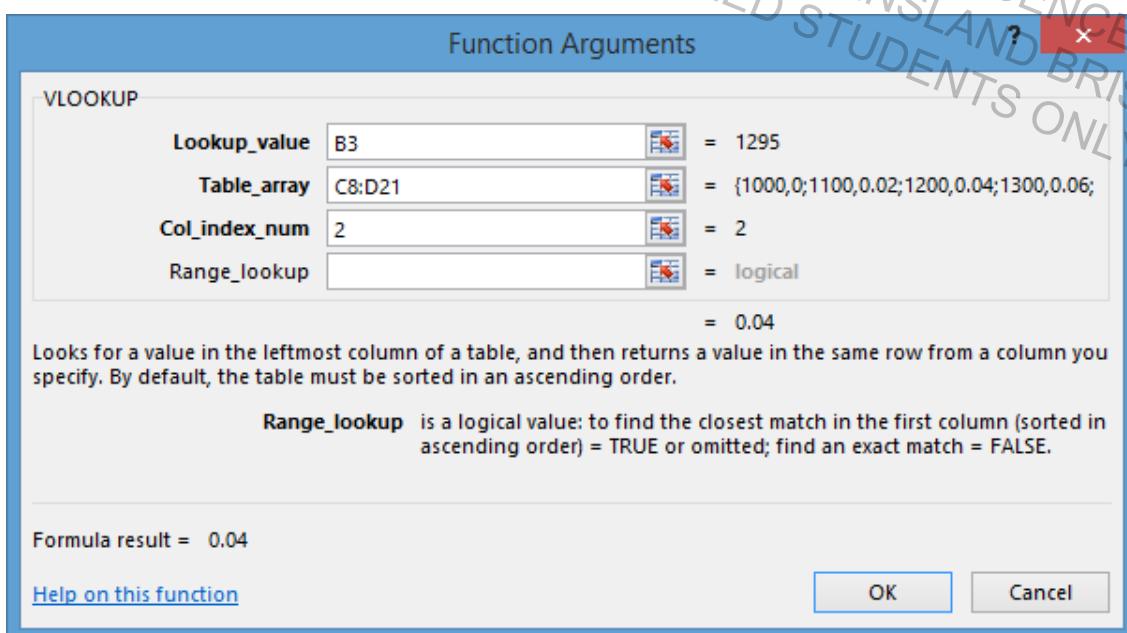
#### **Exercise 104**

- 1 Using the workbook **Te Kea Trading**, click on the Sales Commission sheet tab.
- 2 Click on cell B3 and type: **1295**, then press Enter.
- 3 In cell B4 click on the Insert Function button .
- 4 Type: **VLOOKUP function**
- 5 Click on .



- 6 With VLOOKUP selected click on OK.
- 7 Drag the Function Arguments dialog box down the screen so the worksheet data can be seen.
- 8 In the *Lookup\_value* box type: **B3** OR click on cell B3 in the worksheet.
- 9 Press Tab OR click in the *Table\_array* box and type: **C8:D21** OR select the range C8 to D21 in the worksheet.

- 10 Press Tab OR click in the *Col\_index\_num* box and type: 2  
The value 2 in the *Col\_index\_num* text box signifies the column in the Lookup table from which the result is extracted (i.e. % Comm column).



- 11 Click on OK. Cell B4 displays the value 0.04.
- 12 With cell B4 selected click on the Percent Style button %.  
The VLookup function rounds downwards to the nearest value in the table (C8:D21) to 1295 (in cell B3) and extracts the % Comm value from the same row.
- 13 Add a formula to calculate the Commission Owing as follows.
- Click on cell B5 and type: =B3\*B4 press Ctrl Enter. The Commission Owing displays 51.8.
  - With the cursor in cell B5, select the Number Format, Currency, from the Number Group.
- |   |                  |            |
|---|------------------|------------|
| 3 | Sales            | \$1,295.00 |
| 4 | %Commission      | 4%         |
| 5 | Commission Owing | \$51.80    |
- 14 Replace the value 1295 in cell B3 as follows to see how the VLookup function changes the %Commission value.
- 15 Click on cell B3 and type: 2030, then press Enter. (The new %Commission and Commission Owing values appear.) Widen the column if ##### is displayed.
- 16 Practise viewing different %Commission values by changing the Sales figure in cell B3 to another number.
- 17 Save the workbook and leave it open for the next exercise.

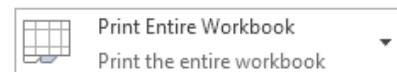
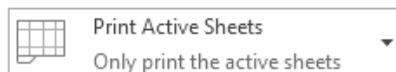
## Printing an Entire Workbook

The Print Settings in Excel defaults to Print Active Sheets, i.e. the worksheet displayed will be printed. You may, however, wish to print the entire workbook if it consists of more than one worksheet. In the following exercise the Pricing Structure and Sales Commission worksheets will be printed.

### Exercise 105

- Using the workbook **Te Kea Trading**, click on **FILE**, then click on **Print**.

In order to print the entire workbook make the following changes.



- Click on **Only print the active sheets** and select **Print the entire workbook**.

The preview now shows three pages with the Pricing Structure worksheet displayed.

- Adjust margins and column widths as necessary to fit the first worksheet on the page and add a footer that displays the name of the worksheet.

- Click on the Next Page button to view the Sales Commission page. Change the footer to display the name of the worksheet.

- Click on the Previous Page button to return to the Pricing Structure page.



- Click on **Print**.

- Save the workbook.

Note: The Print Settings selection is retained only for the current print job. Saving and opening the file again will result in the Print Settings returning to Print Active Sheets.

- What would the %Commission and Commission Owing be for the following sales?

Sales	%Commission	Commission Owing
\$1,520		
\$825		
\$1,740		

- Save and close the workbook.

### Exercise 106

- Create the new workbook shown on the next page and save as **Sales Targets**.

- Rename the Sheet1 tab as **Sales Bonus**.

- Define the following Names

C5:C11      Sales  
D5:D11      Target  
E3            BonusRate

- Use the named ranges in the SUM function used to calculate the Totals in cells C12 and D12, i.e. **=SUM(Sales)**

- Create an IF function using the named ranges to calculate the Bonus of 12% on sales, if targets are reached,

i.e. **=IF(Sales>=Target,Sales\*BonusRate,0)**.

- 6 Calculate the total of the Bonus column using AutoSum.
- 7 Format the worksheet appropriately.
- 8 Preview and print the worksheet. Save the workbook and leave it open for the next exercise.

Sales Bonus for December 2013				
Name	Suburb	Sales	Target	Bonus
Jefferies, J	West	2,500	2,000	
Patterson, D	West	2,950	2,500	
Webb, R	East	3,750	3,500	
Swanson, P	North	2,500	3,000	
Pearce, D	South	2,950	3,000	
Bennett, S	South	3,750	3,500	
Forster, J	East	3,200	3,500	
				12%

### Exercise 107

- 1 Using the workbook **Sales Targets**, click on the Sheet2 tab and rename it **Tax Table**.
- 2 Use the Series feature to create the Lookup table shown below.

### TAX TABLE

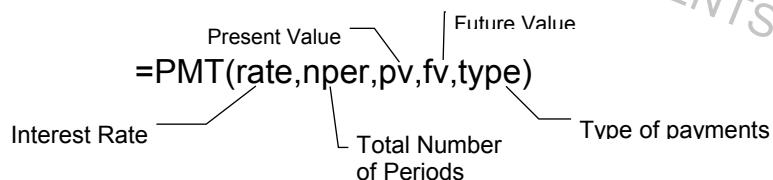
Annual Salary	\$35,000
Income Tax	
Salary After Tax	

Annual	
Salary	Tax
10,000	10%
20,000	13%
30,000	16%
40,000	19%
50,000	22%
60,000	25%
70,000	28%
80,000	31%
90,000	34%
100,000	37%
110,000	40%

- 3 In the Income Tax cell use the VLOOKUP function that will return the tax percentage on the Annual Salary.
- 4 Calculate the salary after tax.
- 5 Print the Tax Table worksheet.
- 6 Save and close the workbook.

## PMT Function

Excel provides a PMT function that returns the payment for a loan based on periodic constant payments and constant interest rates. The function includes the following arguments:

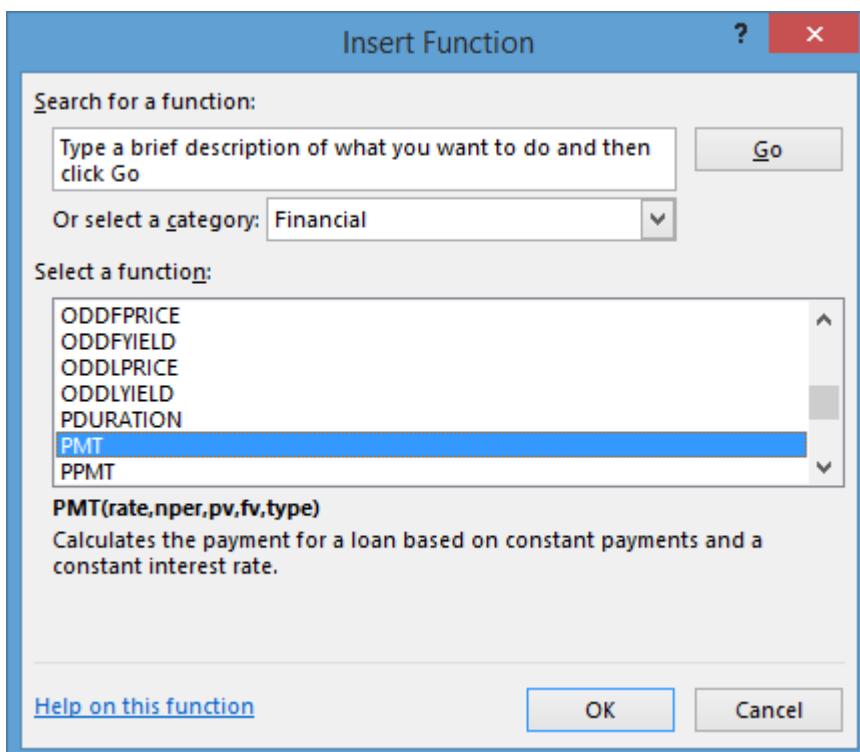


### Exercise 108

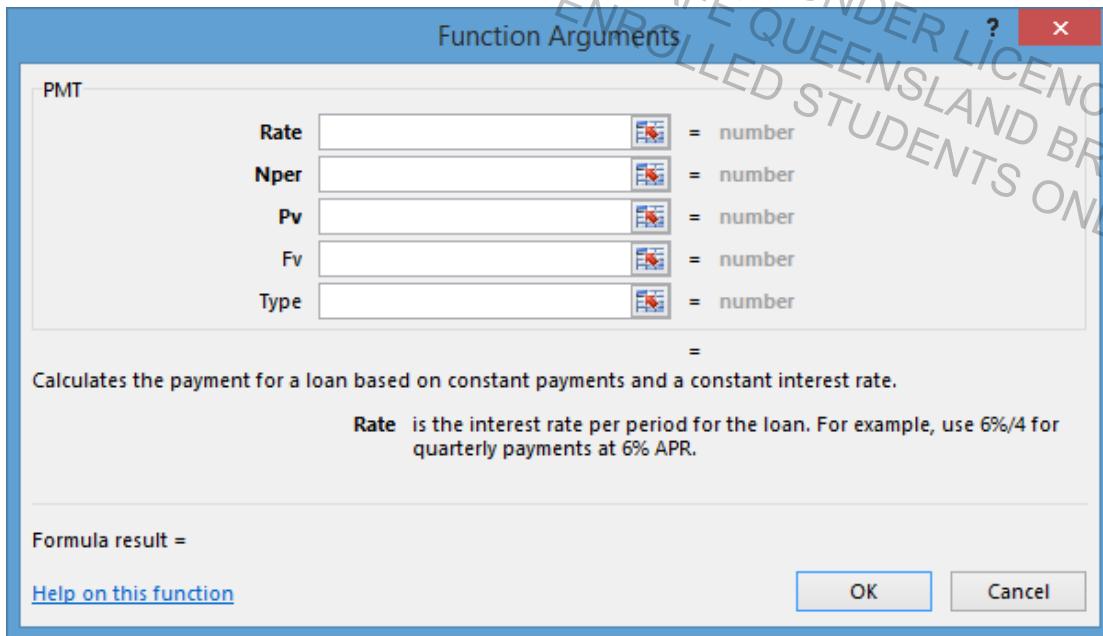
- 1 In a new workbook create the following.

A	B	C	D	
1				
Loan Calculator				
3				
4	Amount	Years	Interest	Payment
5	- 10,000	5	7.00%	

- 2 Save the workbook with the file name **Loan Calculator**.
- 3 Click in cell D5.
- 4 Click on the Insert Function button
- 5 Click on the *Or select a category:* and select Financial from the list.
- 6 Scroll down and select PMT from the *Select a function:* box.



- 7 Click on OK.



<i>Rate</i>	Interest rate for the period of the loan.
<i>Nper</i>	The total number of payments for the loan.
<i>Pv</i>	The present value of the loan.
<i>Fv</i>	The future value of the loan.
<i>Type</i>	When payments are due for the loan; at the beginning of each period or at the end of each period.

- 8 With the cursor in the *Rate* box, click on and select cell C5. Click on then type: **/12**. This will calculate the interest for one year.
- 9 Click in the *Nper* box, then click on cell B5. Type: **\*12**. This will calculate the number of payments to be paid over five years.
- 10 Click in the *Pv* box, then click on cell A5. This is the amount that has been borrowed (negative balance).

<b>Rate</b>	<b>C5/12</b>	= <b>0.005833333</b>
<b>Nper</b>	<b>B5*12</b>	= <b>60</b>
<b>Pv</b>	<b>A5</b>	= <b>-10000</b>
<b>Fv</b>		= <b>number</b>
<b>Type</b>		= <b>number</b>

- 11 Click on OK. The payment per month is \$198.01.
- 12 Save the workbook and leave it open for the next exercise.

#### Exercise 109

- Using the workbook **Loan Calculator**, select cells A4 to D5 and copy to cell A7.
- Alter the amount shown in A8 to **-20,000**. What is the monthly payment? \$.....
- Select cells A7 to D8, click on the Clear button and select Clear All.
- In cell C7 type: **Interest**. In cell D7 type: **Payment**.

- 5 Select cells C7 to D7. Bold and right align the text.
- 6 Click in cell C8 and type: **0%**
- 7 Click in cell C9 and type: **5.0%**. Decrease the decimal points to one if necessary.
- 8 Select cells C9 to C23. On the Home Ribbon click on the Fill button  and select Series...
- 9 In the *Step value:* box enter **0.5%**, as shown at the right.
- 10 Click on OK.
- 11 Click in cell D8.
- 12 Calculate the payment based on 0% interest for the amount and years shown at the top of the worksheet, e.g. =PMT(C8/12,B5\*12,A5). The monthly payment should be \$166.67.
- 13 Double click on cell D8 to expand the formula.
- 14 Within the formula displayed, click before the cell reference B5 and press F4. Click before the cell reference A5 and press F4.

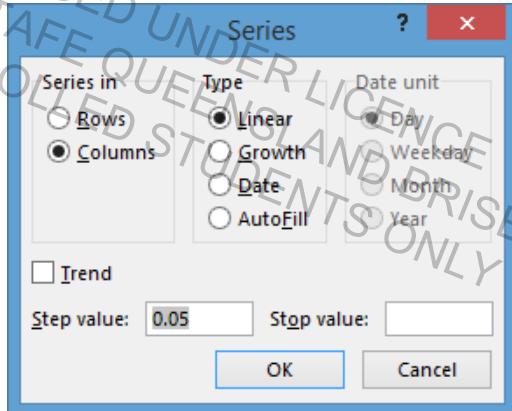
This will make the cell references B5 and A5 absolute, as this formula is going to be copied down the column. The cell reference will be displayed as follows.

=PMT(C8/12,\$B\$5\*12,\$A\$5)

- 15 Press Ctrl Enter. Using the fill handle copy the formula down the column to cell D23.
- The formula will automatically calculate the various payments based on the interest rate shown in column C.

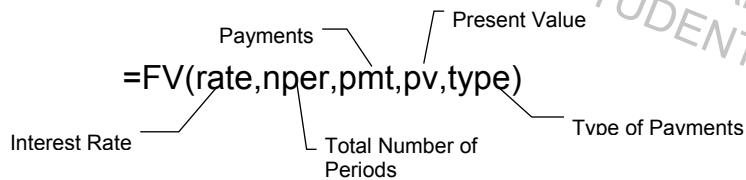
4	Amount	Years	Interest	Payment
5	- 10,000	5	7.00%	\$198.01
6				
7			Interest	Payment
8			0.0%	\$166.67
9			5.0%	\$188.71
10			5.5%	\$191.01
11			6.0%	\$193.33
12			6.5%	\$195.66
13			7.0%	\$198.01
14			7.5%	\$200.38
15			8.0%	\$202.76
16			8.5%	\$205.17
17			9.0%	\$207.58
18			9.5%	\$210.02
19			10.0%	\$212.47
20			10.5%	\$214.94
21			11.0%	\$217.42
22			11.5%	\$219.93
23			12.0%	\$222.44

- 16 Save the workbook.
- 17 Change the amount in cell B5 from 5 years to 8 years and watch the Payment column reflect the changes.
- 18 Close the worksheet without saving.



## FV Function

The FV function calculates the future amount of an investment based on a constant interest rate and payment amount for a certain period of time. The function includes the following arguments.

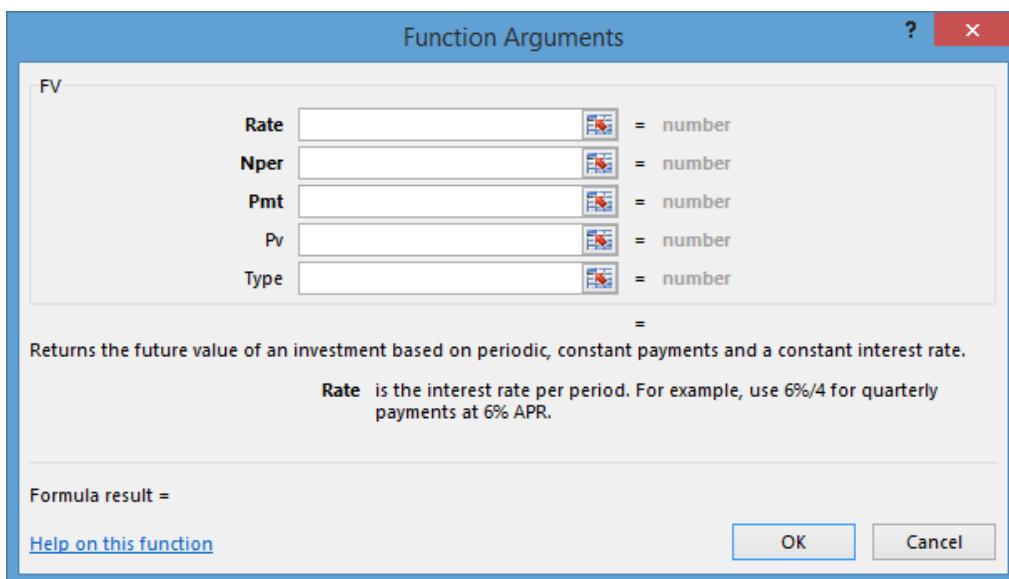


### Exercise 110

- 1 In a new workbook create the following and save with the file name **Investment**.

A	B	C	D
1	Investment Calculator		
2			
3			
4	Payments	Years	Interest
5	-250	2	5.00%

- 2 Click on cell D5.
- 3 Click on the Insert Function button
- 4 Click on the *Or select a category:* and select Financial.
- 5 Select FV from the *Select a function:* box.
- 6 Click on OK.



- Rate* Interest rate for the period of the investment.  
*Nper* The total number of payments.  
*Pmt* Regular payment contribution to the investment.  
*Pv* The present value of the investment.  
*Type* When payments are due for the investment; at the beginning of each period or at the end of each period.

- 7 With the cursor in the *Rate* box, click on and select cell C5. Click on then type: **/12**. This will calculate the interest for one year.
- 8 Click in the *Nper* box, then click on cell B5. Type: **\*12**. This will calculate the number of payments to be paid over two years.
- 9 Click in the *Pmt* box, then click on cell A5. This is the amount that is being paid into the investment (negative balance).

<b>Rate</b>	C5/12		= 0.004166667
<b>Nper</b>	B5*12		= 24
<b>Pmt</b>	A5		= -250
<b>Pv</b>			= number
<b>Type</b>			= number

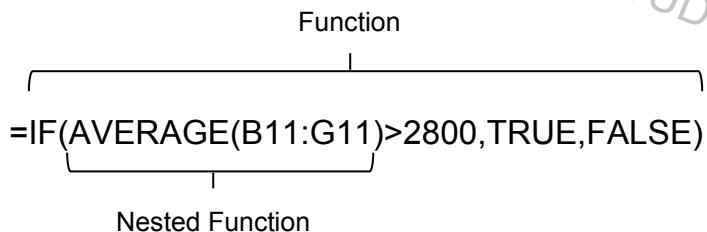
- 10 Click on OK.
- The total investment after two years at 5% is \$6,296.48.
- 11 Save the workbook.
- 12 Format and enter data into cells C7 to C9 and D7 as shown below.

A	B	C	D
<b>Investment Calculator</b>			
Payments	Years	Interest	Amount
-250	2	5.00%	\$6,296.48
Interest		Amout	
0.00%		4.50%	

- 13 Select cells C9 to C14.
- 14 On the Home Ribbon click on the Fill button and select Series....
- 15 In the Step value: box enter **0.005**, ensure the *Linear* option is chosen and click on OK.
- 16 Click on cell D8.
- 17 Calculate the amount of the investment without any interest (based on cell C8),  
e.g. **=FV(C8/12,B5\*12,A5)**
- 18 Double click on cell D8 and alter B5 and A5 cell references to absolute (because the formula is to be copied down column D). Only the cell reference for column C will change, i.e.  
**=FV(C8/12,\$B\$5\*12,\$A\$5)**
- 19 Using the fill handle, copy the formula in cell D8 down the column to D14.
- 20 Print the worksheet.
- 21 Save and close the workbook.

## Nested Functions

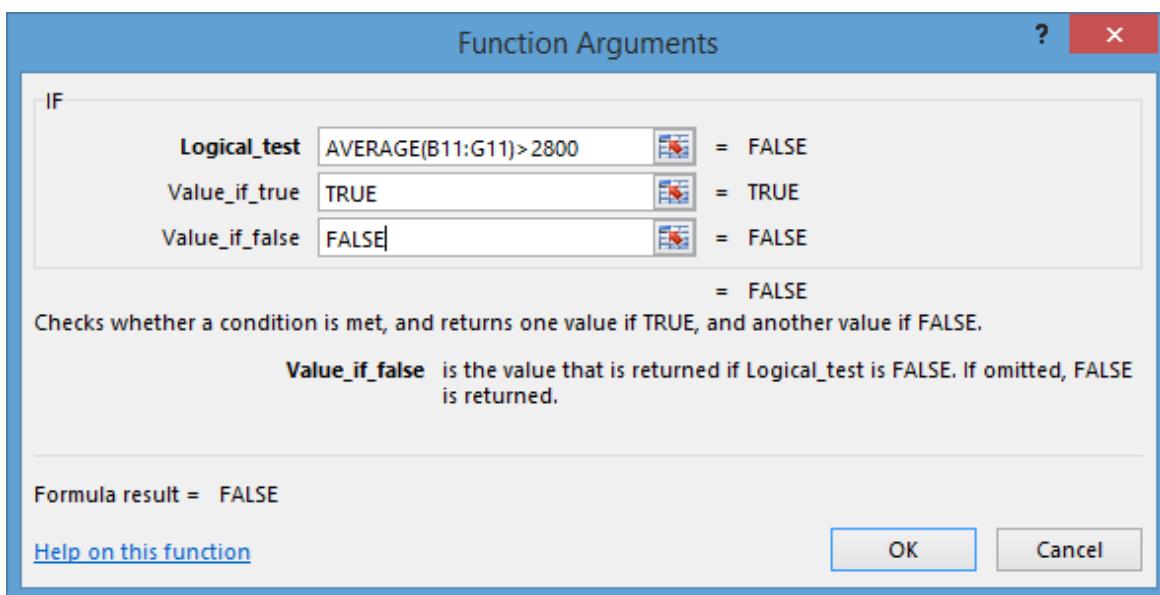
A nested function is a function within another function. The example below inserts “TRUE” into a cell if the average of the specified range is greater than 2,800, and “FALSE”, if not.



Nested functions are used in scenarios when there is more than one criteria, e.g. is the *average price above \$2800?* The following exercise will show how to create different nested functions.

### Exercise 111

- 1 Open the workbook called **Day Tripper**.
- 2 Click on cell B14.
- 3 Click on the Insert Function button .
- 4 Select Logical from the *Or select a category:* box.
- 5 Select IF from the *Select a function:* box.
- 6 Click on OK.
- 7 Click in the Logical\_test box and click on .
- 8 Type: **AVERAGE**(
- 9 Select cells B11 to G11.
- 10 Type: **)>2800** and click on .
- 11 Click in the *Value\_if\_true* box and type: **TRUE**
- 12 Click in the *Value\_if\_false* box and type: **FALSE**



- 13 Click on OK.
- 14 Create the formula required for cell B15.

**Tip**

Use the Round and Median functions.

- 15 To check for the correct solutions, click on the Sheet2 tab when finished.
- 16 Add the following new tours to the bottom of the worksheet (i.e. Sheet1 beneath *Brisbane at Night*).

Tours	April	May	June
Shop Till You Drop Tour	556	432	475
Garden Explorer	250	375	410

- 17 New data has been added therefore the formulas will need to be checked to ensure the correct results are obtained. Write down the results in the cells below.

H13	
B16	
B17	

- 18 Save and close the workbook.

**Exercise 112**

- 1 Open the workbook called **Functions**.

A	B	C
<b>1 Using Functions</b>		
2		
3 Round (no decimal places) and calculate the square root of	45	
4 Calculate the integer of	8.997	
5 Calculate the absolute of	-17.95	
6 Using the POWER function calculate	24 to the power of 2	
7 Convert the following number to roman numerals	750	

- 2 On Using Functions (shown above) in the Result column calculate the result of each question, e.g. in cell C3 calculate the square root of 45. Use the Help feature to find which function to use in the Result column.

The following functions are used.

ABS

INT

ROMAN

POWER

SQRT

- 3 When the exercise is completed click on the Using Functions Answers worksheet to check the solutions. If any of your answers are incorrect, use the Help feature to correct them.
- 4 Save the workbook and leave it open for the next exercise.

## Standard Deviation Function

This function estimates the standard deviation based on a sample of information. The standard deviation is a measure of how widely values are dispersed from the average value (the mean).

### Exercise 113

- Using the workbook **Functions**, click on the Standard Deviation sheet tab.

A	B
1	<b>Standard Deviation Function</b>
2	
3	<b>Standard Deviation</b>
4	
5	<b>Staff</b>
6	Jones, Tom
7	Watkins, James
8	Green, Harold
9	Smith, Murray
10	Taylor, Graham
11	
12	<b>Average</b>

- Calculate the average of staff salaries in cell B12.

#### Note

The average calculation does not give a realistic view of the middle range of salaries.

- Click on cell B3.
- Click on the Insert Function button 
- Type: **STDEV function** in the *Search for a function* box and click on 
- Select STDEV from the *Select a function:* box.
- Click on OK.
- In Number1 box click on  and select the range of salaries, i.e. B6:B10.
- Click on  to expand the dialog box and click on OK. The Standard Deviation calculation will display in B3.
- Format as shown below. (This is a more appropriate representation of the medium range salary.)

A	B
1	<b>Standard Deviation Function</b>
2	
3	<b>Standard Deviation</b> 34,050
4	
5	<b>Staff</b>
6	Jones, Tom
7	Watkins, James
8	Green, Harold
9	Smith, Murray
10	Taylor, Graham
11	
12	<b>Average</b> 50,367

- Save the workbook and leave it open for the next exercise.

## Choose Function

The Choose function uses an index number to display a value from the list of values. Use Choose to select one of up to 29 values based on the index number.

In the following exercise four values will be selected and the Choose function is used to select and display the second value, i.e. Index number 2.

### Exercise 114

- 1 Using the workbook **Functions**, scroll down the worksheet to view Choose Function as shown below.

Choose Function	
15	
16	
17	<b>Choose Function</b>
18	
19	<b>Staff</b>
20	Jones, Tom
21	Watkins, James
22	Green, Harold
23	Smith, Murray
24	Taylor, Graham
25	Anderson, Roy
26	Fontein, Fred
27	Grant, Gary

- 2 Click on cell B17.
- 3 Click on the Insert Function button .
- 4 Select Lookup & Reference from the *Or select a category:* box.
- 5 Select CHOOSE from the *Select a function:* box. Click on OK.
- 6 In the Index\_num box type: **2**
- 7 Click in the Value1 box and click on cell B20.
- 8 Click in the Value2 box and click on cell B22.
- 9 Add the following cell values to the Choose function.

Index_num	2	= 2
Value1	B20	= 20987
Value2	B22	= 50987
Value3	B24	= 107900
Value4	B26	= 35098

- 10 Click on OK to complete the function. Format to currency with zero decimal places.
- 11 The value in the function equates with the index number that was typed in the first part of the function, i.e. index number 2 = cell B22, which has a value of 50,987.
- 12 When the exercise is completed click on the Standard Deviation Answers worksheet to check the formulas.
- 13 Save and close the workbook.

## NOW() and TODAY() Functions

The NOW function is used to display the current date and/or time. The TODAY function inserts the current date only – written as =TODAY(). When a workbook is opened at a future time, the date and/or time automatically updates.

### Exercise 115

- 1 Open the workbook called **Cycle Stuff Sales - January**.
- 2 Click on cell G5 and type: =NOW() Press Ctrl Enter.

#### Note

The NOW function inserts the current date and/or time.

- 3 Save the workbook and leave it open for the next exercise.

## Display the Current Time

### Exercise 116

- 1 Using the workbook **Cycle Stuff Sales – January**, click in cell G5. Select  on the Home Ribbon click on  and then select  Format Cells... .
- 2 Click on Time in the *Category:* box and select a time style from the *Type:* box. Click on OK.
- 3 The time displayed is the time given when =NOW() was entered into the cell. Press F9 to update the time in the cell.
- 4 With the cursor still in cell G5 click on  and select  Format Cells... .
- 5 On the Number tab click on Date in the *Category:* box and select a date style from the *Type:* box. Click on OK. Save the workbook and leave it open for the next exercise.

## Nested IF Function

In the following exercise the IF function is used to calculate the commission on sales. The sales amount must be over \$500 before 8% commission is received.

In the Delivery Charge column the delivery charge is calculated as a percentage of the sales amount on items outside the Sydney area. The charges are as follows (Sydney has no delivery charge).

Brisbane	5% per sale
Melbourne	7% per sale
Adelaide	8% per sale

To calculate the delivery charge the IF function is used.

Because there is more than one criteria the calculation of the function will be divided into four criteria as shown below.

### One Criterion

=IF(B11="S",0,)

If cell B11 is equal to S (Sydney) then insert 0.

### More than One Criterion

First criterion      Second criterion      Third criterion      Fourth criterion  
=IF(B11="S",0,IF(B11="B",D11\*5%,IF(B11="M",D11\*7%,IF(B11="A",D11\*8%,"Incorrect Area Code"))))

If cell B11 is equal to S (Sydney) then insert 0 (i.e. no delivery charge);

If cell B11 is equal to B (Brisbane) then multiply cell D11 (Amount) by 5%;

If cell B11 is equal to M (Melbourne) then multiply cell D11 (Amount) by 7%;

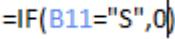
If cell B11 is equal to A (Adelaide) then multiply cell D11 (Amount) by 8%;

If the text in cell B11 does not meet any of the requirements insert the text "Incorrect Area Code".

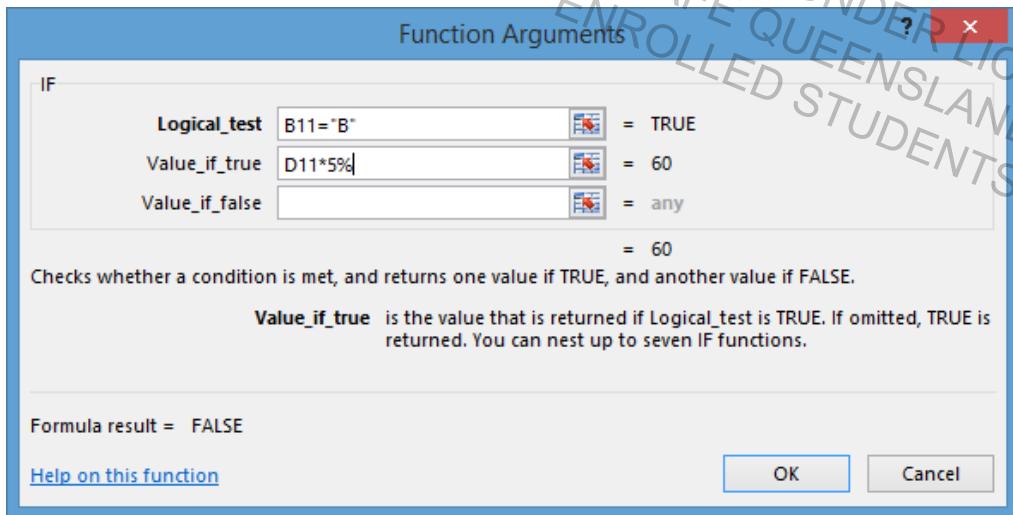
A comma is used to separate each criterion used in the formula. You can see that the end bracket for each IF statement is added at the end of the completed formula.

The use of text in a function is shown with double quotation marks "" and is not case sensitive.

### Exercise 117

- 1 Using the workbook **Cycle Stuff Sales – January**, click on cell E11.
- 2 Click on the Insert Function button  .
- 3 Select Logical from the *Or select a category:* box.
- 4 Select IF from the *Select a function:* box and click on OK.
- 5 In the *Logical\_test* box type: B11="S"
- 6 Press Tab to move to the *Value\_if\_true* box and type: 0 (zero)
- 7 Click on OK. (The *Value\_if\_false* box will be used in the last logical test of the IF statement.)
- 8 With cell E11 still selected click between the 0 and the ) of the formula in the Formula Bar.  

- 9 Insert a comma then click on the Functions button  at the left of the Formula Bar. The comma separates each logical test performed in the IF statement.
- 10 In the *Logical\_test* box type: B11="B"

- 11 Press Tab to move to the *Value\_if\_true* box and type: D11\*5%



- 12 Click on OK.

- 13 With cell E11 still selected click between the % and the ) of the last criterion in the formula on the Formula Bar.

- 14 Insert a comma and click on the Functions button .

- 15 Insert the following *Logical\_test* and *Value\_if\_true* statements and click on OK.

Logical test      B11="M"

Value if true      D11\*7%

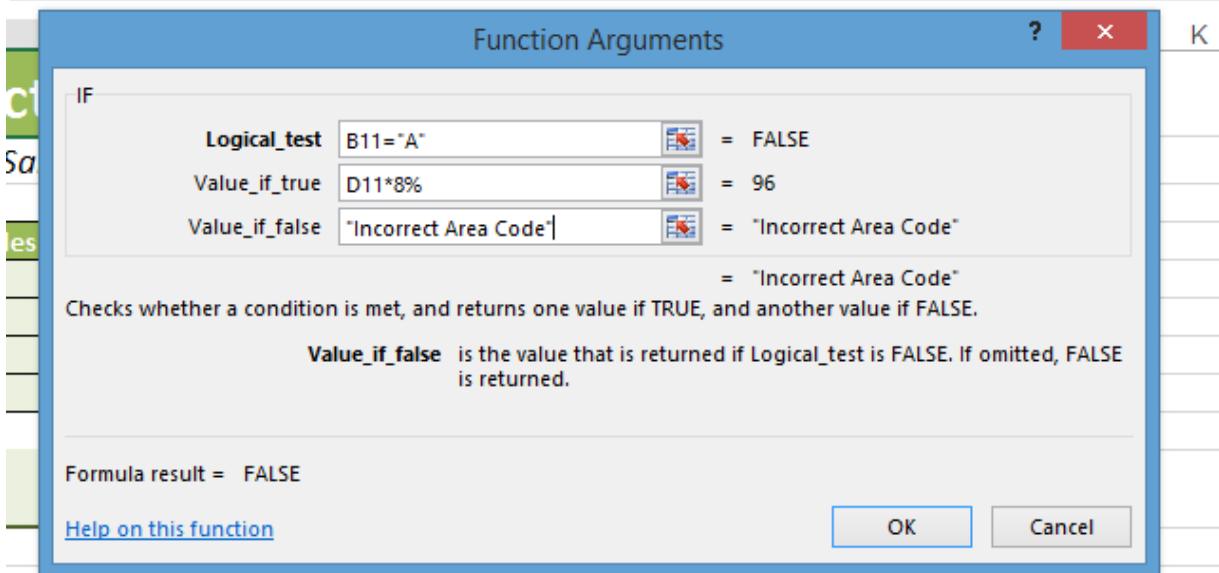
- 16 Insert another IF statement at the end of the formula with the following test and statements (remember to insert the comma).

Logical test      B11="A"

Value if true      D11\*8%

Value if false      "Incorrect Area Code"

=IF(B11="S",0+IF(B11="B",D11\*5%,IF(B11="M",D11\*7%+IF(B11="A",D11\*8%,"Incorrect Area Code"))))



- 17 Click on OK.

- 18 Use the fill handle to copy the formula down the column.

- 19 Save the workbook and leave it open for the next exercise.

## Round Function

### Exercise 118

- 1 Using the workbook **Cycle Stuff Sales – January**, check if the calculation used in each cell in the Delivery Charge column is correct, then perform the following check to see how if an incorrect area code is entered, the outcome in the Delivery Charge column changes.
  - a Click on cell B20.
  - b Type: **Z**
  - c Press Enter. The calculation in the Delivery Charge column will change to display *Incorrect Area Code*.
- Ctrl Z d Click on the Undo button .
- 2 Calculate the Total column (Amount plus Delivery Charge).
- 3 Calculate the Commission on sales, i.e. 8% of sales (\$ Amount, column D) over \$500, rounded to the nearest \$10. The formula in the Commission column needs to include a round function, as shown below.

e.g. =ROUND(IF(D11>500,D11\*\$G\$8,0),-1)

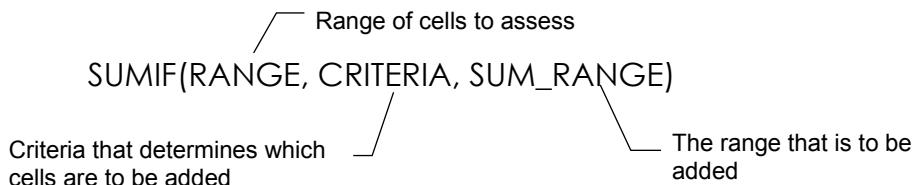
IF statement
- 4 Save the workbook and leave it open for the next exercise.

**Note**

=ROUND(D11,-1) without a nested function.

## SUMIF Function

The SUMIF function is used to add certain cells that return a result if the condition is true.



Example - Extracts and adds the Sales Amount for the Redcliffe area from a list of sales for all areas.

Example - Extracts and adds all Product Sales for March from a list of Product Sales for the year.

In this exercise you will use SUMIF to find the Total Sales for each area.

### Exercise 119

- 1 Using the workbook **Cycle Stuff Sales – January**, click on cell C5 and click on the Insert Function button .
- 2 Select Math & Trig from the *Or select a category:* box.
- 3 Select SUMIF from the *Select a function:* box and click on OK.
- 4 For the *Range*, select cells B11 to D27. Press F4 to change the relative cell references to absolute (`$B$11:$D$27`).
- 5 In the *Criteria* box type: "**S**" to add only figures that relate to the area code S (i.e. Sydney).

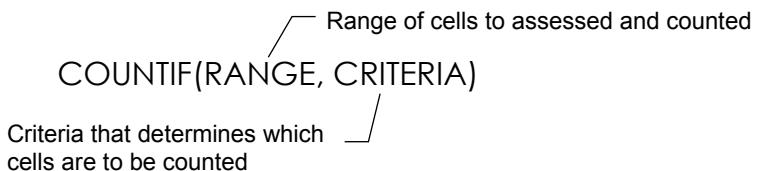
- 6 In the *Sum\_range* box select cells D11 to D27 and change the relative cell references to absolute.

Range	<code>\$B\$11:\$D\$27</code>	= {"B","Mike Holden",1200,"B","Georg...
Criteria	<code>"S"</code>	= "S"
Sum_range	<code>\$D\$11:\$D\$27</code>	= {1200;8000;1500;1500;500;600;780;140}

- 7 Click on OK. The total will be \$4,710.
- 8 Use the fill handle to copy the formula down the column to cell C8. The formula will need to be altered in each cell (i.e. change S to B for Brisbane, M for Melbourne, A for Adelaide), to reflect the correct criterion in each case.
- 9 Save the workbook and leave it open for the next exercise.

## COUNTIF Function

The COUNTIF function is used to count certain cells that return a result if the condition is true.



Example - Count how many sales in the Sydney area.

Example - Count how many sales Mike Holden has made.

### Exercise 120

- 1 Using the workbook **Cycle Stuff Sales – January**, create the query block at the right in cells I10 (column I, row 10) to J24. This will be used to extract results for each salesperson.
- 2 Save the workbook.
- 3 Change the Commission rate in cell G8 to **10%**.
- 4 Under the **SALES PERSON** heading type: **Mike Holden**
- 5 Format the name to italics.
- 6 Click on the cell under the **Total Number of Sales** heading.
- 7 The COUNTIF function will be used to calculate the number of sales Mike has made, by determining how many times his name appears in the Salesperson column.
- 8 Click on the Insert Function button
- 9 Select Statistical from the *Or select a category:* box.
- 10 Select COUNTIF from the *Select a function:* box and click on OK.
- 11 Select cells C11 to C27 in the Range box.
- 12 In the Criteria box select cell I11 (column I, row 11), containing the text *Mike Holden*.
- 13 Click on OK.
- 14 Save the workbook and leave it open for the next exercise

Sales Person	
Total Number of Sales	
Total Amount of Sales	
Total Commission on Sales	
Total Delivery Charge	
Area Code	Amount
S	
B	
M	
A	

The calculation shows that Mike made four sales. This can be checked by counting the number of times Mike Holden appears in the Salesperson column.

## SUMIF and ROUND Functions

### Exercise 121

- 1 Using the workbook **Cycle Stuff Sales – January**, use the SUMIF function to calculate the total \$ amount of sales that Mike Holden has generated. See below for the solution.

	<i>fxc</i>	=SUMIF(C11:D27,I11,D11:D27)								
4	A	B	C	D	E	F	G	H	I	J
5	S	Sydney	\$4,710			Date:	20-Oct-13			
6	B	Brisbane	\$12,150							
7	M	Melbourne	\$3,850							
8	A	Adelaide	\$4,650		Rate of Commission:		8%			
9										
10	Date	Area Code	Salesperson	\$ Amount	Delivery Charge	Total	Commission		Sales Person	
11	12-Jan	B	Mike Holden	1,200	60	1,260	100		Mike Holden	
12	13-Jan	B	George Malcolm	8,000	400	8,400	640		Total Number of Sales	
13	13-Jan	A	Arthur Payne	1,500	120	1,620	120		4	
14	13-Jan	M	Tony Simms	1,500	105	1,605	120		Total Amount of Sales	
15	13-Jan	S	Rex Little	500	0	500	40		3460	
16	13-Jan	M	John Freeman	600	42	642	50		Total Commission on Sales	
17	13-Jan	S	Mike Holden	780	0	780	60			
18	13-Jan	M	Tony Simms	1,400	98	1,498	110			

- 2 Use the SUMIF function again to calculate the total amount of commission that Mike Holden has earned. See the next page for the solution.

	<i>fxc</i>	=SUMIF(C11:G27,I11,G11:G27)								
4	A	B	C	D	E	F	G	H	I	J
5	S	Sydney	\$4,710			Date:	20-Oct-13			
6	B	Brisbane	\$12,150							
7	M	Melbourne	\$3,850							
8	A	Adelaide	\$4,650		Rate of Commission:		8%			
9										
10	Date	Area Code	Salesperson	\$ Amount	Delivery Charge	Total	Commission		Sales Person	
11	12-Jan	B	Mike Holden	1,200	60	1,260	100		Mike Holden	
12	13-Jan	B	George Malcolm	8,000	400	8,400	640		Total Number of Sales	
13	13-Jan	A	Arthur Payne	1,500	120	1,620	120		4	
14	13-Jan	M	Tony Simms	1,500	105	1,605	120		Total Amount of Sales	
15	13-Jan	S	Rex Little	500	0	500	40		3460	
16	13-Jan	M	John Freeman	600	42	642	50		Total Commission on Sales	
17	13-Jan	S	Mike Holden	780	0	780	60		280	
18	13-Jan	M	Tony Simms	1,400	98	1,498	110		Total Delivery Charge	

- 3 Use the SUMIF function to complete the Total Delivery Charge table shown at the bottom of the query block. This time, instead of typing the Criteria of “S”, “B”, etc. use the cell reference in the Area Code column in the query block.

- 4 Use the ROUND function to round all figures to \$10.

#### Note

Sometimes it is easier to create the main function (SUMIF) then add the ROUND function to the beginning and end of the formula.

- 5 Check the formulas are correct as shown on the next page.

Sales Person	
	Mike Holden
Total Number of Sales	
	=COUNTIF(C11:C27,I11)
Total Amount of Sales	
	=SUMIF(C11:D27,I11,D11:D27)
Total Commission on Sales	
	=SUMIF(C11:G27,I11,G11:G27)
Total Delivery Charge	
Area Code	Amount
S	=ROUND(SUMIF(\$B\$11:\$E\$27,I20,\$E\$11:\$E\$27),-1)
B	=ROUND(SUMIF(\$B\$11:\$E\$27,I21,\$E\$11:\$E\$27),-1)
M	=ROUND(SUMIF(\$B\$11:\$E\$27,I22,\$E\$11:\$E\$27),-1)
A	=ROUND(SUMIF(\$B\$11:\$E\$27,I23,\$E\$11:\$E\$27),-1)

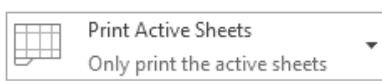
Sales Person	
	Mike Holden
Total Number of Sales	
	4
Total Amount of Sales	
	3460
Total Commission on Sales	
	280
Total Delivery Charge	
Area Code	Amount
S	0
B	610
M	270
A	370

- 6 In cell I11 (Column I, Row 11), replace the text Mike Holden with Tony Simms, to view Tony's sales results. Save the workbook and leave it open for the next exercise.

### Exercise 122

- 1 Using the workbook **Cycle Stuff Sales – January**, print only a required part of the worksheet, select cells I10 to I18.

- 2 Click on **FILE** then click on **Print**.



- 3 Click on and select

**Print Selection**

*Only print the current selection*

- 4 Click on the Print button.

- 5 Save and close the workbook.

### Exercise 123

- 1 Open the workbook called **Outdoor Life – October** with Sheet1 displayed.
- 2 Fiona from Outdoor Life has been tracking goods sold in the month of October and would like a summary created of the range of goods sold. Create a table as shown below to calculate the number sold from each of the ranges and total sales for each range. Copy the figures calculated in the worksheet into the table below.

Range Code	Range Name	Number Sold	Total Sales (excluding GST)
T	Tables		
S	Standard Furniture		
H	Harwood Series		
G	Glendale Series		
U	Umbrellas		
A	Accessories		
<b>Total</b>			

- 3 The next day three additional sales were made. Please add the following to the appropriate worksheet:

Date	Range Code	No. Sold	Item	Sales (excl GST)	GST	Total (incl GST)
9-Oct	T	1	1500 mm Round Table	799.00	79.90	878.90
9-Oct	G	6	Glendale Dining Chair	1,170.00	117.00	1,287.00
9-Oct	U	1	Umbrella 8 feet	499.00	49.90	548.90

- 4 Save the workbook.
- 5 The formulas will need to be checked to ensure the new data is included in the results. Enter the new figures in the table below.

Range Code	Range Name	Number Sold	Total Sales (excluding GST)
T	Tables		
S	Standard Furniture		
H	Harwood Series		
G	Glendale Series		
U	Umbrellas		
A	Accessories		
<b>Total</b>			

- 6 Look at Sheet2 for a suggested solution to this exercise.
- 7 Print the worksheet in two parts - list of sales and items, and a summary of number sold and total sales.
- 8 Save and close the workbook.

# Data Tables

A Data Table in Excel performs a what-if analysis. A range of results can be displayed by replacing different values in one or more formulas. Use Data Tables for the following:

- To view variations to a formula
  - To compare results of varying values in a formula

There are two types of Data Tables.

**One-Input Table** Calculates the value by substituting one value in a formula

**Two-Input Table** Calculates the value by substituting two values in a formula

A new workbook will be created that includes details for a mortgage loan and uses one and two input tables to display the variations in monthly payments for the loan.

## Exercise 124

- 1 In a new workbook create the following.

	A	B
1	<b>MORTGAGE LOAN</b>	
2		
3	Full Term	30
4	Monthly Payment	
5	Interest Rate	15%
6	Total Loan	-\$200,000.00

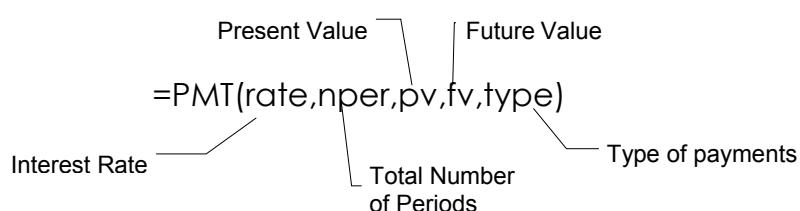
The file contains the following values.

- |         |                       |   |
|---------|-----------------------|---|
| Cell B3 | <i>Full Term:</i>     | Displays the duration in years for the loan payment |
| Cell B5 | <i>Interest Rate:</i> | Displays the current interest rate                  |
| Cell B6 | <i>Loan:</i>          | Displays the total loan as a negative (liability)   |

- 2 Save the workbook as **Mortgage** and leave it open for the next exercise.

## PMT Function

The PMT function returns the payment for a loan based on periodic constant payments and constant interest rates. The function includes the following arguments:



## Exercise 125

- 1 Using the workbook **Mortgage**, click on cell B4.
  - 2 Click on the Insert Function button .
  - 3 Select Financial from the *Or select a function:* box.
  - 4 Select PMT from the *Select a function:* box.

- 5 Click on OK. The Function Arguments dialog box will display. A reminder of the parts of the PMT formula are as follows.
- |             |   |
|-------------|---|
| <i>Rate</i> | Interest rate for the period of the loan.   |
| <i>Nper</i> | The total number of payments for the loan.  |
| <i>Pv</i>   | The present value of the loan.  |
| <i>Fv</i>   | The future value of the loan (optional).  |
| <i>Type</i> | When payments are due for the loan - at the beginning of each period or at the end of each period (optional). |
- 6 With the cursor in the *Rate* box, click on and select cell B5 in the worksheet. Click on then type: **/12**. This will calculate the interest for monthly payments over one year. It is important to divide by 12 or the interest would be calculated for one annual payment.
- 7 Click in the *Nper* box, click on and select cell B3 in the worksheet. Click on and type: **\*12**. This will calculate the number of monthly payments to be paid over 30 years. It is important to multiply by 12 otherwise the payments would be annually.
- 8 Click in the *Pv* box, click on and select cell B6 in the worksheet. This is the amount that is owed (negative balance). Click on .

<b>Rate</b>	B5/12		= 0.0125
<b>Nper</b>	B3*12		= 360
<b>Pv</b>	B6		= -200000
<b>Fv</b>			= number
<b>Type</b>			= number

- 9 Click on OK.
- 10 Adjust column widths if required.
- The Monthly Payment cell will display the result of \$2,528.89.
- 11 Save the workbook and leave it open for the next exercise.

### ***Changing Variables in a Formula***

Changing variables in a formula can be time consuming when data needs to be compared or the best solution to a problem found. In this example the best monthly payment value will be determined by changing the interest rate.

#### ***Exercise 126***

- Using the workbook **Mortgage**, click on cell B5, type: **20%** then press Enter.
- The new monthly payment is calculated and displays the result of \$3,342.04.
- Click on cell B5, type: **10%** then press Enter.
- Again the result of the monthly payment is displayed with the new result of \$1,755.14.
- Change cell B5 back to 15%.
- Save the workbook and leave it open for the next exercise.

## One-Input Table

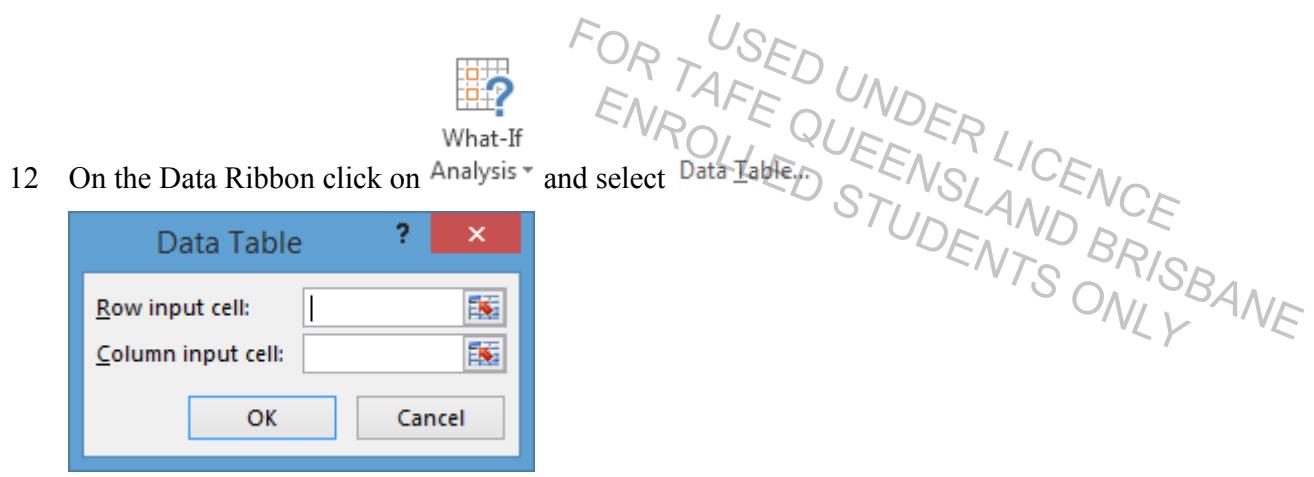
In the following exercise a one-input table will be created that calculates the monthly payments at various interest rates.

### Exercise 127

- 1 Using the workbook **Mortgage**, click in cell A10 and type: **5%**
- 2 Using the right mouse button click and drag the fill handle of cell A10 down to A16 and select **Fill Series**.
- 3 Type: **2%** in the *Step value:* box and click on OK.  
The Input table must also include the formula in cell B4. Use the Name feature to assign the name ‘MonthlyPayment’ to cell B4 and add it to the table as follows.
- 4 Click on cell B4.
- 5 Click in the Name Box on the Formula Bar, type: **MonthlyPayment** and press Enter.
- 6 In cell B9, type: =
- 7 Press F3 and double click on *MonthlyPayment* from the Paste Name dialog box. Press Ctrl Enter.
- 8 Ensure cell B9 is formatted to Currency with two decimal places. The Monthly Payment formula has now been added to the table.
- 9 Type text in cells A8, B8 and A9 and format the worksheet as shown below.

A	B
<b>MORTGAGE LOAN</b>	
1	
2	
3 Full Term	30
4 Monthly Payment	\$2,528.89
5 Interest Rate	15%
6 Total Loan	-\$200,000.00
7	
8      Interest Rate	Monthly Payment
9 Current Rate 15%	\$2,528.89
10	5%
11	7%
12	9%
13	11%
14	13%
15	15%
16	17%

- 10 Save the workbook.
- 11 Select cells A9 to B16 which is the area of the data table. Data will be calculated and inserted into this area.



- Row input cell:* The data from the **top row** of the data table will be used to automatically calculate the data for the selected blank cells.
- Column input cell:* The data from the **first column** of the data table will be used to automatically calculate the data for the selected blank cells (e.g. cells B10 to B16 below).
- 12 On the Data Ribbon click on **What-If Analysis** and select **Data Table...**
  - 13 Click in the *Column input cell:* box and type: **B5**
  - 14 Click on OK.
  - 15 Format cells B10 to B16 to number format with a comma and two decimal places.

Column B in the data table displays the result of the monthly payments against the interest rate variables in column A.

A	B
<b>MORTGAGE LOAN</b>	
1	
2	
3 Full Term	30
4 Monthly Payment	\$2,528.89
5 Interest Rate	15%
6 Total Loan	-\$200,000.00
7	
8 Interest Rate	Monthly Payment
9 Current Rate 15%	\$2,528.89
10 5%	\$1,073.64
11 7%	\$1,330.60
12 9%	\$1,609.25
13 11%	\$1,904.65
14 13%	\$2,212.40
15 15%	\$2,528.89
16 17%	\$2,851.35

- 16 Save the workbook and leave it open for the next exercise.

## Two-Input Table

A Two-Input table will allow two variables to be changed in a formula. Use this table to calculate the monthly payment based on different interest rates and term values.

The Two-Input table will change row and column values in a formula. The current worksheet will be copied and renamed, then the current formula will be deleted and re-entered in the new worksheet and table. Column values will be entered as follows.

### Exercise 128

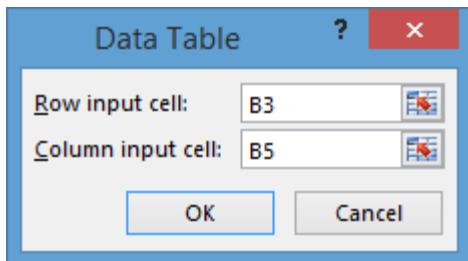
- 1 Using the workbook **Mortgage**, use Ctrl, click and drag to copy the Sheet1 tab.
- 2 Rename Sheet1 as **One-Input**. Rename the copied Sheet1 (2) as **Two-Input**.
- 3 On the Two-Input tab select cells B8 to B16.
- 4 Click on the Clear button and select .
- 5 In cell A9 type: =
- 6 Click on cell B4. Press Ctrl Enter and format to a comma style with two decimal places.
- 7 Add text and format the worksheet as shown below.

A	B	C	D	E	F
1	<b>MORTGAGE LOAN</b>				
2					
3	Full Term	30			
4	Monthly Payment	\$2,528.89			
5	Interest Rate	15%			
6	Total Loan	-\$200,000.00			
7					
8	Interest Rate	Term			
9	\$2,528.89	10	15	20	25
10	5%				
11	7%				
12	9%				
13	11%				
14	13%				
15	15%				
16	17%				

- 8 Save the workbook.
- 9 Select cells A9 to F16.



- 10 On the Data tab click on and select .
- 11 Type: **B3** in the *Row input cell:* box.
- 12 Type: **B5** in the *Column input cell:* box



- 13 Click on OK.
- 14 Format the results to a Comma style with two decimal places.
- 15 Format B9 to F9 to zero decimal places and ensure cells A10 to A16 display %.

8	Interest Rate	Term				
		10	15	20	25	30
9	\$2,528.89					
10	5%	2,121.31	1,581.59	1,319.91	1,169.18	1,073.64
11	7%	2,322.17	1,797.66	1,550.60	1,413.56	1,330.60
12	9%	2,533.52	2,028.53	1,799.45	1,678.39	1,609.25
13	11%	2,755.00	2,273.19	2,064.38	1,960.23	1,904.65
14	13%	2,986.21	2,530.48	2,343.15	2,255.67	2,212.40
15	15%	3,226.70	2,799.17	2,633.58	2,561.66	2,528.89
16	17%	3,475.95	3,078.01	2,933.60	2,875.59	2,851.35

The Full Term (cell B3) and the Interest Rate (cell B5) can be changed to look at the Monthly Payment (cell B4).

- Print the worksheet. Save and close the workbook.

### Exercise 129

- In a new workbook create a Two-Input table that will calculate the converted value of the varying exchange rate on your travel allowance (\$AU) as shown below.
- Cell B5 multiplies the Allowance by the Exchange Rate. Cell A7 therefore relates to cell B5, i.e. =B5.
- Format the worksheet accordingly.
- Practise changing the Allowance (cell B3) and Exchange Rate (cell B4) to see the Converted Value (cell B5).
- Print the Two-Input Table.
- Save the workbook as **Currency Rates** and close.

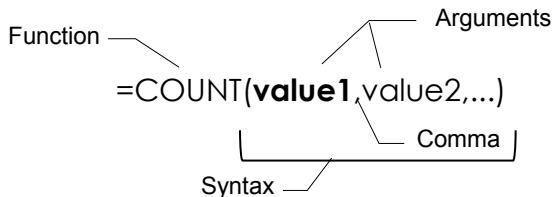
A	B	C	D	E	F
<b>CURRENCY RATES</b>					
1					
2					
3	Allowance \$AU	\$2,500			
4	Exchange Rate	0.75			
5	Converted Value	\$1,875			
6					
7					
8					
9	1,875	1,000	1,500	2,000	2,500
10	0.50	500	750	1,000	1,250
11	0.55	550	825	1,100	1,375
12	0.60	600	900	1,200	1,500
13	0.65	650	975	1,300	1,625
14	0.70	700	1,050	1,400	1,750
15	0.75	750	1,125	1,500	1,875
16	0.80	800	1,200	1,600	2,000
17	0.85	850	1,275	1,700	2,125
18	0.90	900	1,350	1,800	2,250
19	0.95	950	1,425	1,900	2,375

# Functions

Several functions have been introduced throughout this book. A wide variety of different functions are available for calculations - financial, engineering, mathematical, logical, statistical, information, text and database management. Use the Insert Function button  to select and apply the correct function or alternatively you can type in the function required.

## Function Structure

Functions in Excel have a standard layout, shown below.



### Function

The name of the function.

### Syntax

How the function is written, i.e. the order of the arguments.

### Arguments

Argument names are separated by a comma; argument names that are in bold are required by the function and those not in bold are optional. The symbol `,...` indicates that multiple values can be inserted into a function.

## Error Messages: Troubleshooting

If you have applied incorrect arguments to a formula, the following error messages may appear (depending on the type of error).

#DIV/0!	Occurs when a formula is trying to divide by 0, or by a blank cell, e.g. you create a division formula that refers to a cell that is blank.
#N/A	No value is available.
#NAME?	Excel does not recognise text used in a formula, e.g. when a function name is incorrectly spelt.
#NULL!	A specified intersection of two areas does not intersect.
#NUM!	Problem with a number in the formula.
#REF!	A reference to a cell is invalid, e.g. if cell references in a formula refer to references in another worksheet that doesn't exist.
#VALUE!	The wrong type of argument or operand has been used in the formula, or the formula contains an error for which Excel can't suggest a solution, e.g. referring to a cell in a formula that contains text instead of numbers.

Some common functions used in Excel are described below.

## Financial

Used to calculate and solve financial problems, e.g. to calculate cash flow, depreciation, interest rates, etc.

<b>Future Value</b>	=FV(rate,nper,pmt,pv,type)	Calculates the future value of an investment.
<b>Periodic Payment</b>	=PMT(rate,nper,pv,fv,type)	Calculates the periodic payment for a year.

## Logical

Used for testing and decision making.

<b>If</b>	=IF(logical_test,value_if_true,value_if_false)	Returns one value if true, another value if false.
<b>Sumif</b>	=SUMIF(range,criteria,sum_range)	Adds the values in the arguments that meet a specific criteria.
<b>Countif</b>	=COUNTIF(range, criteria)	Counts the number of cells in the arguments that meet a specific criteria.

## Statistical

Used to gather statistical information about a series of data.

<b>Average</b>	=AVERAGE(number1,number2,...)	Calculates the average of all the arguments.
<b>Count</b>	=COUNT(value1,value2,...)	Counts the number of cells in the arguments that contain numbers.
<b>CountA</b>	=COUNTA(value1,value2,...)	Counts the number of cells in the arguments that are not empty – cells can contain numeric values as well as text, dates, and logical values.
<b>Maximum</b>	=MAX(number1,number2,...)	Calculates the maximum value in the arguments.
<b>Minimum</b>	=MIN(number1,number2,...)	Calculates the minimum value in the arguments.
<b>Standard Deviation</b>	=STDEV(number1,number2,...)	Estimates the standard deviation based on the arguments.

## Math & Trig

Used to solve basic mathematical problems through to more complex problems.

Absolute	=ABS(number)	Calculates the absolute value of a number.
Round	=ROUND(number,num_digits)	Rounds a number to a specific number of digits.
Sum	=SUM(number1,number2,...)	Adds the arguments.
Square Root	=SQRT(number)	Returns the square root of a number
Integer	=INT(number)	Rounds a number down to the nearest integer.
Roman	=ROMAN(number)	Converts an Arabic numeral to Roman, as text
Power	=POWER(number)	Returns the result of a number raised to a power

## Lookup & Reference

Functions used to look up and refer to values within a worksheet/workbook.

Horizontal Look Up	=HLOOKUP(lookup_value,table_array, row_index_num, range_lookup)	Looks in the top row of an array and returns the value of the indicated cell.
Vertical Look Up	=VLOOKUP(lookup_value,table_array,col_index_num, range_lookup)	Looks in the first column of an array and moves across the row to return the value of a cell.

## Date & Time

Used to display and calculate the date and time.

Now	=NOW()	Returns the serial number of the current date and time.
Today	=TODAY()	Returns the serial number of today's date.
Date	=DATE(year,month,day)	Returns the serial number of a particular date.

## Text

Lower	=LOWER(text)	Displays text within a cell in lowercase.
Proper	=PROPER(text)	Displays text within a cell with the first letter of each word capitalised.
Upper	=UPPER(text)	Displays text within a cell in all uppercase

# Array Formulas

An array formula can be used to calculate specific information on two or more sets of values. These are known as 'array arguments'. The same number of rows and columns must be used for each array argument. Array formulas are created in the same way as for other Excel formulas except that Ctrl Shift Enter is pressed to enter the formula.

In the following exercise the average sales of products for the Sydney area for 2010 will be calculated.

## Exercise 130

- 1 Open the workbook called **Busy Bee Company**.
- 2 Click on cell C19. The formula that has been inserted will display.
- 3 Click on cell B19 and enter the formula below, then press Ctrl Shift Enter (for an array formula):  
`=AVERAGE(IF($A$5:$A$17="Sydney",$B$5:$B$17))`

This will calculate the average of only Sydney figures in the range B5 to B17.

(If Enter is pressed #VALUE will be displayed.)

	A	B	C	D
1	The Busy Bee Company			
2	Product Sales 2011-2013			
3				
4		2013	2012	2011
5	Brisbane	156,000	186,000	123,000
6	Sydney	75,000	115,000	98,500
7	Melbourne	56,000	95,000	88,000
8				
9				
10	Brisbane	166,500	155,500	145,000
11	Sydney	188,000	95,000	78,000
12	Melbourne	123,000	88,000	85,000
13				
14				
15	Brisbane	156,500	145,000	122,400
16	Sydney	195,500	98,000	85,000
17	Melbourne	144,000	95,000	75,000
18				
19	Average Sales for Sydney	152,833.33	102,666.67	87,166.67

- 4 In cell A20 insert the text: **Average Sales for Brisbane**
- 5 In cell A21 insert the text: **Average Sales for Melbourne**
- 6 Calculate formulas for cells B20 and B21 by copying the formula above and replacing Sydney with Brisbane, then Melbourne. Press Ctrl Shift Enter to enter the formula.
- 7 Format these cells to zero decimal places with a \$ symbol.
- 8 Save and close the workbook.

### **Exercise 131**

A list of fruit and vegetables that have been tested for freshness is shown below.

## **JOE'S FRUIT AND VEGE STORE**

*Produce Testing - Hillside Markets*

	<b>Quantity</b>	<b>Freshness</b>
Apples	20	89%
Oranges	30	40%
Lemons	60	63%
Bananas	80	85%
Kiwi Fruit	20	75%
Pears	45	15%
Peaches	86	60%
Plums	90	81%
Tangelos	74	30%
Potatoes	55	85%
Tomatoes	32	90%
Carrots	65	24%
Kumara	47	55%
Pumpkin	18	41%
Butternut	62	35%
Leeks	35	36%
Lettuce	66	78%
Corn	88	50%

**After entering the test results into an Excel worksheet, consider whether you could analyse the data in the following ways.**

*Under the worksheet:*

- Calculate the average Freshness of products listed.
- Calculate the minimum Freshness of products listed.
- Calculate the maximum Freshness of products listed.
- Count the products displayed.

*At the right of the worksheet:*

Add a heading to column D called **Grading** and insert the word **Pass** if the Freshness percentage is over 60% otherwise insert the word **Fail** if the Freshness percentage is 60% or under.

If you have ascertained that Excel can solve the above then complete the following.

**Exercise 132**

- 1 Create a worksheet to display the answers. Include a formula in the worksheet that will display the current date.
- 2 Sort the products into alphabetical order.
- 3 Create documentation on this workbook. Save as **Joes Produce**, print and close.
- 4 Open **Joes Produce** and sort into descending order of Freshness.
- 5 Save as **Joes1**, print and close.

**Exercise 133**

Joe needs to borrow money to do renovations to his shop. In a new worksheet show calculations to ascertain his monthly payments if he borrowed \$20,000 over 3 years at 10%.

When you have inserted the appropriate formula to do this, answer the following questions using the worksheet to calculate Joe's monthly payments.

Loan Amount	Period	Interest Rate	Monthly Payments
\$20,000	3 years	10%	
\$30,000	5 years	12%	
\$25,000	5 years	15%	

The bank has decided to increase the interest rate on each loan amount by 4% - write down what the Monthly Payments would be.

## Revision

- 1 Write down the use of the following functions:

IF .....

PMT.....

ROUND.....

- 2 How do you print an entire workbook?

.....  
.....

- 3 Explain the VLOOKUP function and give an example of how it could be used.

.....  
.....

- 4 Explain the FV function and give an example of how it could be used.

.....  
.....

- 5 Explain a Nested function and give an example of how it could be used.

.....  
.....

- 6 Give an explanation for each of the following:

SUMIF.....

COUNTIF.....

NOW().....

- 7 Give an example and an explanation of a function for each of the following categories:

Financial .....

Statistical .....

Lookup.....

Logical.....

- 8 What is the purpose of using Data Tables?

.....  
.....

- 9 Explain the following Data Tables:

One-Input Table .....

.....  
.....

Two-Input Table.....

.....

Section

**6**

**Data Analysis, Data Validation  
Macros, Cell Protection  
Templates**

USED UNDER LICENCE  
FOR TAFE QUEENSLAND BRISBANE  
ENROLLED STUDENTS ONLY

## **Learning Outcomes**

*At the end of this section you should be able to:*

- Analyse data
- Use data validation
- Apply conditional formatting to cells
- Understand macros
- Create and edit macros
- Execute macros
- Apply cell protection
- Insert, edit and delete comments
- Understand different types of templates
- Create and use a template
- Create a default template
- Import and export data

# Data Analysis

## Using Pivot Tables

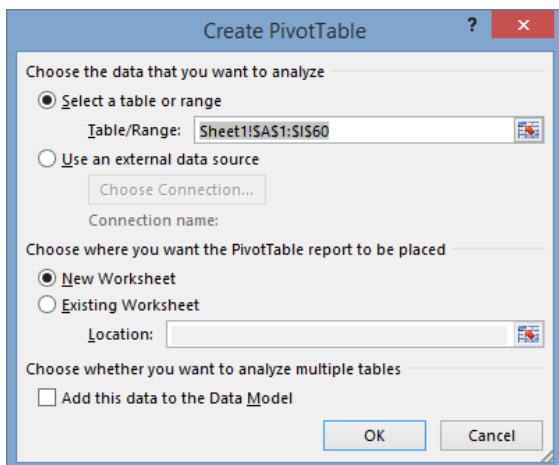
Pivot tables are a feature of Excel specifically designed for analysing large amounts of data.

### Exercise 134

- 1 Open the workbook **Speciality Foods Supplies**.
- 2 Click on a cell within the data.



- 3 On the Insert Ribbon click on the Insert PivotTable button **PivotTable**. The Insert PivotTable dialog box will display, as shown below, with the data range selected.



- 4 Ensure **New Worksheet** is selected and click on OK.

A screenshot of Microsoft Excel showing the 'PivotTable Tools' ribbon tab selected. The main area displays a blank sheet titled 'PivotTable1'. A tooltip message says: 'To build a report, choose fields from the PivotTable Field List'. The 'PIVOTTABLE TOOLS' ribbon has tabs for FILE, HOME, INSERT, PAGE LAYOUT, FORMULAS, DATA, REVIEW, VIEW, ANALYZE, and DESIGN. The 'ANALYZE' tab is active. The 'Cells' group under ANALYZE contains buttons for Insert, Delete, Format, and Cells. The 'Editing' group contains buttons for Sum, Sort &amp; Find, and Filter. The 'PivotTable Fields' pane on the right lists fields: Order ID, Order Date, Product, Category, Unit Price, Quantity, Customer, and Contact. The 'ROWS' and 'VALUES' sections are empty. At the bottom, there is a green bar with tabs for Sheet4, Sheet1, Sheet2, Sheet3, and a new sheet icon. The status bar at the bottom right shows '100%'.

- 5 Click in the Quantity field check box  **Quantity** from the PivotTable Fields pane. The Quantity item will display in the *Values* field as shown at the right and the pivot table will display a very simple analysis, i.e. the sum of products sold.

3	<b>Sum of Quantity</b>
4	1252

- 6 Click in the Category field check box  **Category** from the Pivot Table Field pane. The Category item will display in the *Row Labels* field and the pivot table will now display the number of products sold in each category.

3	<b>Row Labels</b>	<input type="checkbox"/> <b>Sum of Quantity</b>
4	Condiments	55
5	Confections	217
6	Dairy Products	315
7	Grains/Cereals	154
8	Meat/Poultry	147
9	Produce	130
10	Seafood	234
11	<b>Grand Total</b>	<b>1252</b>

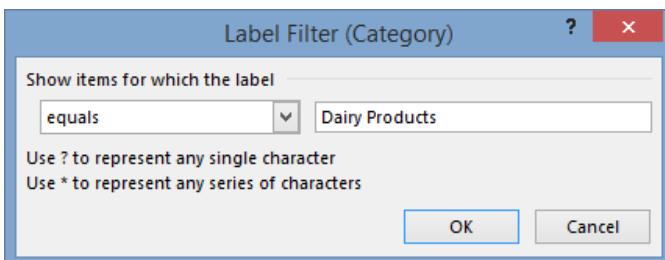
- 7 Click in the Product field checkbox  **Product** from the Pivot Table Field pane. The Product item will display in the *Row Labels* field and the pivot table will now display the number of individual products sold within each category.

3	<b>Row Labels</b>	<input type="checkbox"/> <b>Sum of Quantity</b>
4	<input checked="" type="checkbox"/> Condiments	55
5	<input checked="" type="checkbox"/> Confections	217
6	Aunt Mary's Scones	30
7	Kiwi Pavlova	67
8	Lord Harry's Marmalade	40
9	Schoggi Schokolade	25
10	Schokolade	40
11	Tarte au sucre	15
12	<input checked="" type="checkbox"/> Dairy Products	315
13	Blue Mountains Cheddar	100
14	Camembert Pierrot	40
15	Geitost	85
16	Karikaas Gouda	43
17	Mascarpone Fabioli	6
18	Mozzarella di Giovanni	29
19	Queso Manchego La Pastora	12
20	<input checked="" type="checkbox"/> Grains/Cereals	154
21	Gnocchi di nonna Mary	2

- 8 Click on the  of  Condiments to collapse the Condiments field.  
 9 Collapse the fields Confections, Meat/Poultry and Produce.  
 10 Expand all fields by clicking on the  next to each collapsed field name.  
 11 Save the workbook and leave it open for the next exercise.

### **Exercise 135**

- 1 Using the workbook **Speciality Foods Supplies**, locate the **Row Labels** at the top of the Pivot Table. Click on the drop down box and then position the mouse pointer over **Label Filters** and select **Equals...**.
- 2 In the Label Filter (Category) dialog box type: **Dairy Products** as shown below.



- 3 Click on OK. Only the Dairy Products will now display.

	Row Labels	Sum of Quantity
3		
4	<b>Dairy Products</b>	<b>315</b>
5	Blue Mountains Cheddar	100
6	Camembert Pierrot	40
7	Geitost	85
8	Karikaas Gouda	43
9	Mascarpone Fabioli	6
10	Mozzarella di Giovanni	29
11	Queso Manchego La Pastora	12
12	<b>Grand Total</b>	<b>315</b>

- 4 Click on the of Row Labels and select **Clear Filter From "Category"**.
- 5 Rename the sheet as **Products**.
- 6 Save the workbook and leave it open for the next exercise.

### **Exercise 136**

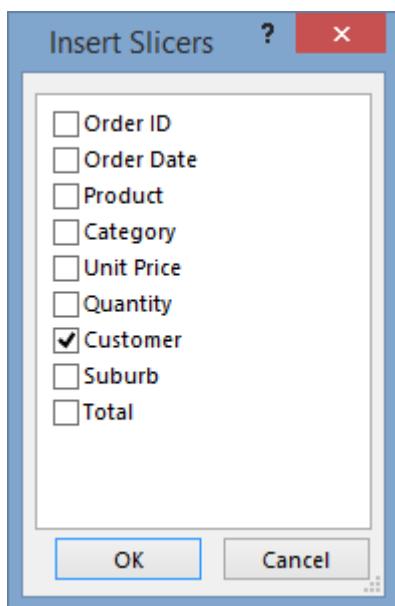
- 1 Using the workbook **Speciality Foods Supplies**, click on the Sheet1 tab.
- 2 Click on a cell within the data.



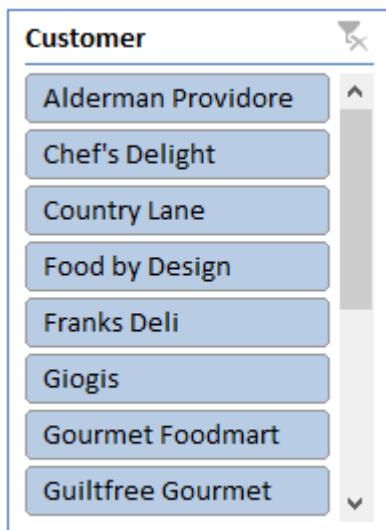
- 3 On the Insert Ribbon click on the PivotTable button **PivotTable**. Ensure *New Worksheet* is selected and click on OK.
- 4 Create a pivot table using the Total field as the *Values*, then the field Customer and the field Category as the *Row Labels*. This will display an analysis of the value of product categories sold to each customer.
- 5 Format the numbers in column B to Currency with two decimal places.
- 6 Rename the sheet as **Categories**.
- 7 Click anywhere inside the Pivot Table and the Pivot Table Tools appear on the Ribbon.



- 8 Click on **ANALYZE** and select **Slicer**. Using a Slicer is another way to filter data in your pivot Table.
- 9 Click in the check box next to Customer



- 10 Click OK.
- 11 A slicer appears on the screen showing the names of all customers.



- 12 Click on Food by Design and only that customer's details will now show.
- 13 To show details for more than one customer, Ctrl click on Gourmet Foodmart. Now details for both customers show.
- 14 Click on in the top right of the Slicer to remove the filter to see all records.
- 15 Save and close the workbook.

# Data Validation

Cells can be designated so that only specific data can be entered. Data validation sets a standard for a cell - data can only be entered into a particular cell when it meets the data validation criteria, e.g. is greater than 1200, between certain dates, only certain values are selected, etc.

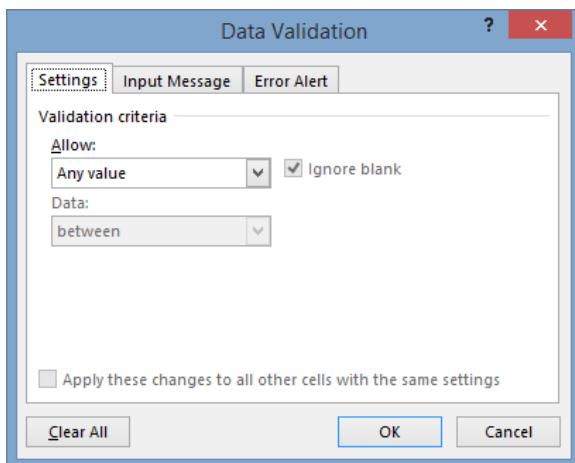
## Exercise 137

- 1 Open the workbook called **Cool Shot Photography**.
- 2 Select cells B12 to D12.



Data

- 3 On the Data Ribbon, click on the Data Validation button **Validation** and ensure the Settings tab is displayed.

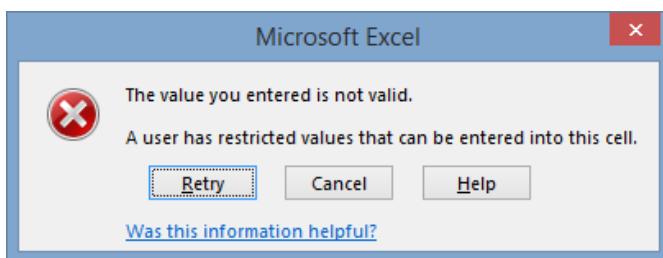


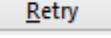
- 4 From the *Allow:* box, click on and select Whole number.
- 5 From the *Data:* box, click on and select greater than.
- 6 Click in the *Minimum:* box and type: **100**.

This will ensure a figure over 100 is typed in the selected cells.



- 7 Click on OK.
- 8 Click in cell C12. Type: **50**
- 9 Press Enter. The following error message will appear.



- 10 Click on  . Type: **120**  
11 Press Enter. The value will be accepted.  
12 Save the workbook and leave it open for the next exercise.

## Adding a Message to a Data Validation Cell

### Exercise 138

- 1 Using the workbook **Cool Shot Photography**, select cells B12 to D12.



Data

- 2 On the Data Ribbon, click on the Data Validation button **Validation** and display the Input Message tab.  
3 Click in the *Title:* box and type: **Message**  
4 Press Tab and in the *Input message:* box type: **Insert an amount greater than 100**

**Show input message when cell is selected**

**When cell is selected, show this input message:** \_\_\_\_\_

**Title:**

**Message**

**Input message:**

**Insert an amount greater than 100**

- 5 Click on OK.  
6 Click on cell D12, then on cell B12. Notice that a message appears each time you click on a data validated cell.  
7 Save the workbook and leave it open for the next exercise.

## Deleting a Validation Message

### Exercise 139

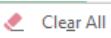
- 1 Using the workbook **Cool Shot Photography**, select cells B12 to D12.



Data

- 2 On the Data Ribbon, click on the Data Validation button **Validation**. Ensure the Input Message tab is displayed and delete the text from the two text boxes shown above.

#### Note

If you select the cells and click on the Clear button  **Clear** on the Home Ribbon, then select  **Clear All**, all data validation settings will be deleted.

- 3 Save the workbook and leave it open for the next exercise.

## Adding a Warning to a Data Validation Cell

When data is entered incorrectly into a cell an error message will be displayed. You can change the error message from the Error Alert tab.

### Exercise 140

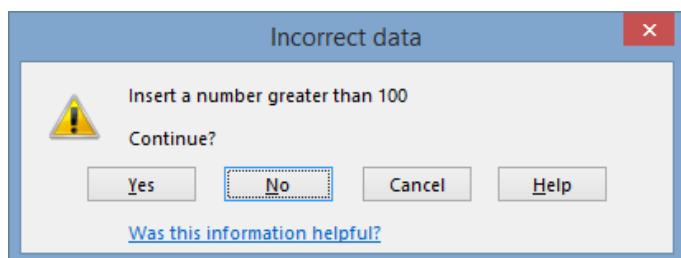
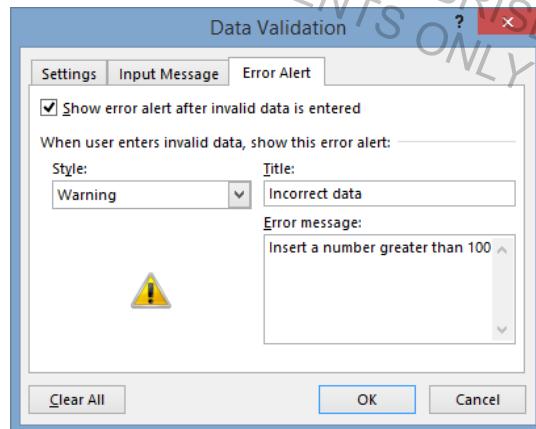
- Using the workbook **Cool Shot Photography**, select on cells B12 to D12. On the Data Ribbon,



Data

click on the Data Validation button **Validation** and display the Error Alert tab.

- From the **Style:** select Warning. This will display a warning icon when data is entered incorrectly into a cell.
- Click in the **Title:** box and type: **Incorrect Data**
- Press Tab and type: **Insert a number greater than 100**
- Click on OK.
- Click on cell D12 and type: **10**
- Press Enter.



If Yes is selected the number 10 will appear in the cell. If No is selected a different value can be typed. If Cancel is selected no data will be entered into the cell.

- Click on Cancel. Save the workbook and leave it open for the next exercise.

## Inserting a Data Validation List into a Worksheet

### Exercise 141

- Using the workbook **Cool Shot Photography**, click on cell C4.



Data

- Click on the Data Validation button **Validation** and select the Settings tab.
- Click on the **Allow:** and select List.
- Click in the **Source:** box and type: **Sydney, Melbourne, Brisbane, Adelaide**
- Ensure the **In-cell dropdown** check box displays a tick.
- Click on OK.
- Click on the cell C4 as shown below and select Brisbane from the drop-down list.



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ENROLLED STUDENTS ONLY



Data

- 8 Ensure cell C4 is selected and click on **Validation**, Settings tab.
- 9 Click in the *In-cell dropdown* check box to turn it off.
- 10 Click on OK.
- 11 In cell C4 type: **Cairns**
- 12 Press Enter. An error message will appear indicating that the data entered is invalid.
- 13 Click on .
- 14 Type: **Sydney**
- 15 Press Enter. Sydney is a permitted value.
- 16 Save the workbook and leave it open for the next exercise.

## Conditional Formatting

When a workbook is used by people other than the creator, certain cells can be specified to display in a variety of colours, e.g. to indicate if a commission/profit has been achieved, whether the company is under/over budget etc. This is called conditional formatting. Conditional formatting displays data in a specified formatting style when a criteria has been achieved, e.g. if data is greater than 1200 the data is displayed in red, if between certain values the data is displayed in blue, etc.

### Cell Values

#### Exercise 142

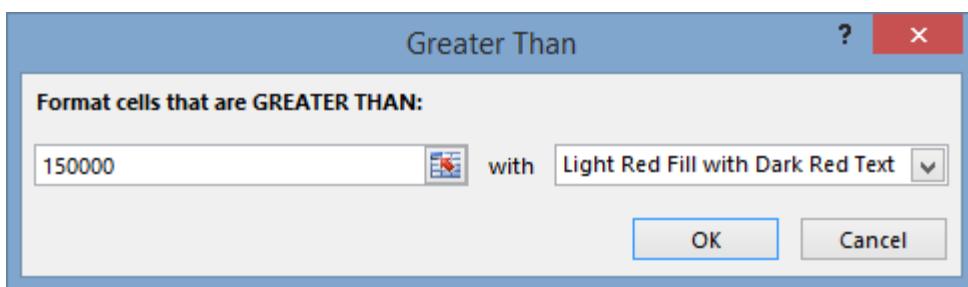
- 1 Using the workbook **Cool Shot Photography**, select cells B8 to D8.



Conditional

Formatting

- 2 On the Home Ribbon click on the Conditional Formatting button , position the mouse pointer over **Highlight Cells Rules** , then select **Greater Than...**.
- 3 Type: **150000** as shown below.



- 4 Click on the of the *with* box and select *Custom Format...*

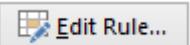
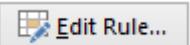
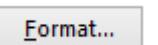
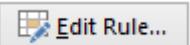
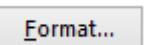
- 5 Click on the *Color:* box  and select Red from the Standard Colors.
- 6 Click on Bold in the *Font style:* box.
- 7 Click on OK twice. When data is entered into the selected cells (B9 to D9), any amount greater than 150000 will now be displayed in red.
- 8 Click in cell D9 and type: **165000**
- 9 Press Ctrl Enter.
- 10 Click in cell C9 and type: **100000**
- 11 Press Ctrl Enter.
- 12 Select cells B9 to D9.



Conditional

Formatting 

[Manage Rules...](#)

- 13 Click on the Conditional Formatting button  and select   .
- 14 Select the rule, click on  , then click on  . Change the font colour to Blue.
- 15 Click on OK.
- 16 Change the amount to **200000** as shown below.

**Format only cells with:**

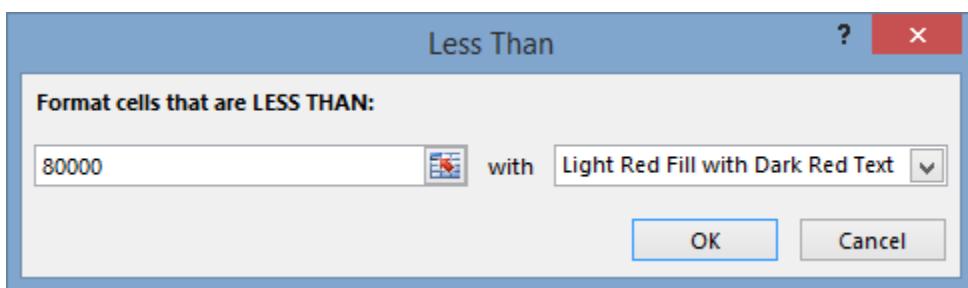
<b>Cell Value</b>		<b>greater than</b>		<b>=200000</b>	
-------------------	---	---------------------	---	----------------	---

- 17 Click on OK twice.



Conditional  
Formatting 

- 18 With cells B9 to D9 selected click on the Conditional Formatting button  position the mouse pointer over  , then select  .
- 19 Type: **80000** as shown below.



- 20 Click on the  of the *with* box and select Custom Format...
- 21 Format the font to bold and Red.
- 22 Click on OK twice.
- 23 Type: **150,000** in cell B9. Type: **70,000** into cell C9 and type: **230,000** in cell D9.  
The entry in B9 displays normally, however the amount less than 80,000 is displayed in Red and the amount over 200,000 is in Blue.
- 24 Save the workbook and leave it open for the next exercise.

## Formula Values

A formula can be used to determine whether a conditional format is applied, e.g. in the following exercise the cells B9 to D9 are added; if those cells are greater than a specified amount (200,000), the solution in cell E9 will be displayed in dark red.

### Exercise 143

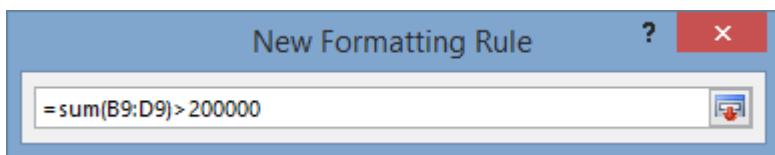
- 1 Using the workbook **Cool Shot Photography**, click on cell E9.



Conditional

Formatting

- 2 Click on the Conditional Formatting button , position the mouse pointer over  $\leq >$ , then select More Rules....
- 3 Select **Use a formula to determine which cells to format**.
- 4 Click in the text box and type: **=sum(**
- 5 Click on and select cells B9 to D9.
- 6 Click on and type: **)>200000**



- 7 Click on **Format...** and select bold and Dark Red.
- 8 Click on OK twice.
- 9 Save and close the workbook.

#### Note

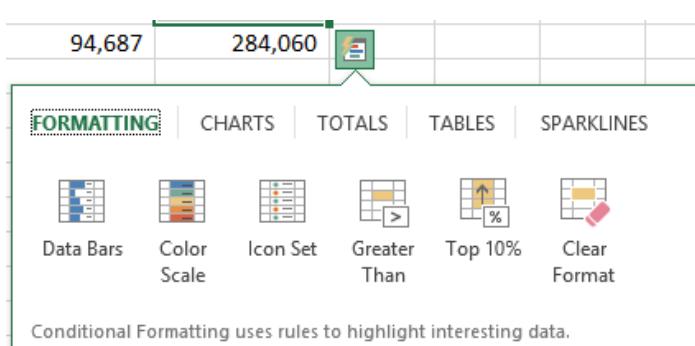
A conditional format can be applied to a cell containing text, e.g. to format the word Yes to be Blue if a condition is not met and Black (or another colour) if the condition is met.

## Quick Analysis Lens

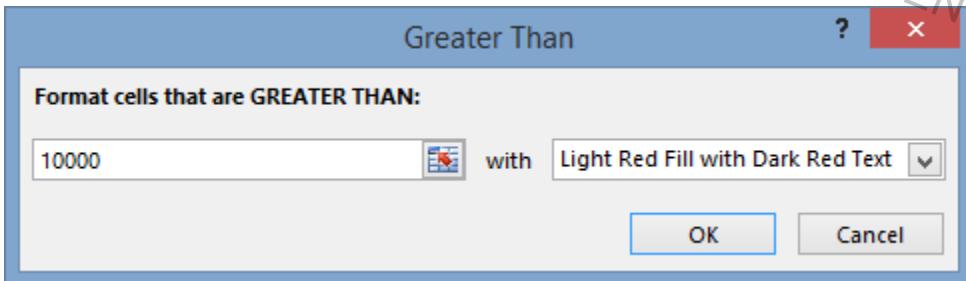
A new feature of Excel 2013 is the Quick Analysis Lens Button . This provides a quick way to apply Conditional Formatting.

### Exercise 144

- 1 Open the workbook called **Portus Enterprises**.
- 2 Select cells E5:E32. Click on the Quick Analysis Lens which appears at the bottom of the selection.

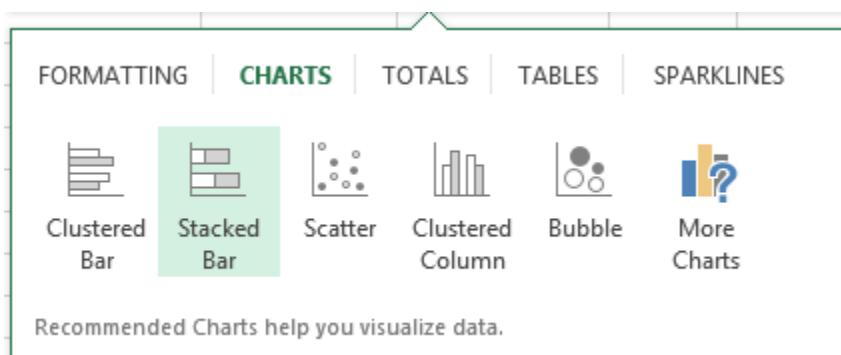


- 3 From the Formatting options, click on  .  
 4 Change the number to 10000. Click OK.



All values greater than 10000 are now highlighted.

- 5 Click on  and click on  .
- 6 Click on  . From the Formatting options, hover the mouse over **Data Bars** and then to see a live preview.
- 7 Click on  . Icons representing top, middle and bottom thirds of the data are applied.
- 8 Select cells B5:D32. Click on  and select **Top 10%** from Formatting. The Top 10% of values are highlighted.
- 9 Select cells A5:D32. Click on  and select Charts.



- 10 Select Stacked Bar. A chart of the data will be embedded in the worksheet.  
 11 Move the chart to the right of the data and adjust the size so that all names are visible on the vertical axis.  
 12 Save and close the file.

# Macros

A macro is a series of Excel commands grouped together as a *single* command. Macros can be ‘recorded’ (similar to turning on a tape recorder), and can be assigned to a shortcut key, a button on a toolbar, or a menu. When creating a macro, actions are recorded, and then recording is turned off. The macro can then be played back using the shortcut key, button or menu selection.

Macros can include data contained within a worksheet but are mostly used for speedy use of menu options. Macros in Excel can be recorded or written in Visual Basic (which is a programming language). Macros can be stored as follows.

This Workbook	Macros are stored in the current workbook file and are available only when that workbook is used.
Personal Macro Workbook	Macros are stored in a workbook named Personal.xlsb and are available to use in <b>all</b> workbooks. This file is automatically opened each time Excel is started. Macros stored in this workbook are therefore ‘global’.
New Workbook	Macros are executed only when the specified workbook file is open.
Template	Macros stored in a template are available when that template is used.

A macro can be assigned to:

*Quick Access Toolbar* A macro can be added to the Quick Access Toolbar.

*Shortcut Key* A macro can be assigned a shortcut key with either the Ctrl key (e.g. Ctrl M), or Ctrl + Shift (e.g. Ctrl Shift A).

*Macro Button* A button can be drawn on your worksheet and a macro either recorded or assigned to that button.

Some uses for recording macros are:

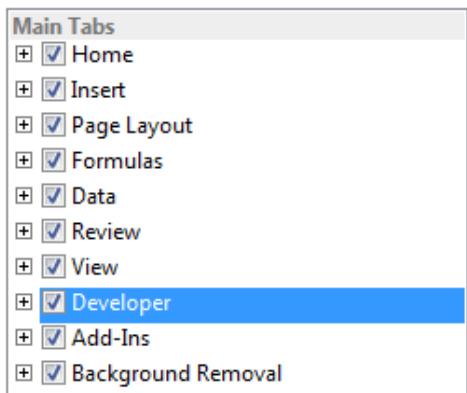
- Formatting cells
- Changing Page Setup options
- Sorting lists
- Adding a header or footer
- Performing repetitive calculations

When a macro is created remember to:

- Plan the macro first
- Select data before recording the macro
- Use a macro name that is relevant to the content of the macro
- Use the Macro Recorder whenever possible and then edit the steps as necessary
- Save the macro before executing

## Developer Tab

Macros are available as the Code Group on the Developer Ribbon. If the Developer Ribbon is not showing, click on **FILE** and **Options**. Click on **Customize Ribbon** and click next to **Developer**.



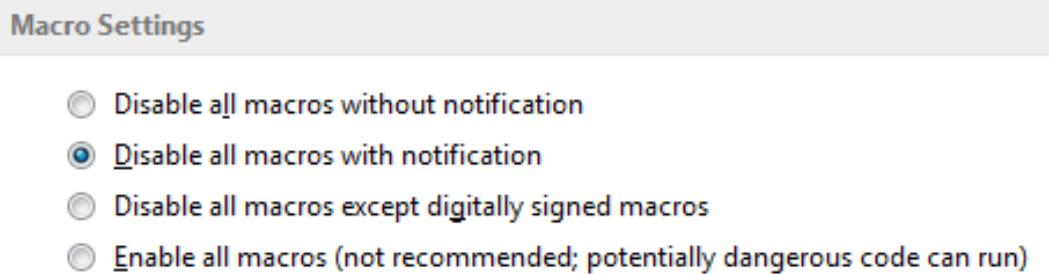
The Developer will now show on the Ribbon.

### Note

There is also a single Macros button on the View Ribbon.

## Macro Security

When creating macros in Excel 2013, macro virus protection has a security level default of high, i.e. *Disable all macros with notification*. There are four levels of security and these are described below.



### *Disable all macros without notification*

When the workbook is opened the macros are automatically disabled without notification, with the exception of those in documents from a **trusted location**.

### *Disable all macros with notification*

As above except notification is given and macros can be enabled on a case by case basis.

### *Disable all macros except digitally signed macros*

As above except if the macro is **digitally signed** by a **trusted publisher**, the macro can run if you have already trusted the publisher. If you have not trusted the publisher, you are notified.

### *Enable all macros*

When the workbook is opened all macros are treated equally regardless of origin or trust status. With low security, there is no prompt or signature validation and macros are automatically enabled. Use this setting only if you are certain that all macros in all workbooks are from trusted sources.

Under all settings, if antivirus software that works with Microsoft Office Excel 2013 is installed and a file contains macros, the file is scanned for known viruses before it is opened.

## Changing Macro Security

### Exercise 145

- 1 On the Developer Ribbon, from the Code group click on  Macro Security.
- 2 Ensure *Disable all macros with notification* is checked. Click on OK.

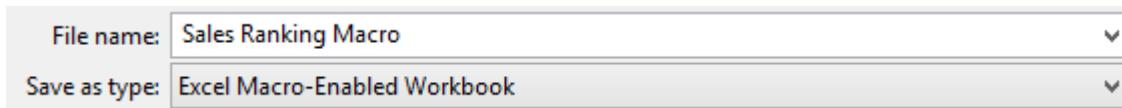
## Saving a workbook as a Macro Enabled workbook

### Exercise 146

An Excel workbook is saved with a file extension of .xlsx. These files cannot contain Visual Basic for Applications (VBA) macros. To save a macro in a workbook, it must first be saved as a macro-enabled workbook and will have a .xlsm extension. This makes it easier to identify workbooks containing macros

Excel file type	Extension
Workbook	.xlsx
Macro-enabled workbook	.xlsm
Template	.xltx
Macro-enabled template	.xltm

- 1 Open the workbook called **Sales Ranking**.
- 2 Click on  and then . Navigate to your working folder.
- 3 Click on the  for *Save as type:* and select Excel Macro-Enabled Workbook (\*.xlsm).
- 4 Change the file name to **Sales Ranking Macro**



- 5 Click on . Leave the workbook open for the next exercise.

## Assigning Macros to ‘This Workbook’

Macros that are saved in the current workbook will be stored as a module in the Visual Basic Editor. Several macros can be recorded and used in the same workbook.

### Recording a Macro and Assigning a Macro Shortcut Key

The Macro Recorder will store all the instructions and translate them into a macro language called Visual Basic. When the recorder is turned on it displays  (the Stop Recording button) on the Status bar (bottom left of the screen).

A keyboard shortcut can be assigned to a macro in the Record Macro dialog box. The keyboard shortcut will execute the macro (either the Ctrl key only (default) OR press Shift to assign Ctrl Shift).

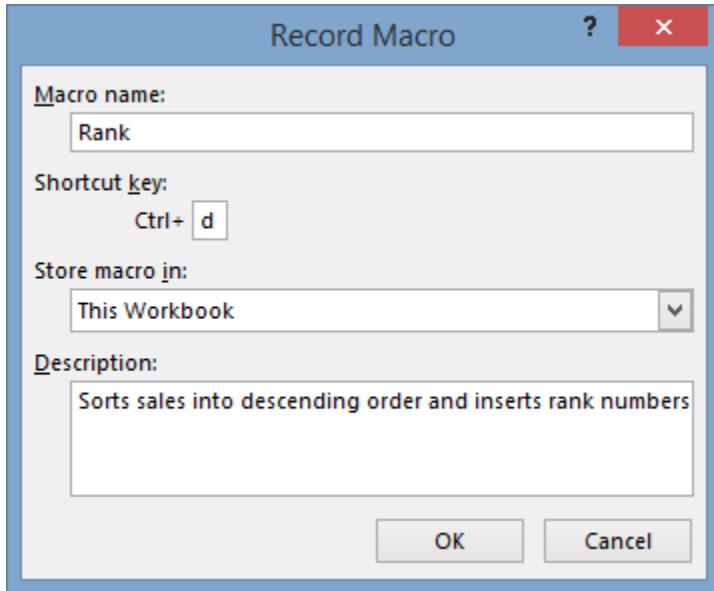
Once you start recording every keystroke and menu command selected will be recorded.

### Exercise 147

- 1 Using the workbook **Sales Ranking**, ensure the January sheet tab is selected.

In this workbook file a macro will be recorded that will sort the list by the Month field (i.e. January) in descending order and rank the sales in column A accordingly.

- 2 On the Developer Ribbon click on Record Macro
- 3 Type: **Rank** in the *Macro name:* box.
- 4 In the *Description:* box type the description as shown below. Do not click OK yet.



- 5 Click in the *Shortcut key:* Ctrl+ box and type: **d**
- 6 The *Store macro in:* option defaults to This Workbook. Ensure this option is selected.
- 7 Click on OK.

The Stop Recording button will appear on the Status bar. Stop Recording

- 8 Press Ctrl G OR on the Home Ribbon click on the Find & Select button and select **Go To...**
- 9 Type: **A4** and click on OK. The cursor is now active in cell A4.



- 10 On the Data Ribbon click on the Sort button
- 11 Click on the *Sort by* and select January.
- 12 Click on the *Order* and select the *Largest to smallest* option for the sort order and click on OK. The list has been sorted and now displays the highest sales at the top of the list.
- In the next part of the macro, the sales in column A will be ranked.
- 13 Press Ctrl G, type: **A5** and click on OK.
- 14 Type: **1** and press Ctrl Enter.
- 15 Hold down the Ctrl key and drag the fill handle from cell A5 to cell A13. Select Fill Series. This will rank sales from 1 to 9 with 1 being the highest.
- 16 Press Ctrl Home to return to cell A1.
- 17 Click on the Stop Recording button OR on the Developer Ribbon click Stop Recording
- 18 Save the workbook and leave it open for the next exercise.

## Executing the Recorded Macro

You will now change the sales details for Philip Reilly and then execute the Rank macro. This will show you the macro in action.

### Exercise 148

- 1 Using the workbook **Sales Ranking**, click on cell D10. Type: **1295** and press Enter. Now the macro will be run to sort and rank the list correctly.
- 2 Press **Ctrl d**.

A	B	C	D	
1	Sydney Plumbing Supplies Pty Ltd			
2	Sales for 2013			
3	Rank	Sales Rep	Area	January
4	5	1 Reilly, Philip	North Sydney	\$1,295
5	6	2 Russell, Craig	South Sydney	\$1,200
6	7	3 Brook, Peter	South Sydney	\$995
7	8	4 Harper, Michael	East Sydney	\$980
8	9	5 Smith, Susan	North Sydney	\$795
9	10	6 Crawford, Jim	East Sydney	\$745
10	11	7 Parson, Joanna	Sydney Central	\$650
11	12	8 Saunders, Graham	Sydney Central	\$435
12	13	9 Davidson, Francis	West Sydney	\$225

- 3 Now attempt to run the macro on the February sheet. You will notice only the ranking occurs, not the sorting.

#### Note

Changes from Excel 2003 to later versions of Excel now result in the active worksheet being targeted when recording sorting for macros. This can be altered in the Microsoft Visual Basic editor to enable the sort on all sheets.

- 4 Save the workbook and leave it open for the next exercise.

## The Visual Basic Editor

### Viewing and Editing the Macro

Macros are stored as modules within the Visual Basic Editor and can be edited in that section of Excel.

### Exercise 149

- 1 Using the workbook **Sales Ranking**, click on the Developer Ribbon and then click on the

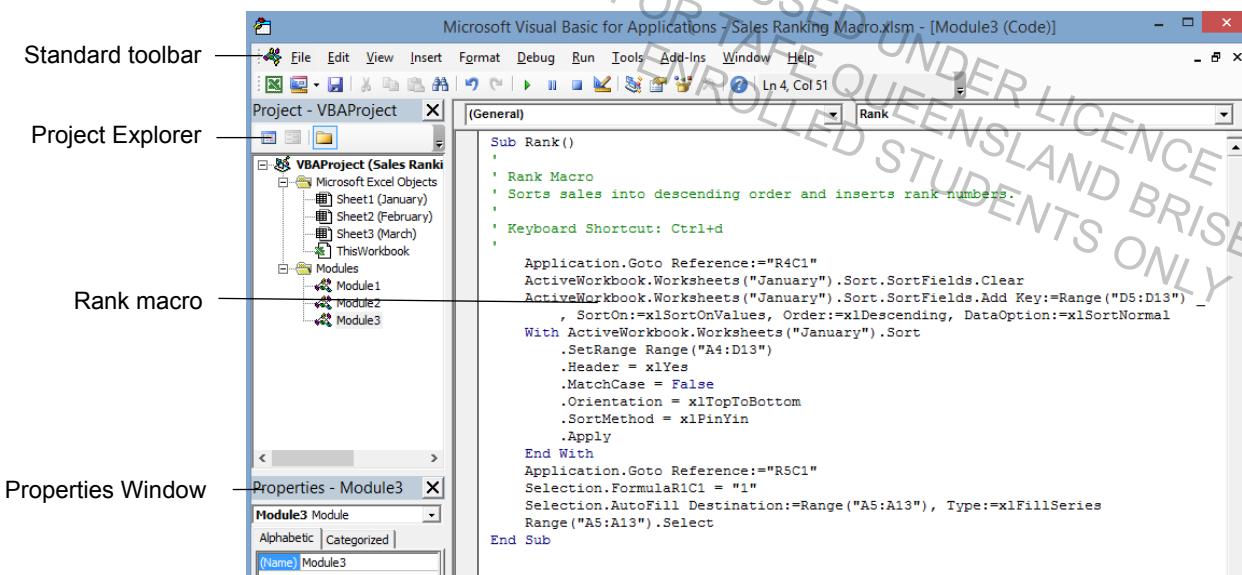


View Macros button Macros

- 2 Select the Rank macro and click on **Edit**.
- 3 The Visual Basic window will be displayed. The Rank macro is shown displayed on the next page.

#### Note

If the Project Explorer and the Properties Window are not displayed at the left of the screen, choose [View] and select relevant options.



The text at the top of the macro shows the macro name and description details that were entered into the Record Macro dialog box. Explanations of some of the instructions contained in the macro are as follows.

Visual Basic Code	Description
Application.Goto Reference:="R4C1"	Move the cursor to cell A4
ActiveWorkbook.Worksheets ("January") .Sort.SortFields.Clear	Prepare the worksheet January for sorting.
Selection.FormulaR1C1 = "1"	Enter the number value '1' into the active cell
Range ("A5:A13") .Select	Select cells A5 to A13

- 4 Select the first instance of the text **ActiveWorkbook.Worksheets("January")** as shown below.

```

Sub Rank()
    ' Rank Macro
    ' Sorts sales into descending order and inserts rank numbers.

    ' Keyboard Shortcut: Ctrl+d

    Application.Goto Reference:="R4C1"
    ActiveWorkbook.Worksheets("January").Sort.SortFields.Clear
    ActiveWorkbook.Worksheets("January").Sort.SortFields.Add Key:=Range("D5:D13") -
        , SortOn:=xlSortOnValues, Order:=xlDescending, DataOption:=xlSortNormal
    With ActiveWorkbook.Worksheets("January").Sort
        .SetRange Range("A4:D13")
        .Header = xlYes
    End With
    Application.Goto Reference:="R5C1"
    Selection.FormulaR1C1 = "1"
    Selection.AutoFill Destination:=Range("A5:A13"), Type:=xlFillSeries
    Range("A5:A13").Select
End Sub

```

- 5 Type: **ActiveSheet** to replace the text. Repeat this procedure with the other two instances of **ActiveWorkbook.Worksheets("January")** as shown below.

```

    ' Keyboard Shortcut: Ctrl+d

    Application.Goto Reference:="R4C1"
    ActiveSheet.Sort.SortFields.Clear
    ActiveSheet.Sort.SortFields.Add Key:=Range("D5:D13") -
        , SortOn:=xlSortOnValues, Order:=xlDescending, DataOption:=xlSortNormal
    With ActiveSheet.Sort
        .SetRange Range("A4:D13")
        .Header = xlYes
    End With
    Application.Goto Reference:="R5C1"
    Selection.FormulaR1C1 = "1"
    Selection.AutoFill Destination:=Range("A5:A13"), Type:=xlFillSeries
    Range("A5:A13").Select
End Sub

```

Replaced Text

- 6 Click on  then click on the Close button.
- 7 Ensure the February sheet is displayed. Run the macro (**Ctrl d**) to sort and rank the February sales. Sort and rank the March sheet.
- 8 Save the workbook and leave it open for the next exercise.

**Note**

Knowledge of the Visual Basic programming language is advisable if you wish to alter macros further.

### **Printing the Contents of a Macro**

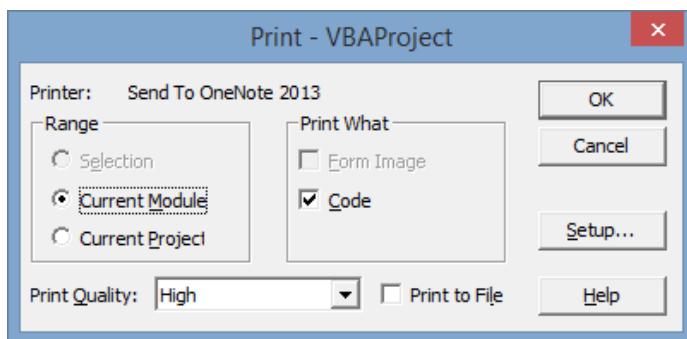
#### **Exercise 150**

With the Visual Basic window displayed the macro commands can be printed.



Visual  
Basic

- 1 Using the workbook **Sales Ranking**, click on the Visual Basic button  on the Developer Ribbon. The Rank macro will display.
- 2 Choose [File] Print.
- 3 Ensure the *Current Module* option is selected in the Range section.



- 4 Click on OK. This will print all the macros that are in the current workbook.
- Alt Q 5 Choose [File] Close and Return to Microsoft Excel. Save the workbook and leave it open for the next exercise

#### **Exercise 151**

- 1 Using the workbook **Sales Ranking**, on the March worksheet select the data within the list, including column headings. Create a macro named **AreaSort** using the shortcut key **Ctrl m** to sort by Area (Ascending) and then by Sales Rep (Ascending). Alter the Visual Basic code so the macro can be used in all worksheets. Test the macro by applying it to the other worksheets.
- 2 Save and close the workbook.

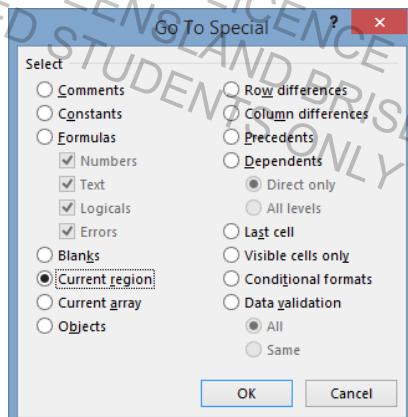
## Using the Go To Special Dialog Box

Use the Go To Special Dialog box when recording instructions to sort a list.

- 1 On the Home Ribbon click on  **Select** and select [Go To Special...](#).
- 2 Select the *Current region* option.
- 3 Click on OK.

This can be used when selecting an area rather than specifying a range.

In most instances the range should be selected *before* recording the macro.



## Assigning a Macro to a Button

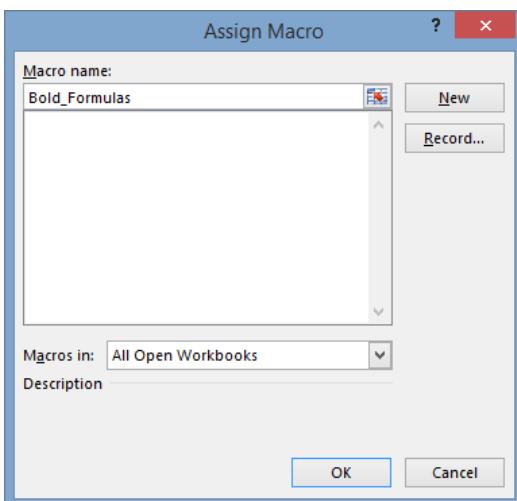
A button can be drawn on the worksheet and a macro recorded and/or assigned to that button. The macro will be executed when you click on the button. The button can only be used on the worksheet where it is displayed.

In the following exercise you will draw a button, record a macro that applies bold format to all formulas in the worksheet and then test it.

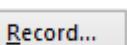
### Exercise 152

- 1 Open the workbook called **Hats Income Statement**.  
On the Developer Ribbon click on the Insert Controls button .   

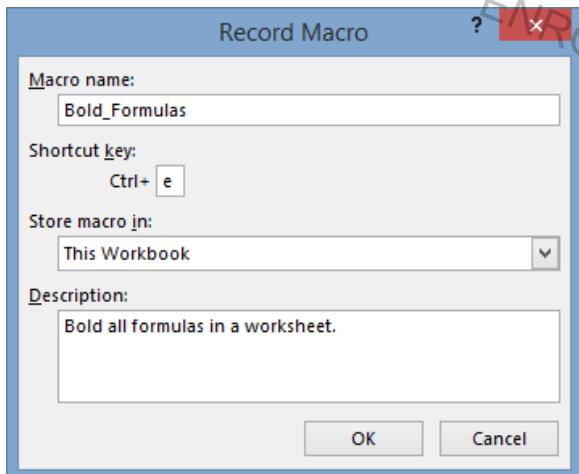
- 2 Click on Button (Form Control)  and draw a button to cover cells J1 and K2 by clicking and dragging. The Assign Macro dialog box will display.
- 3 Type: **Bold\_Formulas** as the Macro name as shown below.



At this time you have the choice to record a macro, or assign an existing macro to the button.

- 4 Record a macro as follows.
  - a Click on .
  - b Type the text as shown on the next page in the *Description:* box.

- c Ensure the options displayed are selected, and text is entered in the *Shortcut key:* box.



- d Click on OK.
- e Press Ctrl G, then click on .
- f Click in the *Formulas* option. Click on OK.
- g On the Home tab click on the Bold button .
- h Press Ctrl Home.
- 5 Click on the Stop Recording button .
- 6 Right click on the button you have created and select Edit Text.
- 7 Select the text and type: **Bold Formulas** (the button may need to be resized to display all text) then click outside the button.
- 8 To test the button, first remove the bold that has already been applied; press Ctrl G, click on , select the *Formulas* option, then click on OK.
- 9 Click on the Bold button to remove bold and click in cell A1.
- 10 Now click on .
- 11 This macro could be used when the worksheet is created, to bold formulas as each section is finished, or could be used when editing a worksheet. See the effect as follows:
- Insert a heading **Average Royalty Payable** under the *Royalty Payable* row. Use the AVERAGE function to calculate. Click on the **Bold Formulas** button.
  - Add a worksheet called *Information* and write documentation to go with the workbook. Include documentation about the macro you have created. (Refer to Spreadsheet Documentation at the beginning of this book).
- 12 Save the workbook as an Excel Macro-Enabled Workbook named **Hats** and close.

#### Note

The macro is available to all worksheets by pressing Ctrl e (or click on the View Macros button



button **Macros** on the View or Developer Ribbons, select the macro and click on Run). The button is only displayed on the worksheet on which it is created. Macro buttons can be copied to other worksheets; point to the button, right click and select Copy, then paste to the new worksheet.

# Personal Macro Workbook

A Personal Macro Workbook called **Personal.xlsx** is created when this option is selected from the *Store macro in:* section of the Record New Macro dialog box.

The **Personal.xlsx** file is not displayed but can be edited by choosing Unhide from the View Ribbon (then choose Hide when finished). All macros stored in the Personal Macro Workbook will become ‘global’.

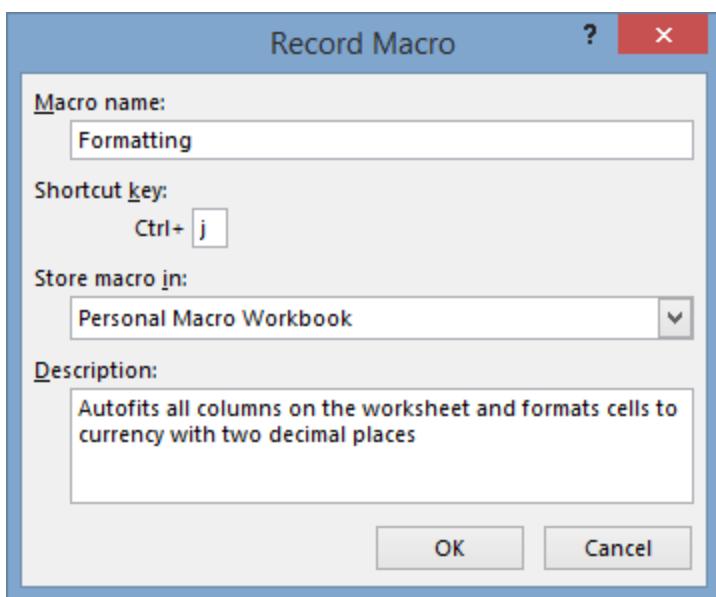
## Placing a Macro Button on the Quick Access Toolbar

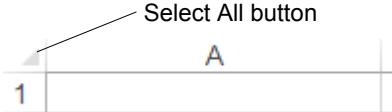
In the following exercise a macro will be created and placed as a button on the Quick Access Toolbar.

### Creating the Macro

#### Exercise 153

- 1 Open the workbook called **Classic Images Income**.
- 2 On the Developer Ribbon click on  Record Macro
- 3 Type: **Formatting** in the *Macro name:* box.
- 4 Click on the *Store macro in:*  and select Personal Macro Workbook.
- 5 Type: **j** in the *Shortcut key:* Ctrl+ box and type the description shown below.



- 6 Click on OK.
  - 7 Record the macro as follows.
    - a Click on the Select All button at the top left corner of the worksheet.
- 

Select All button  
A
- a On the Home tab click on  in the Cells group and select  Format Cells... . On the Number tab choose the category Currency with two decimal places and \$ signs. Click on OK.
- 162 SECTION 6
- © Millbank Investments Ltd, 2013



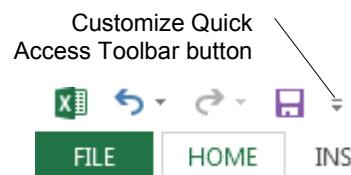
- c Click on and select **AutoFit Column Width**.  
d Press Ctrl Home.

- 8 Click on the Stop Recording button
- 9 Save the workbook as an Excel Macro-Enabled Workbook named **Classic Images Income** and leave it open for the next exercise

### Placing the Macro Button

#### Exercise 154

- 1 Using the workbook **Classic Images Income**, click on the Customize Quick Access Toolbar button (as shown at the right) and select [More Commands...](#)
- 2 Click on the of the **Choose commands from:** box and select Macros.
- 3 Select PERSONAL.XLSB!Formatting and click on
- 4 Click on and in the *Display name:* box type: **Formatting**.
- 5 Click on OK twice. The button will now display in the Quick Access Toolbar as shown below.



- 6 Save and close the workbook.

### Testing the Macro

#### Exercise 155

- 1 Open the workbook called **Flowers**.
- 2 Click on the Formatting button on the Quick Access Toolbar.  
Column widths will adjust and currency formats will be added.
- 3 Save the workbook and leave it open for the next exercise

#### Note

If a heading spans across the worksheet from column A, then column A will be adjusted to accommodate all the text in that column.

### Editing the Personal Macro Workbook

The Personal Macro Workbook is available to all workbooks now and can be edited at any time through the View Ribbon.

#### Exercise 156

- 1 Using the workbook **Flowers**, show the View Ribbon and click on in the Window Group.
- 2 With PERSONAL selected from the *Unhide workbook:* box, click on OK.

- 3 On the Developer Ribbon, click on the View Macros button  Macros
- 4 Select the Formatting macro and click on  Edit. Edit the macro by removing the \$ sign from the NumberFormat section as shown below.

```
Sub Formatting()
    ' Formatting Macro
    ' Autofits all columns on the worksheet and formats cells to currency with two decimal places
    ' Keyboard Shortcut: Ctrl+j
    Cells.Select
    Selection.NumberFormat = "$#0##0.00"
    Selection.Columns.AutoFit
    Range("A1").Select
End Sub
```

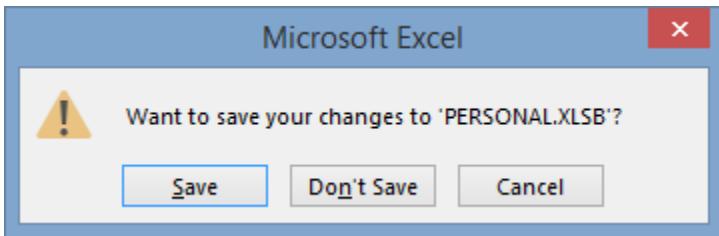
Delete the \$

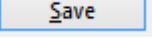
- 5 Click on the Save button  to save the Personal Macro Workbook.
- 6 Choose [File] Close and Return to Microsoft Excel.
- 7 Display the View Ribbon and click on  Hide to return to the worksheet.
- 8 Run the macro again and the \$ signs will be removed.
- 9 Save the workbook and close.

**Note**

The above macro is designed to change an entire worksheet. Sometimes it is more effective to record the macro *after* the range has been selected. The macro will then run on any selection.

- 10 Exit Excel. A message similar to the following will display:



- 11 To save the macro for future use, click on  Save.

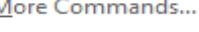
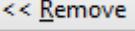
**Note**

As the **Formatting** macro was saved in the Personal Macro Workbook, it will be available to use in any workbook.

## Removing a Quick Access Toolbar Button

A menu item that has been added to a menu can be removed as follows.

### Exercise 157

- Click on the Customize Quick Access Toolbar button  and select .
- Select  from the right hand box and click on .
- Click on OK.

## New Workbook

A new macro workbook, other than the Personal Macro Workbook, can also be used to store macros. The New Workbook option is normally used for more specific macros, such as complex formula macros.

When the New Workbook option is selected, and the macro instructions are recorded, the new workbook will be created automatically and titled Book# (e.g. Book8). The workbook can be



Switch

Windows

accessed through the View Ribbon Switch Windows button and should be saved with a relevant file name, e.g. Macros Workbook.

Macros that are stored in such workbooks can be used in other workbooks but the macro workbook must be open. If the macro workbook is not open then the macros are not available. When macros are assigned to a menu or a button the New Workbook containing the macro will automatically open (and can be seen on the Switch Windows list).

## Macros in Templates

Macros are very effective when saved in templates as they are available when the template is used. Use ‘This Workbook’ option when storing macros with a template.

Save the template as an [Excel Macro-Enabled Template](#).

## Deleting a Macro

- 1 Open the workbook that contains the macro.

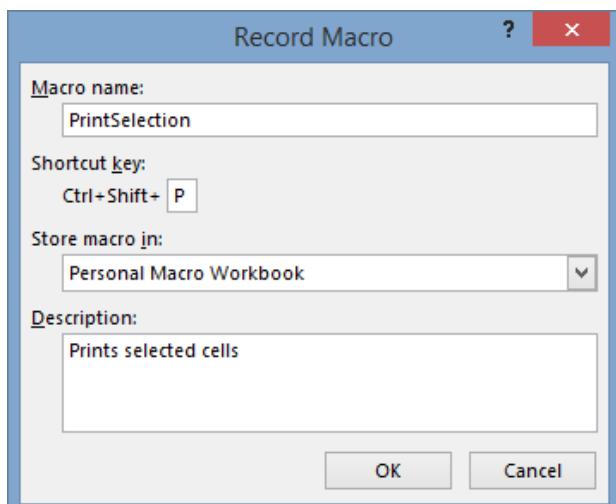


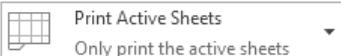
- 2 On the Developer Ribbon click on the View Macros button Macros, then click on the macro name.
- 3 Click on and click on Yes to confirm the deletion.

## Printing Macro

### Exercise 158

- 1 Open the workbook called **Creative Caps**.
- 2 Select cells A7 to H13.
- 3 On the Developer Ribbon click on Record Macro.
- 4 Type: **PrintSelection** in the *Macro name:* box.
- 5 Assign the macro to the shortcut key **Ctrl Shift P** by pressing Shift P in the *Shortcut key:* box.
- 6 Store the macro in the Personal Macro Workbook.
- 7 In the *Description:* box type: **Prints selected cells**.



- 8 Click on OK.
- 9 Click on **FILE** and click on **Print**.
- 10 Under Settings click on  and select .



- 11 Click on .
- 12 Press Ctrl Home.
- 13 Click on the Stop Recording button .
- 14 Save the workbook.
- 15 Select cells A15 to H21 and press **Ctrl Shift P** to print the selection.
- 16 Save and close the workbook.
- 17 Exit Excel. Save changes to **Personal.xlsx**.

## Cell Protection

There are two types of protection available within a workbook. Either or both of these options can be used.

- Workbook Protection
- Worksheet Protection

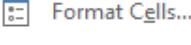
### Unlocking Cells

Cells are automatically locked in all worksheets of a workbook. If you wish to have cells ‘unprotected’ to enter data, then the cells to be made available for data entry must be unlocked **before** the worksheet/workbook is protected.



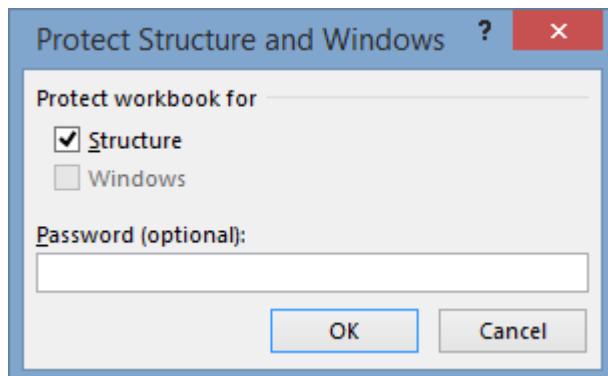
- a Select the worksheet, on the Home Ribbon click on  , select  , then select the Protection tab.
- b Remove the tick from the *Locked* check box and click on OK.



- c Select the cells to be locked, on the Home Ribbon click on  , select  , then select the Protection tab.
- d Add a tick to the *Locked* check box and click on OK.

## Protecting a Workbook

A workbook can be protected with or without a password to prevent changes to the worksheet *structure* of the workbook (worksheets cannot be deleted, inserted, renamed, copied, etc.), or to the *windows* of the workbook (windows cannot be resized, minimised, etc.).



Protect

Workbook

- a On the Review tab click on the Protect Workbook button . Click on OK.
- b Right click on a sheet tab and you will see that most of the ‘Sheet’ options are unavailable. Try to move a sheet by dragging on a sheet tab and you’ll find that this is not possible.

## Protecting a Worksheet

Although the workbook is protected, the cells within each worksheet are not. Each worksheet can be protected separately as follows:

- a Click on the worksheet to be protected. On the Review Ribbon click on the Protect Sheet button

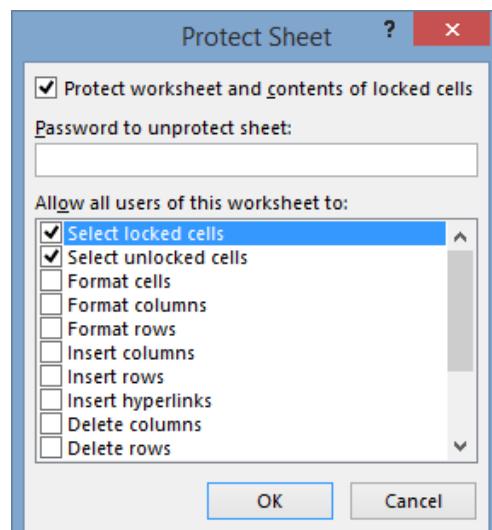


Protect  
Sheet .

### Note

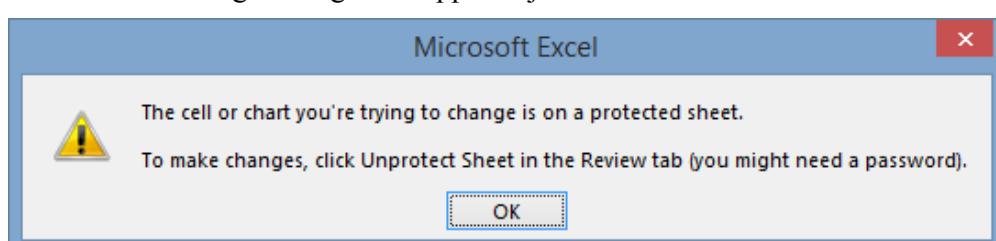
You can allow users of this worksheet to use various options by ticking the relevant check boxes. The *Select locked cells* and *Select unlocked cells* are default options.

- b Click on OK.
- c Save the workbook.



## Entering Data

Data can be entered into cells that have been unlocked but if data is entered into locked and protected cells the following message will appear - just click on OK.



## Unprotecting a Workbook/Worksheet

A workbook or worksheet can be unprotected on the Review Ribbon by clicking on

 Unprotect Sheet  Protect Workbook button or the active Protect Workbook button.

### Exercise 159

- 1 Open the workbook called **Cookery and Gardening Book Sales** which contains two worksheets. It contains no data, only formulas.
- 2 Group both worksheets so cells can be unlocked in both worksheets at once (i.e. Ctrl click on the Cookery Books sheet tab).
- 3 Select cells B3 to D3 then hold down the Ctrl key and select cells B5 to D10.

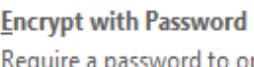


- 4 On the Home Ribbon click on  , click on  Format Cells..., then select the Protection tab.
- 5 Remove the tick from the *Locked* check box and click on OK.
- 6 Click anywhere in the worksheet to deselect cells.
- 7 Ctrl click on the Cookery Books sheet tab to ungroup.
- 8 Protect the Gardening Books worksheet, then protect the Cookery Books worksheet.
- 9 Enter data into some of the locked cells. Enter data into some of the unlocked cells.
- 10 Delete data then save and close the workbook.

## Password Protecting a Workbook

A workbook can be saved with a password by clicking on  FILE, then clicking



 [Encrypt with Password](#)  
 [Require a password to open this workbook](#). If a password is entered and the file saved that password will be required to open the workbook.

## Comments

### Adding Comments to Cells

Comments allow you to document instructions and/or formulas. Comments will now be added to the Cookery and Gardening Book Sales workbook to assist others when using the workbook.

Before adding comments to cells you will unprotect the worksheet.

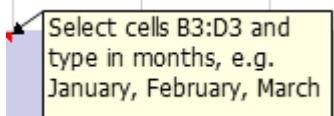
### Exercise 160

- 1 Open the workbook called **Cookery and Gardening Book Sales**.
- 2 Click on the Gardening Books tab and click on cell B3.



- 3 On the Review tab click on the Unprotect Sheet button .

- 4 Click on the New Comment button  **Comment**. Notice that the user name of your computer will appear at the top of the comment. Drag across the name then press the Delete key.
- 5 Type the following in the comment box.



- 6 Click in another cell in the worksheet. A red triangle will be displayed at the top right corner of cell B3.
- 7 Move the mouse pointer up to the red triangle and you will see the note displayed.



New

- 8 Click on cell B5, and click on the New Comment button  **Comment**. Delete the name and add another note as follows:

Select cells B5:D10 and type data, pressing Enter to move down each column.

- 9 Protect the worksheet again then save and close.

## Editing/Deleting/Printing Comments

Comments can be edited or deleted on an unprotected worksheet as follows.

- To edit a comment, right click on the cell containing the comment and choose



**Edit**

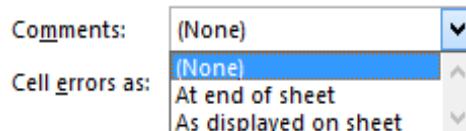
 **Edit Comment** OR click on the cell and click on the Edit Comment button  **Comment** on the Review Ribbon. Amend text as desired.

- To delete a comment, right click in the cell containing the comment and choose



 **Delete Comment** OR click on the cell and click on the Delete Comment button  **Delete** on the Review Ribbon.

- Click on a cell containing a comment and select  **Show/Hide Comment** on the Review Ribbon to permanently display the comment. Click on  **Show/Hide Comment** to hide the comment.
- To print comments go to the Page Layout Ribbon click on the Page Setup Dialog Box Launcher  Select the Sheet tab and click on the drop down arrow  next to **Comments:** in the Print section and select the required option (shown at the right).



# Templates

A template is a workbook that you create and use as the basis for other similar workbooks. A template can contain macros, formatting, styles, text, formulas, etc. The template is attached to a workbook so all these features are available (i.e. the workbook is *based on* the template).

With Excel, three types of templates can be used or created:

<i>Installed templates</i>	Templates installed along with Excel.
<i>Custom templates</i>	Templates created by the user.
<i>AutoTemplates</i>	A default template that can be attached to all workbooks when the Blank is selected. Other AutoTemplates used may include a worksheet template, chart template, etc.

## Installed Templates

The following templates are included with Excel 2013 and can be used to automate common tasks. They can contain powerful macros and formulas.

Template Name	Purpose
Billing Statement	Detailed statement of amounts due
Blood Pressure Tracker	Accurately record and report blood pressure
Expense Report	Itemise work-related expenses
Loan Amortization	Prepare the details of a loan and payments
Personal Monthly Budget	Projected and actual domestic budget
Sales Report	Filtered quarterly sales reports
Time Card	Calculate hours worked
Online Templates	As well as the inbuilt templates available in Excel 2013, there are many more templates available online.

## Using Installed Templates

### Exercise 161

1 Click on **FILE**, select **New**.

2 Click on *Invoice* from the *Suggested searches*.

Suggested searches: Budget Invoice Calendars Expense List Loan Schedule

3 Scroll down the list of option and select *Billing statement*.

USED UNDER LICENCE  
FOR TAFE QUEENSLAND BRISBANE  
ENROLLED STUDENTS ONLY

Your Company Name		Phone: (413) 555-0190 Fax: (413) 555-0191 E-mail: someone@example.com	
Street Address Address 2 City, ST ZIP Code			
Statement		Bill To: Name Company Name Street Address Address 2 City, ST ZIP Code	
Date	Type	Invoice #	Description
			Amount
			Payment
			Balance
Total \$ 0.00			
Reminder: Please include the statement number on your check.			
Terms: Balance due in 30 days.			
Customer Name: Enter customer name Customer ID: Enter customer ID Statement #: Enter statement number Date: June 1, 2013 Amount Due: \$0.00 Amount Enclosed:			

### Billing statement



- 4 Click on **Create** to create a new *workbook* (with BillingStatement1 displayed at the top of the screen) based on the Billing Statement *Template*. The BillingStatement1 worksheet is shown below.

#### Note

If you have not used this template previously, Excel may install the template.

A	B	C	D	E	F	G	H
		Enter your own company details here					
		<b>Your Company Name</b>					
2	Street Address	Phone: (413) 555-0190					
3	Address 2	Fax: (413) 555-0191					
4	City, ST ZIP Code	E-mail: someone@example.com					
5	Statement						
6	Add customer information here						
7							
8	Bill To: Name						
9	Company Name						
10	Street Address						
11	Address 2						
12	City, ST ZIP Code						
13							
14	Date	Type	Invoice #	Description	Amount	Payment	Balance
15							\$ -
16						Total	\$ -
17	Add details of individual invoices for the billing period						
18	Reminder: Please include the statement number on your check.						
19	Terms: Balance due in 30 days.						
20	REMITTANCE						
21	Customer Name: Enter customer name						
22	Customer ID: Enter customer ID						
23	Statement #: Enter statement number						
24	Date: October 27, 2013						
25	Amount Due: \$0.00						
26	Amount Enclosed:						

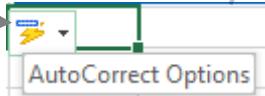
- 5 Select cell B1 and type the information below, using Enter to move to the next cell. Select cell F2 to enter the contact details.

## Sparkle Software

PO Box 1223  
78 Bent Street  
LINDFIELD NSW 2070

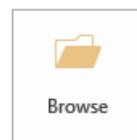
Phone: (02) 9206 4455  
Fax: (02) 9206 4456  
E-mail: accounts@sparklesoft.com.au

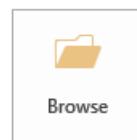
- 6 Click on the AutoCorrect Options marker under the email address.

Click on the drop down box and click on  Undo Hyperlink

- 7 Select cell B15 and set date format *Type:* to 14-Mar-2012

- 8 Select cell C8, *Enter statement number* of 4095.



- 9 Click on **FILE** then click on **Save As**. Click on .

- 10 In *Save as type:* click on the drop down box  and select *Excel Template*.

**Save as type:** Excel Template

- 11 Type: **Sparkle Invoice** as the file name.

- 12 Save and close the template.

### Exercise 162

- 1 Click on **FILE**, select **New** then click on **PERSONAL**.

- 2 From the Personal Templates tab double click on **Sparkle Invoice**.

- 3 Fill in the information shown below.

<b>Statement #:</b>	1001	<b>Bill To:</b>	Accounts Department
<b>Date:</b>	Today's date		The Design Studio
<b>Customer ID:</b>	981		25 Roberts Place ARTARMON NSW 2064

- 4 Scroll down and you will notice that most of the Remittance section has been entered automatically. Select cell C21 and type: **Gwen Wilson**

- 5 Add the following invoices pressing Tab to move to the next cell/row. Notice that *Amount Due:* in cell C27 updates automatically.

Date	Type	Invoice #	Description	Amount	Payment	Balance
03-Feb-14	Graphics	327	Adobe Software	\$3,850.00		\$ 3,850.00
12-Feb-14	Office	455	2013/Windows 8.1 Install	\$4,225.00	\$1,500.00	\$ 2,725.00
27-Feb-14	Accounts	620	MYOB	\$ 960.00		\$ 960.00
					<b>Total</b>	<b>\$ 7,535.00</b>

- 6 Save the workbook as **Design Studio** (ensure that you save to your working folder).

- 7 Print the worksheet then close.

#### Note

Look at other installed templates to see the powerful formulas and details that can be amended and customised for your own requirements.

## Creating a Custom Template

In the following exercise a simple template will be created for each branch of a company to enter sales and operating expenses each quarter. This template standardises data entered so that when the completed workbooks are returned to head office from the various branches they can easily be consolidated to show total sales and expenses for all branches.

### Exercise 163

- 1 Create a new workbook.
- 2 Rename *Sheet1* **Income Statement**.
- 3 Create the Income Statement shown below, and format as follows.
  - a Add borders, font sizes and shading as displayed below. (Months will be entered in cells B7 to D7. Right align and bold these cells.)
  - b Click in cell E9, click on the AutoSum button then select across cells B9:D9. Click on the AutoSum button again to insert the formula.
  - c Format cells B9:E9 to currency with no decimal places.
  - d Insert SUM formulas in the same way in cells E12:E16 to add those rows across.
  - e Format cells B12:E16 to currency with no decimal places, no \$ symbol.
  - f Insert SUM formulas in the same way in row 17 and appropriate formulas in row 19.
  - g Format rows 17 and 19 to currency with no decimal places.
  - h Remove worksheet gridlines by removing the check from the Gridlines box in the Show Group on the View Ribbon.

	A	B	C	D	E
1		<b>Spartacus Services Ltd</b>			
2		INCOME STATEMENT 2014			
3					
4		Branch: <input type="text"/>			
5					
6					
7		January		February	March
8					Total
9		Net Sales			\$0
10					
11		<b>Operating Expenses</b>			
12		Salaries			0
13					
14		Utilities			0
15					
16		Rent			0
17		Advertising			0
18		Cost of Goods Sold			0
19		<b>Total Operating Expenses</b>		\$0	\$0
		<b>Operating Income</b>		\$0	\$0

- 4 Centre on the page as follows.
  - a On the Page Layout Ribbon, click on the Page Setup Dialog Box Launcher and select the Margins tab.
  - b Click on the Horizontally and Vertically check boxes in the Center on page section.
  - c Click on OK.

- 5 Unlock data cells and protect the worksheet as follows.
- Click on cell C4. Hold down the Ctrl key and select cells B7:D7, B9:D9 and B12:D16.



Format

- On the Home Ribbon click on and select Format Cells... Select the Protection tab, click in the Locked check box to remove the , then click on OK.



Protect

Sheet

- On the Review Ribbon click on the Protect Sheet button Click on OK.

- 6 Click on the blank Branch cell (C4).

- 7 Click on and ensure is selected.

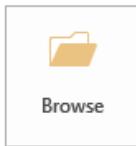


Advanced Properties

See more document properties

- 8 Click on and select

- 9 If available, ensure the Summary tab is displayed and check the *Save Thumbnails for All Excel Documents* box. Click on OK. (This allows you to view the template in the My Templates section of the New Workbook window.)



- 10 Click . Click on .

- 11 In *Save as type*: click on the drop down box and select *Excel Template..*

Save as type: Excel Template



- 12 Type: **Spartacus – Income** as the file name and click on Save.

- 13 Insert an additional worksheet called *Information* and document the purpose of this template and how to use it.

- 14 Print a copy of the *Information* worksheet.

- 15 Ensure the cursor is in cell C4 on the Income Statement worksheet. Save and close the template.

## Using a Custom Template

### Exercise 164

- 1 Click on **FILE**, select **New** then click on **PERSONAL**.
- 2 Click on the **Spartacus - Income**. If *Save Thumbnails for All Excel Documents* has been checked (see last exercise), a preview of the template will be displayed in the Preview area.

FEATURED PERSONAL



Sparkle Invoice

A	B	C
1	<b>Spartacus Services Ltd</b>	
2	INCOME STATEMENT 2014	
3		
4	Branch:	
5		
6		
7		
8		
9	Net Sales	
10		

Spartacus - Income

A new document based on the **Spartacus - Income** template will be created with the name **Spartacus – Income1** displayed at the top of the screen.

- 3 Type: **Brisbane** in the Branch cell.
- 4 Type: **January** in cell B7 and drag the fill handle to cell D7.
- 5 Enter figures as shown below. As figures are entered the formulas will change and cells will be formatted accordingly.

A	B	C	D	E	
<b>Spartacus Services Ltd</b>					
INCOME STATEMENT 2014					
Branch: <b>Brisbane</b>					
7	January	February	March	Total	
9	Net Sales	\$30,000	\$38,000	\$32,000	\$100,000
11	<b>Operating Expenses</b>				
12	Salaries	5,000	8,000	5,400	18,400
13	Utilities	2,300	1,200	1,500	5,000
14	Rent	2,500	3,200	2,500	8,200
15	Advertising	1,000	4,500	3,800	9,300
16	Cost of Goods Sold	15,000	14,000	12,500	41,500
17	<b>Total Operating Expenses</b>	\$25,800	\$30,900	\$25,700	\$82,400
18	<b>Operating Income</b>				
19		\$4,200	\$7,100	\$6,300	\$17,600

- 6 Click on **FILE** and click on **Save As**. Ensure that you are in your working folder.
- 7 Type: **Brisbane, Jan-Mar** as the file name.
- 8 Click on **Save**.
- 9 Close the workbook.

## Saving a Template to a USB

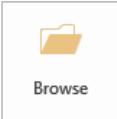
When a template is created by a user and then saved, it will automatically save to a Custom Office Templates folder located on the C: drive.

This template will then be available by clicking on **FILE**, **New** and then clicking on **PERSONAL**. All templates created by the user will display.

However, templates can also be saved to a USB. This will allow the user to take the template with them and use the template on any computer.

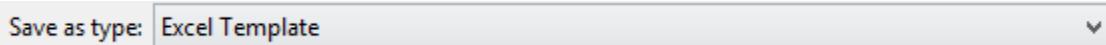
### Saving a Template to a USB

- a After all the elements of the template have been created, click on **FILE** then **Save As**.



Click on **Browse**.

- b In **Save as type:** click on the drop down box and select *Excel Template*.



- c Enter the file name for the template.

- d Navigate to the USB drive and the folder required. Click on **Save**.

- e Close the template.

### Using a Template Saved to a USB

To create a new document based on a template saved to a USB



- a Open File Explorer from the Task Bar.
- b Navigate to the USB and folder where the template is saved.
- c Right click on the template file and select **New** from the Shortcut Menu.

A new document based on the template will be created with the name **Template1** displayed at the top of the screen.

## Changing a Workbook to a Template

An existing workbook can easily be changed to a template by deleting data from the workbook, unlocking the cells and protecting the worksheet, then saving it as a template. The template in this exercise will be saved to a USB.

### Exercise 165

- 1 Open the workbook called **Townsville, Jan-Mar**.



- 2 On the Review Ribbon click on the Unprotect Sheet button



- 3 Select rows 3 to 5 and on the Home Ribbon click on to delete the rows.



- 4 Select rows 8 to 13 and on the Home Ribbon click on to delete the rows.

- 5 Change the subheading of the worksheet to **Quarterly Report**.

	A	B	C	D	E
1	Spartacus Services Ltd				
2	Quarterly Report				
3					
4		January	February	March	YTD
5					
6	Net Sales	\$30,000	\$38,000	\$32,000	\$100,000
7					
8	Total Operating Expenses	#REF!	#REF!	#REF!	#REF!
9					
10	Operating Income	#REF!	#REF!	#REF!	#REF!

- 6 Select cells B6:D6 and delete the numbers.
- 7 Select cells B8:D8 and delete the #REF! errors, so the calculations will work.
- 8 Rename the sheet tab to Quarterly Report.

- 9 With the cursor in cell B6 click on then click on .
- 10 In *Save as type:* click on the drop down box and select *Excel Template*.

Save as type: Excel Template

- 11 Type: **Spartacus - Quarterly Report** as the file name for the template.
- 12 Navigate to the USB drive and the folder required. Click on Save.
- 13 Close the template.

## Embedding Cell References in a Formula

### Exercise 166

- 1 Open the workbooks **Brisbane, Jan-Mar** and **Townsville, Jan-Mar**.
- 2 Open File Explorer  from the Task Bar.
- 3 Navigate to the USB and folder where the template is saved.
- 4 Right click on the template file **Spartacus - Quarterly Report** and select **New** from the Shortcut Menu.
- 5 A new document based on the template **Spartacus Quarterly Report** will be created with the name **Spartacus - Quarterly Report1** displayed at the top of the screen.
- 6 In cell B6 type: =



Switch

- 7 On the View Ribbon click on the Switch Windows button **Windows** and click on **Brisbane, Jan-Mar** to switch to that workbook OR select from the Taskbar. (This may be displayed as a list if other programs are being used.)
- 8 Click in B9 and type: +



Switch

- 9 Click on **Windows** and click on **Townsville, Jan-Mar** to switch to that workbook.
- 10 Click in B9 and press Ctrl Enter. The calculation will display as shown below.  
= '[Brisbane, Jan-Mar.xlsx]Income Statement'!\$B\$9+'[Townsville, Jan-Mar.xlsx]Income Statement'!\$B\$9  
The statement in square brackets **[Brisbane, Jan-Mar.xlsx]** refers to the workbook that the cell resides in, followed by the name of the worksheet, **Income Statement**, and the absolute reference of the cell **!\$B\$9**.
- 11 Delete the \$ absolute reference indicators in the above calculation so it can be copied across the row. Press Ctrl Enter.
- 12 Drag the fill handle across to cell D6.
- 13 Add embedded calculations to cells B8 to D8.

A	B	C	D	E	
1	<b>Spartacus Services Ltd</b>				
2	Quarterly Report				
3					
4	January	February	March	YTD	
5					
6	Net Sales	\$60,000	\$76,000	\$64,000	\$200,000
7					
8	Total Operating Expenses	\$51,600	\$61,800	\$51,400	\$164,800
9					
10	Operating Income	\$8,400	\$14,200	\$12,600	\$35,200

- 14 Save the workbook as **Quarterly Report - Brisbane, Townsville**.
- 15 Print and close. Close remaining workbooks.

## Updating Embedded Cell References

### Exercise 167

- 1 Open the workbook **Brisbane, Jan-Mar**.
- 2 Change the Net Sales for February to \$42,000. Save and close.
- 3 Open the **Quarterly Report- Brisbane, Townsville**. (Enable the update of links).
- 4 Compare the print version of the workbook with the screen version.
- 5 The February Net Sales are now \$80,000 and the Operating Income for February has increased to \$18,200. Because these cells are linked the calculations will change according to the changes in the attached workbooks.
- 6 Save and close the workbook.

### Exercise 168

- 1 Open the workbook called **Cookery and Gardening Book Sales** from your working folder. Delete any data that is in the worksheet, leaving formulas intact.



- 2 Click on **FILE** then click on **Save As**. Click on **Browse**.
  - 3 In *Save as type:* click on the drop down box and select *Excel Template..*
- Save as type:** **Excel Template**
- 4 Type: **Book Sales** as the name for the template. Click on Save.
  - 5 Close the template.

#### Note

To use the template each quarter, you would click on **FILE**, select **New** then **PERSONAL**, select the **Book Sales template**, then click on OK and save with an appropriate workbook file name.

## Additional Exercises

In the following exercises you will create a Costing template for Kilarney Builders that will be used each month. It will contain a worksheet for each week with styles, macros, cell protection, comments and formulas.

A Summary worksheet will also be inserted to summarise the number of hours contractors have worked on each property.

	A	B	C	D	E	F	G
1	Kilarney Builders Ltd						
2							
3	Costing for week ending:						Print Worksheets
4							
5	Builder	\$30.00	GST	10%			
6	Electrician	\$35.00					
7	Painter	\$25.00					
8	Plumber	\$32.00					
9							
10	Property	Contractor	Rate	Hours	Total	GST	Total +GST
11							
12	22 Fernlea Place	Builder	\$30.00	45	\$1,350.00	\$135.00	\$1,485.00
13	8 Cheval Drive	Painter	\$25.00	30	\$750.00	\$75.00	\$825.00
14	55 Target Road	Builder	\$30.00	40	\$1,200.00	\$120.00	\$1,320.00
15	4A Te Kea Place	Plumber	\$32.00	20	\$640.00	\$64.00	\$704.00
16	14 Merida Place	Electrician	\$35.00	15	\$525.00	\$52.50	\$577.50
17	28 Stanley Street	Painter	\$25.00	35	\$875.00	\$87.50	\$962.50
18	90 Bracken Avenue	Plumber	\$32.00	10	\$320.00	\$32.00	\$352.00
19							
20	Totals			195	\$5,660.00	\$566.00	\$6,226.00

### Exercise 169

- 1 Create the **Kilarney Builders Ltd** costings workbook shown above.
- 2 Create a VLOOKUP formula in column C to determine the rate for each contractor.
- 3 The Total column will be Hours x Rate.
- 4 Put a label, GST, in D5 and the GST amount, 10%, in E5. Use an absolute reference to this cell to calculate the GST then insert a formula to calculate the Total+GST column.
- 5 Put a border around the Date cell, B3 (i.e. Week ending:) and format to day, month, year.
- 6 Add a comment to the date cell, B3, as follows.  
Type Friday's date or end-of-month date
- 7 Resize the comment if necessary.
- 8 Create Totals in row 20 for Hours, Total, GST and Total+GST.
- 9 Format all cells as shown above.
- 10 Change Page Setup to *Landscape* option.
- 11 Protect the Total, GST and Total+GST formulas. (Unlock all cells, lock cells E12 to G20, then protect the sheet.)
- 12 Double click on the Sheet1 tab and type: **Week 1**. Press Enter.
- 13 Position the mouse pointer over the *Week 1* sheet tab.

- 14 Hold down the Ctrl key and click and drag the mouse pointer to the right .
- 15 Double click on the Week 1 (2) tab, type: **Week 2** and press Enter.
- 16 Ctrl click and drag to copy more worksheets. Repeat until there are four weekly sheet tabs and rename the new sheets as Week 3 and Week 4.
- 17 Delete the remaining blank worksheets.
- 18 Save as an *Excel Macro-Enabled Template* called **Kilarney - Weekly Costings**
- 19 Leave the workbook open for the next exercise.

### **Inserting a Summary Worksheet**

#### **Exercise 170**

- 1 Using the template **Kilarney - Weekly Costings**, hold down the Ctrl key and drag the Week 1 sheet tab to the right.
  - 2 Rename as **Summary** and ensure the sheet tabs appear as shown below.
- 
- 3 On the Summary sheet tab amend the heading 'Costings for week ending:' to 'Summary for month:'.
  - 4 Unprotect the Summary worksheet and delete rows 5 to 8.
  - 5 Select cells B6 to C16. Right click and use the shortcut menu to delete the cells and shift cells to the left.
  - 6 Click on cell B8 and enter a formula which will combine all hours worked for the month from each worksheet as follows.
  - 7 Type: = Click on the Week 1 sheet tab and click on cell D12.
  - 8 Type: + Click on the Week 2 sheet tab and click on cell D12.
  - 9 Type: + Click on the Week 3 sheet tab and click on cell D12.
  - 10 Type: + Click on the Week 4 sheet tab and click on cell D12.
  - 11 Press Ctrl Enter. The formula will be displayed on the Formula bar as shown below.

='Week 1'!D12+'Week 2'!D12+'Week 3'!D12+'Week 4'!D12

- 12 Use the fill handle to copy the formula down the column to B14.
- 13 Create formulas using similar steps for C8 and fill down the column.
- 14 Ensure calculations for GST and Total+GST are correct. The totals in row 16 will calculate.
- 15 In Week 2, Week 3 and Week 4 worksheets delete the data from cells B12:B18 and D12:D18. Data will be entered into the template for each week.
- 16 Protect the *Summary* worksheet.
- 17 Save the template and leave it open for the next exercise

## **Creating a Macro**

### **Exercise 171**

- 1 Using the template **Kilarney - Weekly Costings**, click on the Week 1 sheet and unprotect it.
- 2 In cell G1 create a macro stored in this workbook and assigned to a button labelled with the text **Print Worksheets**. This macro will use **FILE** and **Print** to print the entire workbook.
- 3 Protect the worksheet.
- 4 Add an *Information* worksheet. Give details of the purpose of this workbook and how to use the workbook, the macro, etc.
- 5 Save and close the template.

## **Using the Costings Template**

### **Exercise 172**

- 1 Create a new document based on your **Kilarney - Weekly Costings** template.
- 2 Enable macros for the workbook.
- 3 Click on the Week 1 sheet tab and add the date **7 March 2014**.
- 4 Add the following details to *Week 2*, *Week 3* and *Week 4* sheets.

*Week 2* - Date as 14 March 2014

<b>Property</b>	<b>Contractor</b>	<b>Rate</b>	<b>Hours</b>	<b>Total</b>
22 Fernlea Place	Builder	\$30.00	45	\$1,350.00
8 Cheval Drive	Electrician	\$35.00	20	\$700.00
55 Target Road	Builder	\$30.00	35	\$1,050.00
4A Te Kea Place	Electrician	\$35.00	12	\$420.00
14 Merida Place	Painter	\$25.00	18	\$450.00
28 Stanley Street	Builder	\$30.00	25	\$750.00
90 Bracken Avenue	Electrician	\$35.00	5	\$175.00

*Week 3* - Date as 21 March 2014

<b>Property</b>	<b>Contractor</b>	<b>Rate</b>	<b>Hours</b>
22 Fernlea Place	Painter	\$25.00	45
8 Cheval Drive	Plumber	\$32.00	10
55 Target Road	Electrician	\$35.00	12
4A Te Kea Place	Painter	\$25.00	35
14 Merida Place	Builder	\$30.00	25
28 Stanley Street	Electrician	\$35.00	32
90 Bracken Avenue	Builder	\$30.00	9

Property	Contractor	Rate	Hours
22 Fernlea Place	Electrician	\$35.00	22
8 Cheval Drive	Builder	\$30.00	10
55 Target Road	Painter	\$25.00	15
4A Te Kea Place	Plumber	\$32.00	7
14 Merida Place	Builder	\$30.00	40
28 Stanley Street	Plumber	\$32.00	18
90 Bracken Avenue	Builder	\$30.00	25

- 5 Click on the Summary sheet tab to see that the formulas have calculated to create a summary of figures entered so far for the month.
- 6 On the Summary sheet, add the end of month date (31 March 2014) in cell B3.
- 7 Use the **Print Worksheets** Macro button to print the entire workbook.
- 8 Save the workbook as **March 2014**.
- 9 Close the workbook.

**Note**

Next month you would delete data from the *Week 1* worksheet and resave this template.

## Importing and Exporting

Importing a spreadsheet file into Excel is simple - just click on **FILE** and then click on **Open**. From the Open dialog box, select the file type, select the file and choose Open. Excel will automatically convert the file and display it on screen.

To export a spreadsheet in Excel, click on **FILE** and then click on **Save As**. Click on **Save as type:** **Excel Workbook** and select the file type required. Excel will convert the file to the format chosen.

Excel has a limited number of conversion options available and a file may need to be imported or exported as a text file. If exported as a text file, all formatting will be lost - bold, lines, column width, row height, etc. If importing a text file there will be no formatting and the data will just appear in columns and rows.

To retain some of the formatting in a spreadsheet it is advisable to open the spreadsheet in the program it was created in and save with a file type that Excel can accept. Not all formatting and features used in one program will be able to be used in another program.

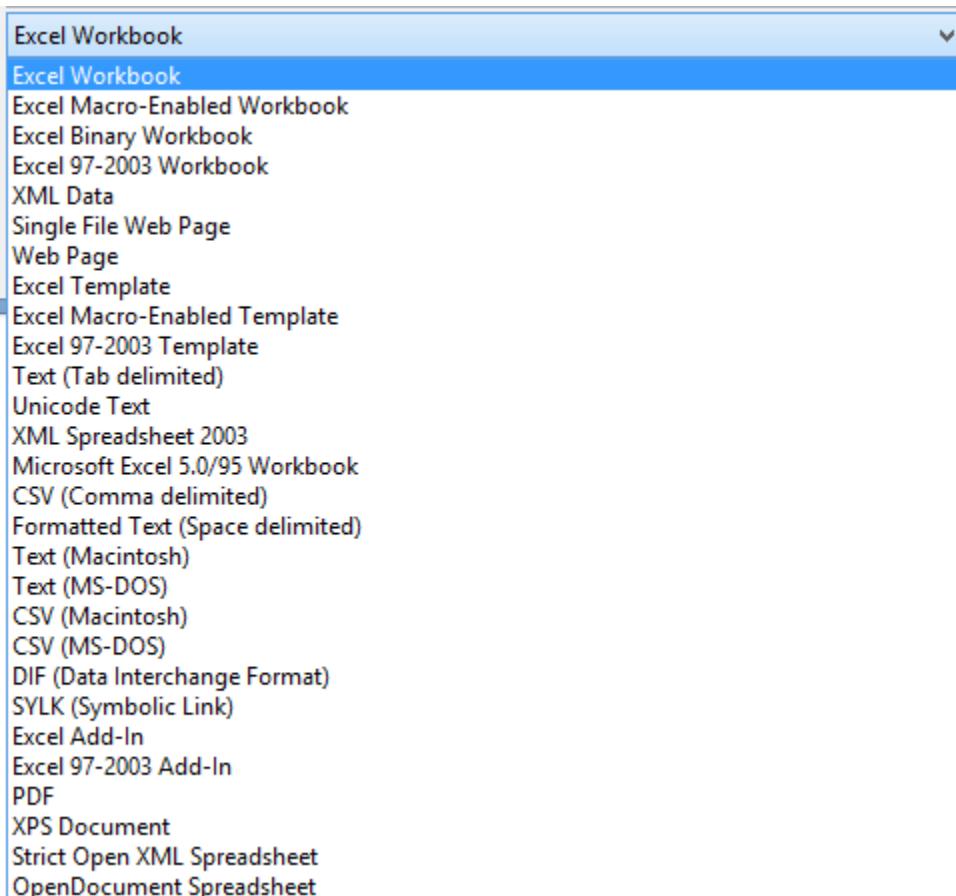
## Exporting to Another Format

### Exercise 173

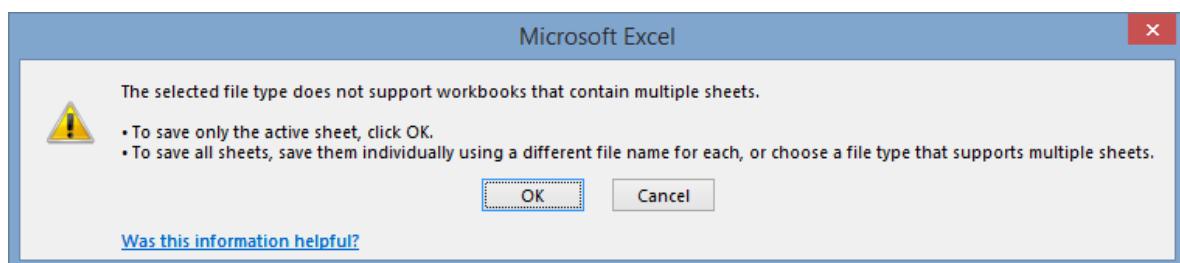
- 1 Open the workbook called **Company List**.

- 2 Click on **FILE** and then click on **Save As**. Navigate to your working folder. Click on **Save as type:** **Excel Workbook**

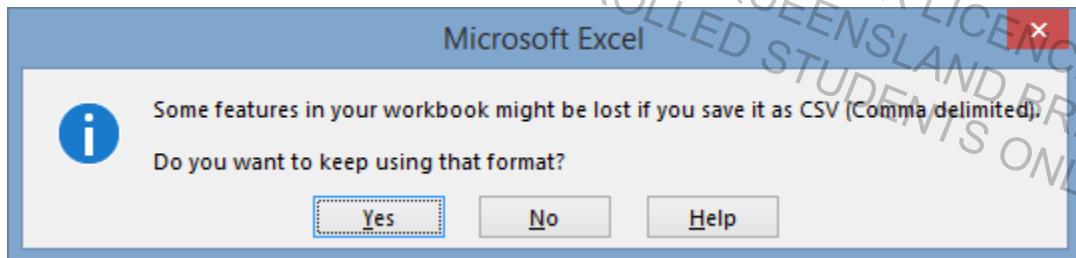
which will display the list shown below:



- 3 Select **CSV (Comma delimited)** to save the file with the same file name. It can then be imported into an accounting package or database package. Click on Save and when you are warned that the selected file type does not support workbooks that contain multiple sheets click on OK.



- 4 The following dialog box will display, warning you about features such as bold, etc. not being compatible with the CSV format.



- 5 Click on Yes and close the workbook without saving.

- 6 Click on **FILE** and then click on **Open**. Click on the drop down next to **All Excel Files** and select **All Files**.

The Company List files displays as a Microsoft Excel Comma Separated Values File.



Microsoft Excel Comma Separated Values File

#### Note



The icon displayed for this file is different to a normal Excel workbook.

- 7 Right click on the file and select Properties. The General tab displays the following file information.

Type of file: Microsoft Excel Comma Separated Values File (.csv)  
Opens with: Excel (desktop)

- 8 Click on OK to close the Company List Properties dialog box, then open the file.

- 9 Notice that all the formatting in the worksheet has been deleted.

- 10 Close the workbook.

## Importing a Text File into Excel

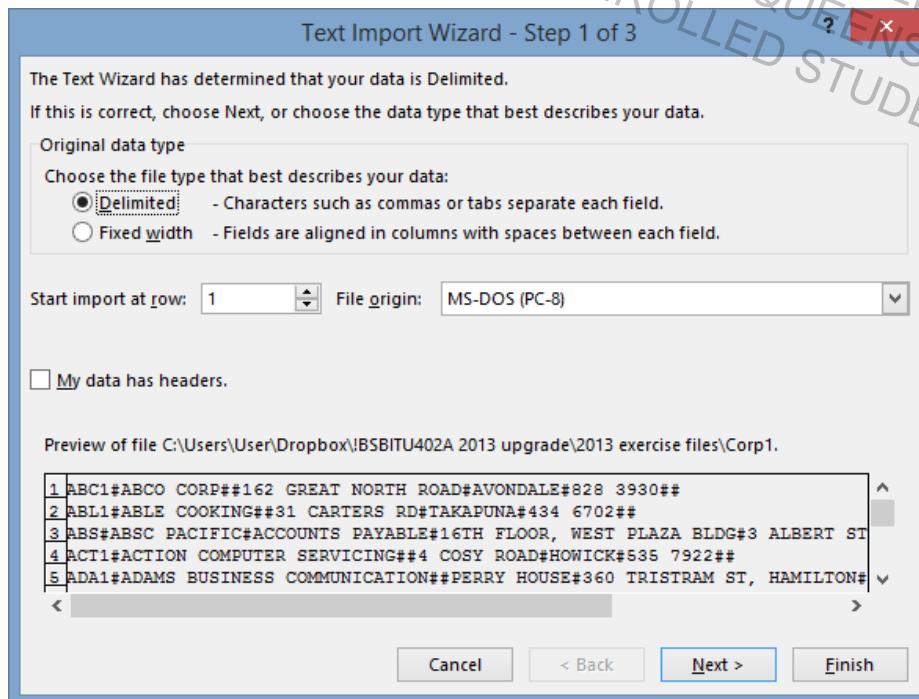
In the following exercise you will convert a text file that contains a list of names and addresses from a database using the Text Import Wizard. This wizard will allow you to select columns of data and change to the correct format required.

#### Exercise 174

- 1 Click on **FILE** and then click on **Open**. Navigate to your working folder. Click on **All Excel Files** and select **All Files**.
- 2 Select the file called Corp1 which is a Microsoft Works Spreadsheet file. Click on Open.
- 3 Excel displays a warning message. Click on Yes.

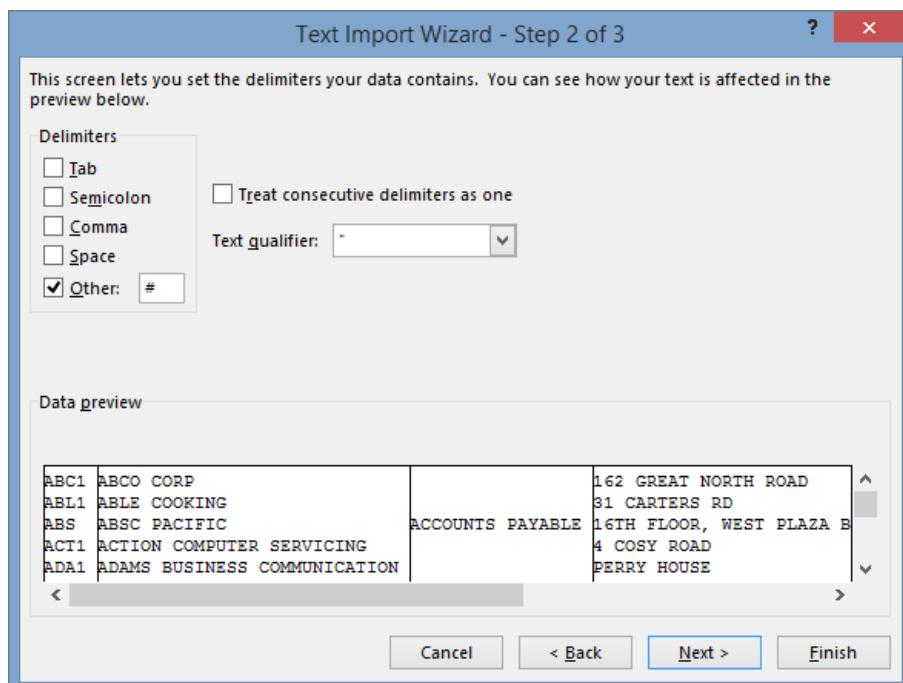


Excel automatically reads the file as a text file and displays the Text Import Wizard as shown below.

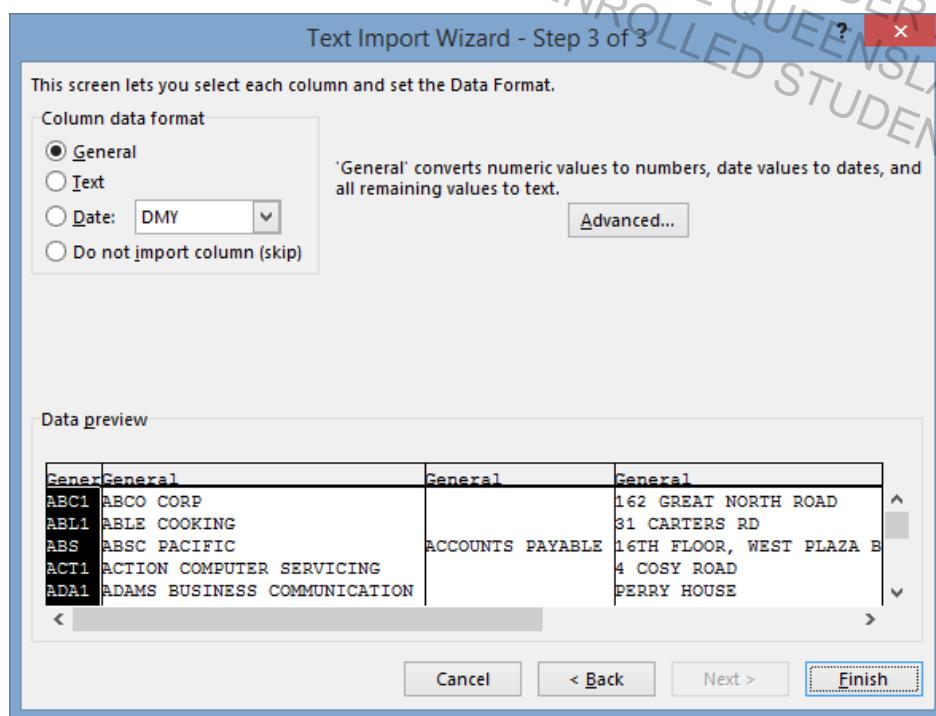


- 4 Ensure the *Delimited* option is chosen and that the *Start import at row:* box reads **1**.
- 5 Click on **Next >**.
- 6 Uncheck the Tab option by clicking in the *Tab* check box.
- 7 Click in the *Other:* check box and type: **#** as shown below. (The # symbol is used to separate fields that may contain delimiters within them, e.g. spaces, tabs etc.)

The Data preview box has changed to display the different fields/columns.



- 8 Click on **Next >**



The word *General* appears at the top of each column in the Data preview section. This indicates the format that will be applied to cells in that particular column. To change the format you can click in the column required and then select the required format in the Column data format section.

- 9 Click on **Finish**. The text will appear on one worksheet called *Corp1*.
- 10 Select columns A to F then double click on a column divider to widen columns OR on the



Home Ribbon click on **AutoFit Column Width**.

- 11 Click on **FILE** and then click on **Save As**. Navigate to your working folder. The *Save as type:* shows the original format of the data; *Text (Tab delimited)*.
- 12 Click on **Save as type: Text (Tab delimited)** and select *Excel Workbook*. Leave the file name as **Corp1** then click on Save.
- 13 Close the workbook.

## Additional Importing Exercise

### Exercise 175

- 1 Open the text file called **Gym Membership**.
- 2 Work through the Text Import Wizard.
- 3 Import using Delimited text and Tab as the Delimiters.
- 4 Format the worksheet attractively.
- 5 Save the file in Excel 2013 format as **Gym Membership**.
- 6 Close the workbook.

## Checking Data

Before data is exported from Excel it is important to check that the data in the workbook is correct. The following may assist:

- Check that all details are correct - name, address, etc.
- If the workbook is set up for a database check to make sure that the correct data is in the correct field - this is important because you do not want an address appearing in the phone field. Use the split screen feature or the freezing panes option to leave the field names at the top of the screen so you can scroll down the worksheet to check.
- Spell check the workbook. If the workbook is set up for a database try selecting the columns you need to check, then run spell check.
- Double check all calculations using the Auditing feature (or a calculator, or Windows Calculator) to assist you.

### Exercise 176

- 1 Click on **FILE** and then click on **Open**. Navigate to your working folder. Click on **All Excel Files** and select Text Files.
- 2 Ensure **Designer Images Products** is selected and click on Open.
- 3 Work through the Text Import Wizard, using the Delimited option and selecting Comma as the delimiter.
- 4 It is essential to proofread and check the data that has been imported. Use the points above in *Checking Data* to check the current workbook.
- 5 Add five rows to the top of the imported workbook.
- 6 Add the headings to the workbook shown below.

A	B	C	D	E	F	G	H	
<b>Designer Images</b>								
Product Listing								
Product	ID	Product Name	Supplier	Category	Unit Price	Units in Stock	Units on Order	Reorder Level
	5	1 Waterford Wine Glasses	Waterford Ltd	Glassware	\$24.00	150	0	20

- 7 Add a column between columns F and G. Type in a heading of **Total Stock Value** and right align.
- 8 Add a relevant calculation to the new column.
- 9 In cell A32 type: **Total** and bold.
- 10 In row 32 total relevant columns.
- 11 Add a single top line and double bottom line to the totals.
- 12 Rename the worksheet **Products**.
- 13 Save the workbook in Excel 2013 format.
- 14 Split the screen horizontally at row 7 and scroll down to compare the prices of Waterford Champagne Glasses with Palio Gold Champagne Flutes.
- 15 Remove the split window.

- 16 Add a new worksheet to the workbook.
- 17 Name the sheet tab **Summary**.
- 18 Add the following text to the new worksheet.

A	B
1	<b>Designer Images</b>
2	<b>Summary</b>
3	
4	Average Unit Price
5	Minimum Unit Price
6	Maximum Unit Price
7	
8	Average Total Stock Value
9	Minimum Total Stock Value
10	Maximum Total Stock Value

- 19 In column B calculate the above averages, minimums and maximums using the **Products** worksheet.
- 20 In column C type in (or copy from the **Products** sheet) the name of the products matching the Minimum and Maximum amounts displayed in column B.
- 21 Print both worksheets.
- 22 Save and close the workbook.

#### Exercise 177

- 1 You work for RSM Manufacturing Ltd and have been asked to create a Wages template that will be used each week to enter hours worked by employees.
- 2 Type the list of Employees with surname first, then first name, e.g. Eaton, Andrew.
- 3 Sort by surname

<b>Hourly Pay Rates</b>	
Machinist	\$23.50
Office	\$28.00
Packer	\$20.50

<b>Tax Rates</b>		
\$25 or under per hour		25%
Over \$25 per hour		33%

<b>Employee</b>	<b>Position</b>	<b>Hourly Rate</b>	<b>Hours</b>
Andrew Eaton	Packer		
Courtney Ewens	Machinist		
Elizabeth Sinclair	Office		
Juan Garcia	Machinist		
Lachlan Roberts	Machinist		
Melissa Potter	Office		
Tan Nyugen	Packer		

- 4 Format the worksheet to best effect.
- 5 Use a VLOOKUP to enter the appropriate Hourly Rate.
- 6 Insert columns and formulas for the following:

**Gross Pay****Tax****Net Pay**

- 7 Insert formulas for a Totals row.
- 8 Create a macro and assign it to a macro button at the top of the worksheet (with text *Enter Hours*). This macro will select the cells in the Hours column which will allow the user to enter hours in, pressing Enter after each figure.
- 9 Save the template to the template folder as **Wages**. Print the template then close.
- 10 Type instructions on how to use the template and the macro.
- 11 Use the **Wages** template for week ending 10 November 2013. Click on the *Enter Hours* macro button and type in the following:

<b>Employee</b>	<b>Hours</b>
Eaton, Andrew	25
Ewens, Courtney	30
Garcia, Juan	40
Nyugen, Tan	15
Potter, Melissa	35
Roberts, Lachlan	22
Sinclair, Elizabeth	20

- 12 Save the worksheet as **Wages 10 Nov**, print and close.

## **Revision**

- 1 What is a macro?

.....  
.....  
.....

- 2 Where can macros be stored? Explain each option.

.....  
.....  
.....  
.....  
.....

- 3 List the three different ways a macro can be assigned.

.....  
.....  
.....  
.....

- 4 Explain the advantage of using templates.

.....  
.....

- 5 What is Data Validation and why would it be used?

.....  
.....

- 6 Why would you protect a worksheet?

.....  
.....

- 7 Briefly describe how a workbook can be saved as a template.

.....  
.....

- 8 Write a short explanation of the purpose of the default template. Include a reason why you would change it and how you would do this.

.....  
.....  
.....  
.....

# Practice Assessment

Time allowed for completion, as specified by trainer: .....

## Part 1

- 1 You work for Connections Toys. Create the worksheet using the information shown below. Save the workbook as **Connections Toys**. Print a copy.
- 2 On the print out of your worksheet indicate which data would be used on a column chart to show the sales for each country for each quarter.
  - Legend
  - X-Axis Labels
  - Data to be graphed
- 3 Sort the data into order of country in ascending order.
- 4 Create the column chart as a separate worksheet named as **Sales Chart**. Specify each quarter as the legend.

### **Worldwide Sales for 2013**

<b>1<sup>st</sup> Quarter</b>	Australia \$105,000; Brazil \$85,000; United States \$199,000; United Kingdom \$153,000; China \$62,500; South Africa \$75,000
<b>2<sup>nd</sup> Quarter</b>	Australia \$95,600; Brazil \$92,300; United States \$357,000; United Kingdom \$169,000; China \$52,500; South Africa \$84,000
<b>3<sup>rd</sup> Quarter</b>	Australia \$87,500; Brazil \$75,000; United States \$224,785; United Kingdom \$158,700; China \$49,000; South Africa \$70,400
<b>4<sup>th</sup> Quarter</b>	Australia \$160,200; Brazil \$96,000; United States \$391,255; United Kingdom \$180,250; China \$82,000; South Africa \$96,100

- 5 Create a pie chart as a separate worksheet called **Quarterly Sales Chart** to show the total sales for each quarter.
- 6 Under the data, create a pie chart to show the total sales for each country with percentages displayed. Explode the segment for the country with the largest sales.
- 7 Save, and print all worksheets.

## Part 2

As the Sales Manager for Allied Trade you need to calculate the bonus of each sales person from each branch. You have been given the amount each person has generated in sales from the accountant (see below).

To calculate the bonus, add the statement that the target is \$2,800 so the target can be changed - if a sales person generates more than \$2,800 they receive a 10% bonus of the amount of sales they have generated, rounded to the nearest \$10. Ensure the 10% bonus is specified as an absolute cell reference. If the amount is \$2,800 or less they do not receive a bonus.

- 1 Create a workbook for each branch listing each sales person, their amount and bonus, and the average, minimum and maximum amounts and bonuses generated by that branch. Totals for amounts and bonuses are required.
- 2 Create a chart for each branch, which identifies the sales person, the amount and bonus achieved. Change the Y-axis scale so the maximum is 4,600 and the major unit 200.
- 3 Produce a summary workbook that links the bonus and amount totals from each branch.
- 4 Create a relevant chart to show the bonuses for each branch. In a pie chart explode the branch that has had the most sales.

<b><u>Perth</u></b>	<b><u>August</u></b>
<b>Name</b>	<b>Amount</b>
Collins, Ken	2,500
Allan, Geoff	2,654
Palmer, Kathy	4,587
Lien, Thuy	3,877
Bluhm, Hans	3,456
Kim, Lee	2,998
Rawson, Leith	3,758
Brent, Helen	4,025
Ramirez, Carlos	3,678
Potter, Rachel	3,241
Saleh, Mohamed	2,677

<b><u>Adelaide</u></b>	<b><u>August</u></b>
<b>Name</b>	<b>Amount</b>
Gibbons, Simon	2,021
Affriat, Lydia	3,832
Anderson, Ross	3,435
Marshall, Lucy	2,495
Hill, Tim	3,064
Williams, Hamish	3,228
Taylor, Wayne	2,348
Chen, Mae	2,703
Nicholas, Colin	3,590
Gibbs, Mark	2,222
Mazaydeh, Manal	2,895

<b><u>Melbourne</u></b>	<b><u>August</u></b>
<b>Name</b>	<b>Amount</b>
Singh, Anil	2,143
Jackson, Trent	2,385
McLeod, Robert	3,512
Wilson, Sarah	4,611
Carter, Garry	3,442
Hansen, Bruce	4,429
Marley, Katherine	3,652
Perkins, Lisa	2,930

Management has decided to give each sales person an increase in their bonus rate to 15%. Alter all branch workbooks to reflect the new increase.

- 5 Update the summary workbook to show the changes made in the branch workbooks.
- 6 Print all workbooks including each chart.
- 7 Perth management wants to create a template from their Branch workbook. (Other branches may follow). Alter the Perth workbook so that a month can be added, along with a new target and sales figures for each person.
- 8 Ensure all other areas of the template is protected. Print the template.
- 9 Using the Perth template add the following figures for September and save with a new name. Ensure the new Target for September of \$2,900 is inserted.

<b>Perth</b>	<b>SEPTEMBER</b>
<b>Name</b>	<b>Amount</b>
Collins, Ken	2,900
Allan, Geoff	2,524
Palmer, Kathy	4,579
Lien, Thuy	3,337
Bluhm, Hans	4,466
Kim, Lee	3,879
Rawson, Leith	3,780
Brent, Helen	4,025
Ramirez, Carlos	3,822
Potter, Rachel	3,491
Saleh, Mohamed	3,687

- 10 Print the Perth September workbook and chart.

# A

## Assessment

---

*The purpose of the assessment is to assess competency in:*

BSBITU402A Develop and use complex spreadsheets.

# Instructions for the Assessor

## Exercise Files

The exercise files required for the assessment are downloaded before the candidate starts the workbook. If the candidate has accidentally deleted their exercise files, a new version can be downloaded following the instructions provided in the Study Guide.

## Assessment Conditions

Set a time limit for the assessment as appropriate for your learning institution.

Use the space provided on page 197 to describe any conditions specific to your training organisation if required.

## Reasonable Adjustment

Under the Disability Discrimination Act 1992, where possible, reasonable adjustment can be made to the assessment process.

Adjustment of assessment for this unit can be made for:

Learning disability	Additional time can be allocated to complete the assessment tasks.
Sensory impairment	A candidate may need adaptive technology or an interpreter.
Intellectual disability	Additional time can be allocated to complete the assessment tasks.
Mental health issues	Additional time can be allocated to complete the assessment tasks.
Physical impairment	A candidate may not be able to physically complete an activity but can instruct a person to complete it successfully

# Information for Candidates

## Assessment Method

This unit will be assessed in the following ways:

- observation of computer use
- sketching and creating workbook templates
- creating and updating workbooks based on templates
- Answering theory questions
- using a manual or help facility

## Special Needs

If you have a medically diagnosed disability adjustments can be made to the assessment process. Please inform your assessor BEFORE the assessment begins if you have:

- learning disability
- sensory impairment
- intellectual disability
- mental health issues
- physical impairment.

Any information you provide will be dealt with confidentially.

## Assessment Conditions

Before assessment your assessor will brief you about the conditions of assessment. You should be told if:

- the assessment is to be done under test conditions, i.e. talking, looking at others work and/or coping and using books to find answers will not be allowed
- there are any time limits.

### ***Conditions Described by your Assessor***

## Evidence Guide

### Elements and Performance Criteria

The elements and performance criteria are covered during assessment in the following ways.

Element	Performance Criteria	Assessment Tasks
<b>1 Prepare to develop spreadsheet</b>		
1.1	Organise personal work environment in accordance with <b>ergonomic requirements</b>	Part 1
1.2	Analyse task and determine specifications for spreadsheets	Part 2 Part 4
1.3	Identify organisational and task requirements in relation to data entry, storage, output, reporting and presentation requirements	Part 2 Part 4
1.4	Apply <b>work organisation strategies</b> and <b>energy and resource conservation techniques</b> to plan work activities	Part 1
<b>2 Develop a linked spreadsheet solution</b>		
2.1	Utilise <b>spreadsheet design</b> software <b>functions</b> and <b>formulae</b> to meet identified requirements	Part 2 Part 3 Part 4 Part 5 Part 6
2.2	Link spreadsheets in accordance with software procedures	Part 4 Part 5
2.3	Format cells and use data attributes assigned with relative and/or absolute cell references, in accordance with the task specifications	Part 2 Part 4
2.4	Test formulae to confirm output meets task requirements	Part 2 Part 3 Part 6
<b>3 Automate and standardise spreadsheet operation</b>		
3.1	Evaluate tasks to identify those where automation would increase efficiency	Part 2
3.2	Create, use and edit <b>macros</b> to fulfil the requirements of the task and automate spreadsheet operation	Part 2 Part 6
3.3	Develop, edit and use <b>templates</b> to ensure consistency of design and layout for forms and reports, in accordance with organisational requirements	Part 2 Part 3 Part 4 Part 5
<b>4 Use spreadsheets</b>		
4.1	Enter, check and amend data in accordance with organisational and task requirements	Part 3 Part 7
4.2	<b>Import and export</b> data between compatible spreadsheets and adjust host documents, in accordance with software and system procedures	Part 2
4.3	Use manuals, user documentation and online help to overcome problems with spreadsheet design and production	Part 6

Element	Performance Criteria	Assessment Tasks
4.4	Preview, adjust and <b>print</b> spreadsheet in accordance with organisational and task requirements	Part 3 Part 7
4.5	<b>Name and store spreadsheet</b> in accordance with organisational requirements and exit the application without data loss or damage	Part 2 Part 3 Part 4 Part 5 Part 6 Part 7
<b>5 Represent numerical data in graphic form</b>		
5.1	Determine style of <b>graph</b> to meet specified requirements and manipulate spreadsheet data if necessary to suit graph requirements	Part 4
5.2	<b>Create graphs</b> with labels and titles from numerical data contained in a spreadsheet file	Part 4
5.3	Save, view and print graph within designated time lines	Part 7

## **Required Skills and Knowledge**

The skills and knowledge are covered during assessment in the following ways.

<b>Required Skills</b>	<b>How will Evidence be Gathered?</b>
<ul style="list-style-type: none"><li>literacy skills to interpret and evaluate the purposes and uses of various features of spreadsheets and to use a variety of strategies for planning and reviewing own work</li></ul>	All assessment tasks
<ul style="list-style-type: none"><li>proofreading and editing skills to check for accuracy and consistency of information by consulting additional resources</li></ul>	Part 2, Part 3
<ul style="list-style-type: none"><li>numeracy skills to collate and present data, graphs and related references</li></ul>	Part 2, Part 3, Part 4, Part 5, Part 6, Part 7
<b>Required Knowledge</b>	<b>How will Evidence be Gathered?</b>
<ul style="list-style-type: none"><li>advanced functions of spreadsheet software applications</li></ul>	Part 2, Part 3, Part 4, Part 5, Part 6, Part 7
<ul style="list-style-type: none"><li>impact of formatting and design on the presentation and readability of data</li></ul>	Part 2, Part 4
<ul style="list-style-type: none"><li>key provisions of relevant legislation from all forms of government, standards and codes that may affect aspects of business operations, such as:<ul style="list-style-type: none"><li>anti-discrimination legislation</li><li>ethical principles</li><li>codes of practice</li><li>privacy laws</li><li>workplace health and safety</li></ul></li></ul>	Part 1
<ul style="list-style-type: none"><li>organisational policies and procedures</li></ul>	Part 1

## **Employability Skills BSB40507 Certificate IV in Business Administration**

Employability skills for BSB40507: Certificate IV in Business Administration are assessed in the following assessment tasks.

<b>Employability Skill</b>	<b>Industry/Enterprise Requirements for this Qualification Include:</b>	<b>Task</b>
Communication	<ul style="list-style-type: none"> <li>• communicating with colleagues and customers to gather information about their needs and to provide services</li> <li>• listening to and following complex oral instructions</li> <li>• proofreading and editing</li> <li>• writing clear and detailed instructions</li> </ul>	Part 2, Part 4
Teamwork	<ul style="list-style-type: none"> <li>• agreeing on the purpose and structure of documents, spreadsheets and databases with colleagues and clients</li> <li>• collecting feedback from customers and colleagues</li> <li>• coordinating and consulting with meeting participants</li> <li>• referring queries to colleagues</li> </ul>	Part 2, Part 4
Problem-solving	<ul style="list-style-type: none"> <li>• analysing document requirements and using online help, manuals and user documentation</li> <li>• determining appropriate strategies to respond to user requests</li> <li>• diagnosing customer service complaints and taking steps to improve the service</li> <li>• making decisions about classification and storage of records</li> </ul>	Part 2, Part 3, Part 4, Part 5
Initiative and enterprise	<ul style="list-style-type: none"> <li>• designing complex documents, databases and spreadsheets</li> <li>• evaluating tasks to improve efficiency</li> <li>• suggesting improvements to the structure and design of existing systems</li> </ul>	Part 2, Part 4
Planning and organising	<ul style="list-style-type: none"> <li>• organising resources, equipment and time lines</li> <li>• organising work schedules and meetings</li> <li>• planning future business technology requirements</li> <li>• planning task organisation to meet time lines</li> </ul>	n/a

Employability Skill	Industry/Enterprise Requirements for this Qualification Include:	Task
Self-management	<ul style="list-style-type: none"> <li>• evaluating own performance and identifying areas for improvement</li> <li>• managing time and ensuring ergonomic requirements are met</li> <li>• planning and reviewing own work</li> <li>• using judgement and discretion with confidential information</li> </ul>	n/a
Learning	<ul style="list-style-type: none"> <li>• actively participating in coaching and mentoring sessions to improve standards of service provision</li> <li>• attending training/induction in the use of administrative systems</li> </ul>	n/a
Technology	<ul style="list-style-type: none"> <li>• maintaining existing business technology and planning for future requirements</li> <li>• using business technology such as computers, word processing programs and printers</li> </ul>	Technology is used throughout assessment

## **Assessment Material and Equipment**

Make sure you have the following before you start this assessment:

- Your own copy of this workbook
- Pen/pencil
- Access to a computer with:
  - Windows 8.1
  - Microsoft Excel 2013
  - access to a printer
  - access to the internet
- The following assessment files:
  - Commission Rates.txt

# Assessment Submission Form

Complete this form and submit it with your assessment as instructed by your assessor.

It is recommended that you keep a copy of your assessment and the assessment submission form.

<b>Candidate ID Number</b>	
<b>Candidate Name</b>	
<b>Postal Address</b>	
<b>Telephone</b>	
<b>Email Address</b>	
<b>Training organisation</b>	
<b>Trainer name</b>	
<b>Room number</b>	
<b>Day/time of training</b>	

## ***Candidate Declaration***

The following declaration must be signed and dated by the candidate prior to the assessment being marked by the assessor.

I declare that the attached assessment has been completed by me and has not been copied from work done by another person.

I also declare that I have completed this assessment without assistance from anyone else.

**Signed:**

**Date:**

# Assessment Agreement

<b>Candidate's name</b>			
<b>Address</b>			
<b>Telephone</b>	<b>Home/work</b>	<b>Mobile</b>	
<b>Assessor's name</b>			
<b>Unit of competency to be assessed</b>	BSBITU402A Design and use complex spreadsheets		
<b>Evidence to be collected</b>	Completed assessment tasks		
<b>Candidate to answer when instructed by the assessor</b>			<b>Yes or No</b>
Have the purpose and the consequences of the assessment been explained?			
Have you received a copy of the relevant unit of competency?			
Do you understand what evidence is to be collected, i.e. your completed assessment tasks?			
Have your rights and the appeal system been fully explained?			
Have you discussed any special needs to be considered during assessment?			
I agree to undertake assessment in the knowledge that information gathered will only be used for professional development purposes and can only be accessed by my supervisor in the workplace and the RTO.			
<b>Candidate's signature</b>		<b>Date</b>	
<b>Assessor's signature</b>		<b>Date</b>	

# Final Assessment

Time allowed for completion, as specified by assessor: .....

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## Part 1 – WHS

Ask your assessor to observe you performing the following tasks.

Step	Instruction	Competent?
1	<p>Set up your workstation furniture and equipment in a way that is appropriate for you. Demonstrate to your assessor how the positions of the following are ergonomically correct.</p> <ul style="list-style-type: none"><li>• Chair</li><li>• Mouse</li><li>• Keyboard</li><li>• Monitor</li></ul>	<input checked="" type="checkbox"/>
2	Ensure that your chair height is set appropriately for you. Demonstrate to your assessor that the current height positions you correctly at the workstation.	
3	Demonstrate to your assessor the correct posture for sitting at your workstation.	
4	Demonstrate two exercises which can be performed to reduce the risk of OOS.	
5	Explain to your assessor how you could organise your daily tasks to reduce the risk of OOS.	
6	Either demonstrate or explain to your assessor how you could use power saving options on your computer equipment.	
7	Either demonstrate or explain to your assessor two methods for conserving paper in your workspace.	

### Assessor/third party to complete:

	Yes	No
Has the candidate successfully completed all observation tasks?		
<b>Assessor/third party signature</b>		
<b>Date:</b>		

## Scenario

Breeze Appliances have three branches across Australia: Melbourne, Sydney and Brisbane. Every quarter, each branch manager is required to calculate the sales commission each sales person achieves each month and send this information to head office (see next page). At head office the sales information is collated into one spreadsheet for analysis.

A template will be required for the recording and calculation of sales and commission for each branch. Head office also requires a template to analyse the sales data received from each branch.

## Requirements

### Part 2

A workbook template will be created that will record and calculate the data for each branch shown on the next page. (The data for each branch must be recorded in a separate workbook.)

- | <b>Completed</b>  |                          |
|---|--------------------------|
| • Use the Spreadsheet Plan on page 209 to sketch this template.   | <input type="checkbox"/> |
| • Import the text file called <b>Commission Rates.txt</b> into a new workbook. Name the worksheet <b>Commission Rates</b> .   | <input type="checkbox"/> |
| • Create a named range for the commission rates data.   |                          |
| The Commission Rates data is used to look up the % commission each sales person will receive. This percentage will then be used to calculate the commission for each month, based on monthly sales.   |                          |
| • Insert a new sheet before the Commission Rates worksheet. Name the new sheet <b>Sales</b> .   | <input type="checkbox"/> |
| • On the <b>Sales</b> worksheet, calculate the commission each sales person will receive each month.  | <input type="checkbox"/> |
| • Each month if a sales person equals or exceeds a 12% commission target, they receive an additional bonus of \$1,250. Insert a column for each month to determine if the sales person will receive the bonus. (This can be achieved by combining an IF and a VLOOKUP statement.) The commission target and the amount of bonus on offer will vary every quarter. Ensure that this is taken into account when designing the spreadsheet by positioning the bonus amount and the % commission target in separate cells at the top of the worksheet data. | <input type="checkbox"/> |
| • Columns must be wide enough to display data properly.   | <input type="checkbox"/> |
| • Include a header containing the file name of the workbook.  | <input type="checkbox"/> |
| • Today's date and a Branch name area must appear on the worksheet. (The branch name will be filled in when the template is used.)  | <input type="checkbox"/> |
| • Calculate the total sales for each month.   | <input type="checkbox"/> |
| • Save the workbook file as a template with an appropriate file name in the correct templates folder. Note that macros are required in the template.  | <input type="checkbox"/> |
| • A summary of the sales for each of the three months recorded must appear on the worksheet. This summary must include average, maximum and minimum calculations for each month. All figures must be rounded to the nearest \$100.  | <input type="checkbox"/> |
| • Format the spreadsheet so it is clear and easy to read. Use Calibri font in keeping with the organisation's house style. Format currency columns to two decimal places.   | <input type="checkbox"/> |
| • Check all that formulae work correctly.   | <input type="checkbox"/> |

**Completed**

- Ensure that the workbook template is set up to automate all calculations so the user only needs to enter the sales data for each month.
- Ensure users cannot enter data in formula cells by protecting these cells.
- Develop a macro that will sort all sales persons into alphabetical order.
- Develop a macro that will print only the sales summary information.
- Assign these two macros to buttons at the top of the worksheet.

**Part 3**

- Using the template created in Part 2 produce a workbook for each branch using the data shown below.
- Ensure all data is checked to ensure accurate input.
- Each workbook should be saved with an appropriate file name in your working folder.
- Ensure the sales person data is sorted into alphabetical order and the summary information is printed for each workbook.

**Sales Data****Melbourne Branch**

<b>Sales person</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>
Gibbons, Barry	2,450.00	3,680.00	3,360.00
Pascoe, Ian	8,890.00	9,770.00	7,988.00
Walters, Denise	4,765.00	6,750.00	7,420.00
Stringer, Lee	7,680.00	6,995.00	5,600.00
Knott, Delia	5,790.00	4,987.00	4,325.00
Thompson, James	4,730.00	5,450.00	6,740.00
Ritchie, Ross	7,988.00	8,664.00	6,950.00
Gordon, Marie	6,750.00	7,889.00	8,745.00

**Brisbane Branch**

<b>Sales person</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>
Carter, Richard	3,990.00	2,770.00	2,980.00
Tait, Lee	6,980.00	5,670.00	6,120.00
Penfold, Alison	8,915.00	7,830.00	7,680.00
Warner, Scott	4,880.00	5,990.00	6,350.00
Mahoney, Andrew	6,235.00	5,050.00	5,620.00
Leonard, Jill	7,320.00	5,990.00	5,415.00
Cotton, Ian	5,425.00	3,785.00	4,060.00

**Sydney Branch**

<b>Sales person</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>
Shields, David	9,850.00	8,360.00	7,670.00
Fisher, Harry	7,550.00	5,990.00	5,685.00
Kennedy, Frank	6,665.00	7,150.00	6,360.00
Irvine, Kim	4,380.00	4,890.00	5,120.00
Taylor, Pam	6,550.00	5,695.00	4,360.00
Dickson, John	5,670.00	6,755.00	6,430.00
Sinclair, Mark	6,558.00	5,830.00	5,325.00
Henderson, Tina	7,330.00	6,990.00	7,120.00

## **Spreadsheet Plan**

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## Part 4

Create a workbook template that will display the total sales for each month from each branch.

- | <b>Completed</b>  |
|---|
| • Use the Spreadsheet Plan on the next page to sketch this template. <input type="checkbox"/>   |
| • Columns must be wide enough to display data properly. <input type="checkbox"/>  |
| • Include a header containing the date (to the right) and a footer with the file name in the lower right corner. <input type="checkbox"/>   |
| • Use Calibri font in keeping with the organisation's house style. <input type="checkbox"/>   |
| • Save the workbook file as a template with an appropriate file name in the correct templates folder. <input type="checkbox"/>  |
| • Total each column and row to determine the total sales for each month and each branch. <input type="checkbox"/>   |
| • Create a chart that displays the sales for each branch over the three month period. Use an appropriate chart type and add a title. Insert the chart on a new worksheet and rename the sheet appropriately. <input type="checkbox"/>   |
| • Create a chart that displays the total sales for each branch. Use an appropriate chart type that will show which branch has the larger percentage of sales against all other branches. Use appropriate data labels and add a chart title. Explode the largest segment. Insert the chart on a new worksheet and rename the sheet appropriately. <input type="checkbox"/> |

## Part 5

- |   |
|---|
| • Using the template created in Part 4 produce a workbook using the data from the workbooks created in Part 3. <input type="checkbox"/> |
| • The workbook should be saved with an appropriate file name in your working folder. <input type="checkbox"/>                           |

## **Spreadsheet Plan**

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## Part 6

- 1 Explain how you have checked formulas in the workbook template created in Part 2.
- .....
- 2 Write down the formulas used to calculate the following in the workbook template created in Part 2.

% commission determined for each sales person for the first month

.....

The average sales for a month rounded to the nearest \$100

.....

- 3 Explain the steps you would take to edit the print range macro created in Part 2 to change the data range selected.
- .....
- .....
- .....
- 4 Fill in the table below indicating the file name and folder location you used to store spreadsheet files for this assessment.

	<b>File Name</b>	<b>Folder Location</b>
Part 2		
Part 3		
Part 4		
Part 5		

- 5 Use manuals, user documentation and online help to look up the following topics. Record your findings in the spaces provided.

Explain what the PMT function is and when you would use it.

.....

.....

.....

How would you split the screen so you could view the top and lower part of a worksheet?

.....

.....

## Part 7

- 1 A sales person was omitted from the data for Brisbane; his details are shown below. Add the sales person's data to the Brisbane workbook (the Total Sales Workbook should automatically update). Sort the sales people.

Brisbane Branch

	Jan	Feb	Mar
Elliott, James	5,870.00	6,030.00	5,968.00

- 2 Print preview and print the three worksheets that detail the sales for each branch. Ensure all data is printed.
- 3 Print the template that each branch uses, and then print another copy showing the formulas.
- 4 Print the template that is used by head office, and then print another copy showing the formulas.
- 5 Print the entire workbook that head office has produced that displays the sales from all branches.

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# Changes made to this workbook

June 2015

Page number	Originally	Change
42	Incorrect cell pointing to D8	Position corrected
180	Complete this form, and submit this workbook along with any printouts or other deliverables.	Complete this form and submit it with your assessment as instructed by your assessor.

January 2015

Page number	Change
180	Image of Kilarny Builders replaced
182	Week 3 image replaced
183	Week 4 image replaced

November 2014

Page number	Change
	Table of contents updated
	Office Procedures section page numbering fixed
	Study guide page layout modified
47	Step 4 changed to 'Click in...'
48	Second image Deleted. Exercise 37 deleted text in step 19. Added new step 17. Exercise 38 step 8 amended.
51	Numbering started at 1. Cheque butt images fixed.
79	Spacing above callout removed. Numbering removed from step 2.
80	Exercise 70 – numbering removed from step 4. Bold applied to <b>=sum(retail)</b> .
172	Main image replaced.
173	Step 2 amended
179	Main image replaced

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# **BSB Business Services**

## **Training Package**

### **Supplement**

This workbook can be used by learners completing a qualification in the BSB Business Services Training Package.

# BSBITU402 Develop and use complex spreadsheets

## Application

This unit describes the skills and knowledge required to use spreadsheet software to complete business tasks and produce complex documents.

It applies to individuals employed in a range of work environments who require skills in creation of complex spreadsheets to store and retrieve data. They may work as individuals providing administrative support within an enterprise, or may be independently responsible for designing and working with spreadsheets relevant to their own work roles.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Elements and Performance Criteria

Element <i>Elements describe the essential outcomes.</i>	Performance Criteria <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>	Workbook page reference	Assessment Tasks
1. Prepare to develop spreadsheet	1.1 Organise personal work environment in accordance with ergonomic requirements	Software Publications WHS ( <i>included in exercise file download</i> )	Part 1
	1.2 Analyse task and determine specifications for spreadsheets	xvii–xxix	Part 2 Part 4
	1.3 Identify organisational and task requirements of data entry, storage, output, reporting and presentation requirements	xvii–xxv	Part 2 Part 4
	1.4 Apply work organisation strategies and energy and resource conservation techniques to plan work activities	Software Publications WHS	Part 1
2. Develop a linked spreadsheet solution	2.1 Utilise spreadsheet design software functions and formulae to meet identified requirements	Throughout workbook	Part 2 Part 3 Part 4 Part 5 Part 6
	2.2 Link spreadsheets in accordance with software procedures	94–101	Part 4 Part 5
	2.3 Format cells and use data attributes assigned with relative and/or absolute cell references, in accordance with task specifications	Throughout workbook	Part 2 Part 4
	2.4 Test formulae to confirm output meets task requirements	34–42	Part 2 Part 3 Part 6

<b>Element</b> <i>Elements describe the essential outcomes.</i>	<b>Performance Criteria</b> <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>	<b>Workbook page reference</b>	<b>Assessment Tasks</b>
3. Automate and standardise spreadsheet operation	3.1 Evaluate tasks to identify those where automation would increase efficiency	155–166, 170–182	Part 2
	3.2 Create, use and edit macros to fulfil requirements of task and automate spreadsheet operation	153–166	Part 2 Part 6
	3.3 Develop, edit and use templates to ensure consistency of design and layout for forms and reports, in accordance with organisational requirements	170–182	Part 2 Part 3 Part 4 Part 5
4. Use spreadsheets	4.1 Enter, check and amend data in accordance with organisational and task requirements	Throughout workbook	Part 3 Part 7
	4.2 Import and export data between compatible spreadsheets and adjust host documents, in accordance with software and system procedures	183–188	Part 2
	4.3 Use manuals, user documentation and online help to overcome problems with spreadsheet design and production	xiv, xxiv, 45–47	Part 6
	4.4 Preview, adjust and print spreadsheet in accordance with organisational and task requirements	Throughout workbook	Part 3 Part 7
	4.5 Name and store spreadsheet in accordance with organisational requirements and exit application without data loss or damage	Throughout workbook	Part 2 Part 3 Part 4 Part 5 Part 6 Part 7
5. Represent numerical data in graphic form	5.1 Determine style of graph to meet specified requirements and manipulate spreadsheet data if necessary to suit graph requirements	54–76	Part 4
	5.2 Create graphs with labels and titles from numerical data contained in a spreadsheet file		Part 4
	5.3 Save, view and print graph within designated timelines		Part 7

## Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

<b>Skill</b>	<b>Performance Criteria</b>	<b>Description</b>	<b>Workbook page reference</b>
Reading	1.2, 1.3, 2.3, 2.4, 3.1, 3.3, 4.1-4.5, 5.1, 5.2	<ul style="list-style-type: none"> <li>Recognises and interprets numerical and textual information within a range of sources to determine and complete work according to requirements</li> </ul>	Throughout workbook
		<ul style="list-style-type: none"> <li>Reviews information to determine accuracy and consistency</li> </ul>	Throughout workbook
Writing	2.1-2.4, 3.2, 3.3, 4.1, 4.2, 4.4, 4.5, 5.2, 5.3	<ul style="list-style-type: none"> <li>Uses formal mathematical language to create formulas and enters routine data using a format appropriate to requirements</li> </ul>	Throughout workbook
		<ul style="list-style-type: none"> <li>Develops material using syntactic structure, required format and incorporating technical functions to meet business needs</li> </ul>	Throughout workbook
Oral Communication	1.2	<ul style="list-style-type: none"> <li>Uses listening and questioning skills to clarify requirements</li> </ul>	xiv, xvi
Numeracy	2.1-2.4, 3.2, 4.1, 4.2, 5.2	<ul style="list-style-type: none"> <li>Represents mathematical information in an alternative form and analyses information to determine required spreadsheet formulae and macros</li> </ul>	Throughout workbook
Navigate the world of work	1.1, 1.3, 1.4, 2.1-2.4, 3.2, 3.3, 4.1, 4.2, 4.4, 4.5, 5.1, 5.3	<ul style="list-style-type: none"> <li>Recognises and follows explicit and implicit protocols and meets expectations associated with own role</li> </ul>	Throughout workbook
Get the work done	1.2, 1.4, 2.1- 2.4, 3.2, 3.3, 4.1-4.5, 5.1-5.3	<ul style="list-style-type: none"> <li>Applies formal processes when planning more complex/unfamiliar tasks, producing plans with logically sequenced steps</li> </ul>	xvii–xx
		<ul style="list-style-type: none"> <li>Uses formal thinking techniques to generate new ideas</li> </ul>	Throughout workbook
		<ul style="list-style-type: none"> <li>Uses advanced features within applications to access, store, organise data and perform routine and complex work tasks</li> </ul>	Throughout workbook

## **Assessment Requirements v1.0**

### **Performance Evidence**

Evidence of the ability to:	<b>Assessment task</b>
<ul style="list-style-type: none"><li>• follow organisational and safe work practices including:<ul style="list-style-type: none"><li>• ergonomic requirements</li><li>• energy and resource conservation techniques</li></ul></li></ul>	Part 1
<ul style="list-style-type: none"><li>• adhere to organisational requirements for:<ul style="list-style-type: none"><li>• ensuring consistency of style, design and layout</li><li>• saving and printing documents within designated timelines</li><li>• naming and storing documents</li></ul></li></ul>	Parts 2–7
<ul style="list-style-type: none"><li>• adhere to identified or task requirements when producing documents including:<ul style="list-style-type: none"><li>• editing macros and automating some tasks</li><li>• using appropriate templates</li><li>• creating graphs to represent data</li></ul></li></ul>	Parts 2–5, Part 7
<ul style="list-style-type: none"><li>• resolve issues by referring to user documentation and online help</li></ul>	Part 6
<ul style="list-style-type: none"><li>• use appropriate data storage options</li></ul>	Parts 2–7
<ul style="list-style-type: none"><li>• evaluate tasks to improve efficiency</li></ul>	Parts 2–5
<ul style="list-style-type: none"><li>• apply knowledge of functions and features of contemporary computer applications</li></ul>	Parts 2–7
<ul style="list-style-type: none"><li>• communicate with relevant personnel.</li></ul>	Candidate can discuss assessment requirements with assessor as required

### **Knowledge Evidence**

To complete the unit requirements safely and effectively, the individual must:	<b>Assessment task</b>
<ul style="list-style-type: none"><li>• explain advanced functions of spreadsheet software applications</li></ul>	Parts 2–7
<ul style="list-style-type: none"><li>• describe impact of formatting and design on presentation and readability of data</li></ul>	Parts 2–5, Part 7
<ul style="list-style-type: none"><li>• explain organisational requirements for ergonomics, work periods and breaks, and conservation techniques.</li></ul>	Part 1

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The following section

**Section 2: Plan, Design and Create Spreadsheets Using Functions and Formulas**  
is taken from:

## **BSBITU304A and BSBITU304**

### **Produce spreadsheets (Excel 2013)**

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## **Produce Spreadsheets** (Excel 2013)

Supporting BSBITU304A Produce Spreadsheets in the BSB07 Business Services Training Package.

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# 2

## Section 2:

### Plan, Design and Create Spreadsheets Using Functions and Formulas

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- |         |     |  |
|---------|-----|--|
| Element | 2   | Plan spreadsheet design  |
|         | 2.1 | Ensure <i>spreadsheet design</i> suits the purpose, audience and information requirements of the task  |
|         | 2.2 | Ensure spreadsheet design enhances readability and appearance, and meets organisational and task requirements for style and layout   |
|         | 2.3 | Use style sheets and <i>automatic functions</i> to ensure <i>consistency of design and layout</i>  |
| Element | 3   | Create spreadsheet   |
|         | 3.1 | Ensure <i>data</i> is entered, <i>checked</i> and amended to maintain consistency of design and layout, in accordance with organisational and task requirements                                  |
|         | 3.2 | <i>Format</i> spreadsheet using <i>software functions</i> to adjust page and cell layout to meet information requirements, in accordance with organisational style and presentation requirements |

On completion of this section, you should be able to:

- Open Excel and navigate the interface
- Use keyboard shortcuts and quick tools
- Ensure spreadsheet accuracy and validity
- Use spreadsheet function library
- Insert date formulas, calculate time and customise time values
- Use absolute references
- Check formulas with a calculator
- Preview and print a file
- Work with comments
- Brackets in formulas, IF and VLOOKUP functions
- Calculate percentages
- Create a spreadsheet plan

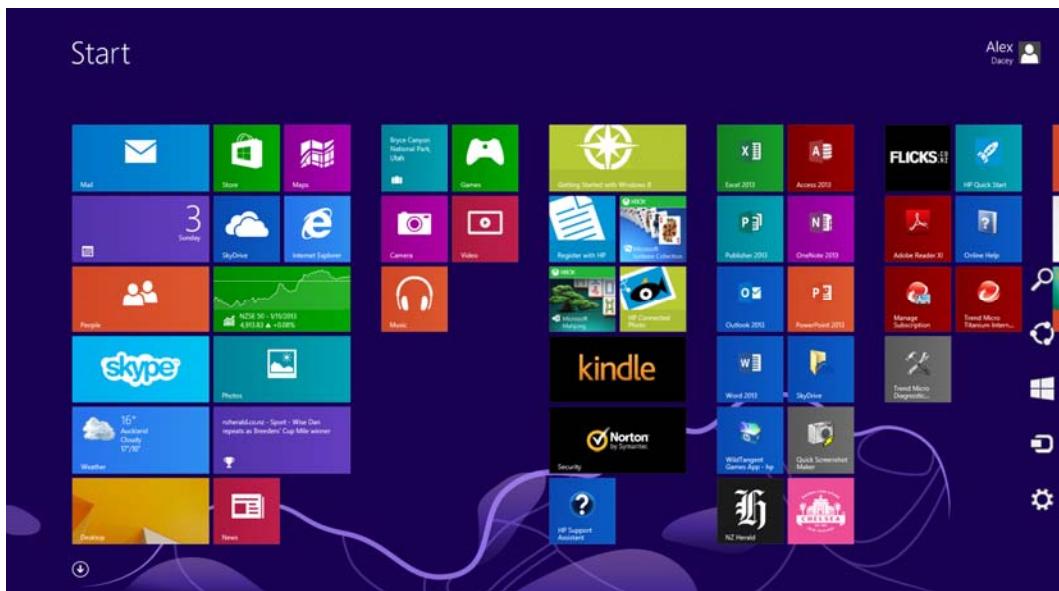
# Introduction to the Excel 2013 Screen

If you are not familiar with Excel 2013, or lack confidence, you should complete this section.

If you are familiar with the basics of Excel 2013, go to File Management on page 41.

## Exercise 1, Open MS Excel 2013

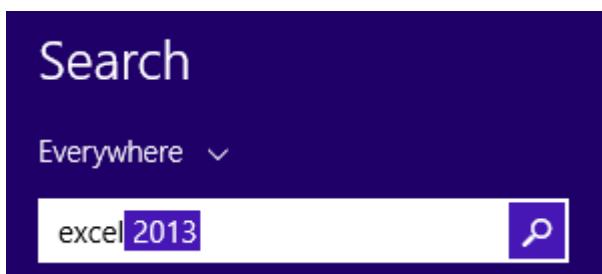
1. Start your computer and log in. The Windows 8 Start screen will display.



2. If you have an Excel 2013 icon on your desktop, click on it once to launch Excel.



Alternatively, with the Start screen displayed type: **excel**. The Search pane will display at the right of the screen.

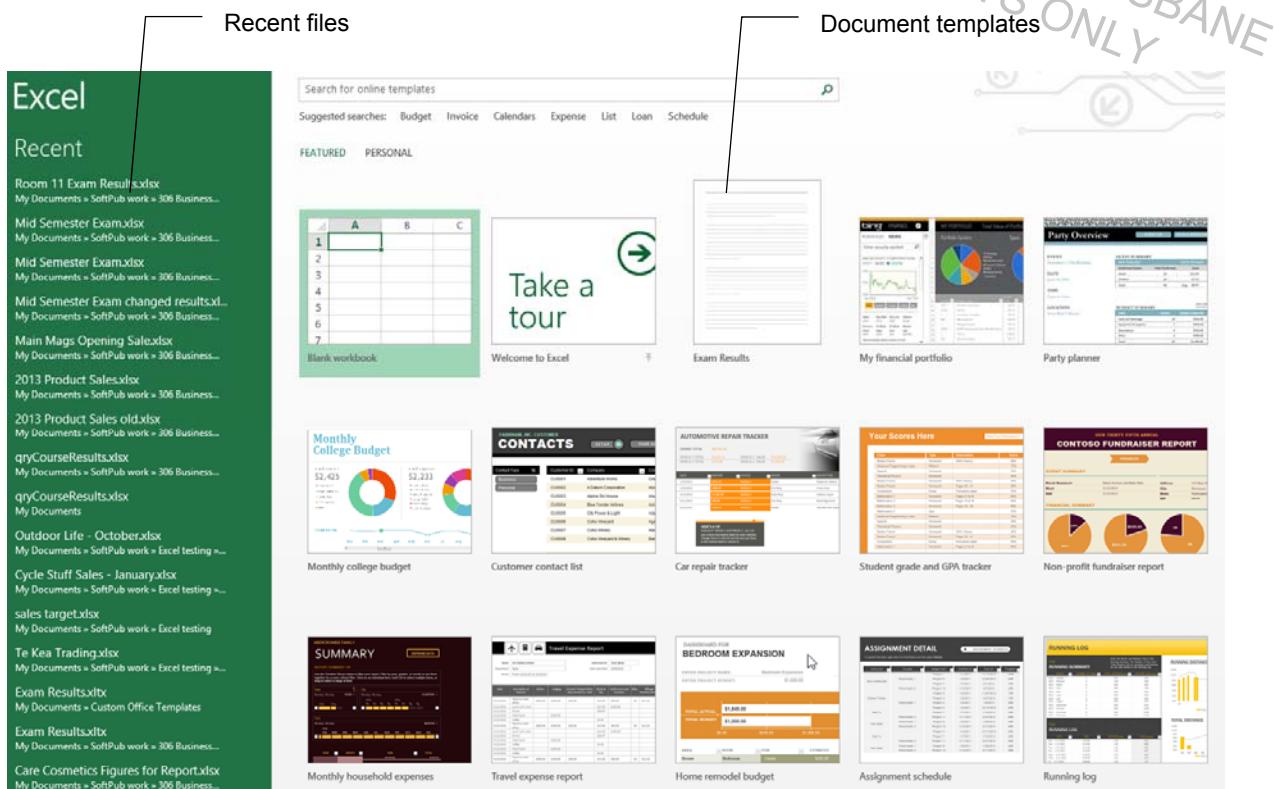


Click on from the list of located files.

The Windows Desktop will display and Excel will open.

## The Startup Screen

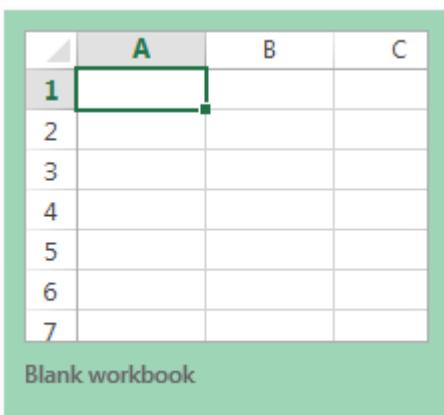
When Excel is opened, the Startup Screen displays. This includes a list of recently accessed workbooks at the left along with a range of templates which you can choose from when creating a new workbook.



One of the templates is called Blank workbook. This is the template used when creating a new workbook.

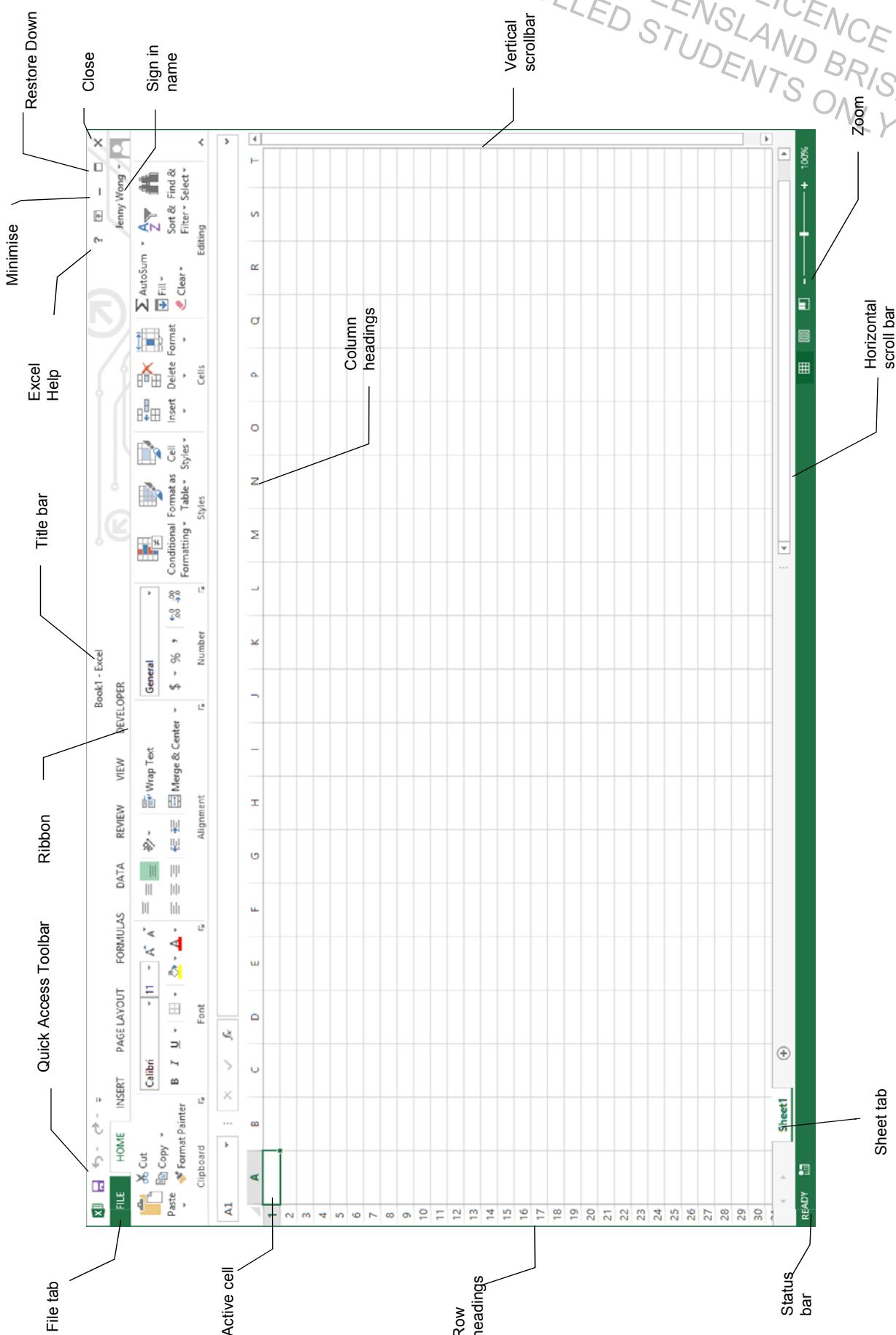
### Exercise 2, Create a new workbook

With the Excel Startup Screen displayed, double click on Blank workbook.



The Excel screen will display.

## Excel Screen



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## *The File Tab*

Clicking on the File tab  opens Backstage View. Backstage View is designed to help you manage files – allowing you to open, save and print spreadsheets. Backstage View will be used later in this book to preview and print spreadsheets.

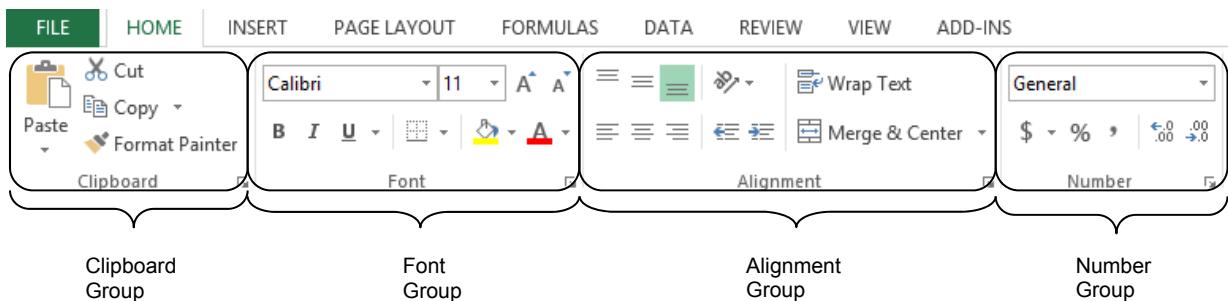
## *The Ribbon*

Across the top of your screen is the Ribbon.

The Ribbon is designed to help you quickly find the commands that you need to complete a task. It has three components:

- **Tabs** that relate to a type of activity such as writing or laying out a page. Each **tab** is broken into a number of **groups**.
  - **Groups** that are sets of related **commands** displayed together.
  - **Commands** that are the functions you will actually perform on your document.

When you first open Excel, the ribbon displays the Home tab options, which you will use to find commands related to formatting pages and paragraphs of text in your spreadsheet.



Note that some of the items on the Ribbon may appear differently on your screen. This will be determined by your screen size and display settings.

## Default Tabs

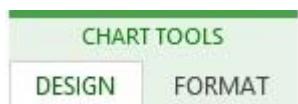
The Ribbon has seven default Tabs at the top of the screen as shown in the above illustration. These are always the first seven tabs shown. There are however additional tabs.

## Additional Tabs

There are tabs that you can choose to display such as the Developer tab. There are tabs that display if you have certain features installed, such as the Add-Ins tab, and some applications add their own tabs. The Developer tab will be discussed later in this book.

## Contextual Tabs

In addition, there are contextual tabs that always display at the right hand end of the tabs. These display automatically only when certain functions are selected. For example, when you are working on a chart, the Chart Tools **Design** and **Format** tabs become available. When you click away from the Chart, these tabs disappear again.



## The Quick Access Toolbar

The Quick Access Toolbar contains commands to Save, Undo and Redo by default. It also allows you to add your own frequently used commands.



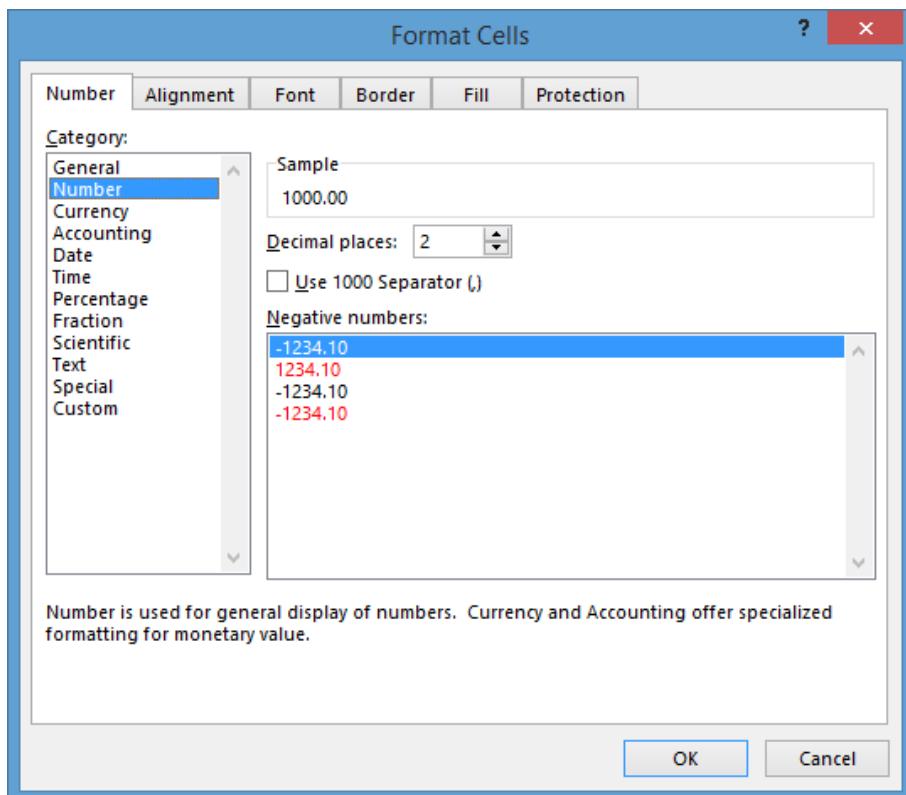
BUTTON	COMMAND	Definition
	Undo	The <b>Undo</b> button will allow you to go back and cancel out the previous action(s). There are some actions that cannot be undone, for example, the Office button commands such as open, create a new document and save a file.
	Redo	If you undo too far, you can redo.

## The Dialog Box Launcher

The Dialog Box Launcher is the small diagonal arrow placed in the corner of some groups such as the Number group . When you click on this arrow, it can open:

- a panel to the right or left of your work area (such as the Clipboard Panel) OR
- a dialog box.

Dialog boxes usually have more settings or advanced features. For example, the Format Cells dialog box (Number tab) allows you to make formatting changes to the current cell value, such as changing its category from Number to Currency.



## The Status Bar



Positioned at the bottom of the screen, this customisable bar keeps you updated with information about your spreadsheet. The Ready button shows the status of the cell (ready to have a value entered) and any selected cells will display information such as the Average and Sum of the cells, as well as how many cells are selected (Count).

## Use the Keyboard Instead of the Mouse

Sometimes you may want to use the keyboard rather than the mouse, and you can do this using keyboard shortcuts. There are two types of keyboard shortcuts:

- Key Combinations
- Access Keys

Most of the shortcuts you will use in this training are **Key Combination Shortcuts**.

### Key Combination Shortcuts

Key Combination Shortcuts are a combination of keys that carry out the same function as clicking on some of the buttons. They are a fast easy way to apply commands, but you do have to remember them.

Most of these shortcuts use the key.

These perform specific commands, like **B** to bold text.

To use these commands you must HOLD DOWN the command key, for example CTRL (Control key) and press the keyboard key ONCE.

### Keyboard Shortcuts for Undo and Redo

BUTTON	COMMAND	KEYBOARD SHORTCUT
	Undo	CTRL + Z
	Redo	CTRL + Y

### Access Keys

Access Keys are a second type of keyboard shortcut. They all start with the Alt key and give you access to every command on:

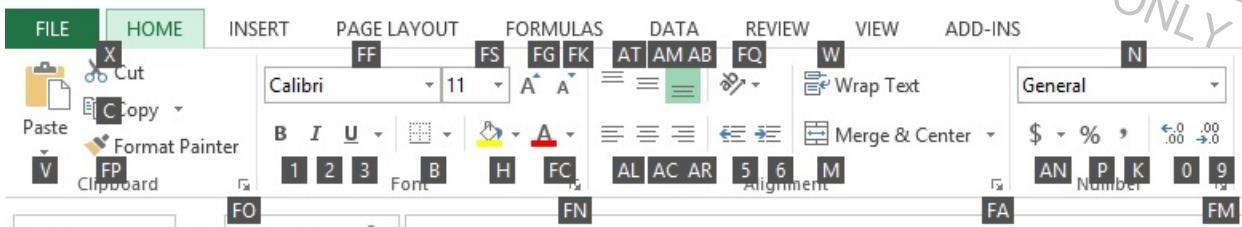
- the Ribbon
- the Microsoft Office button menu, and
- the Quick Access Toolbar

To use Access Keys, you press the Alt key followed by one or more additional keys. These keys can be tricky to use but you will find them very useful if you have an issue with using a mouse.

## Badges

If you remember your access keys, you can simply type them. However, it is unlikely that you will remember them all, so there are Badges to help you find the access key you are looking for.

Press the Alt key to display the Badges. This gets you out of text entry mode and into command mode.



You can see, for example, that:

- If you want to go to the Insert tab you will press the N key next.
- If you want to format text to **Bold**, you will press Alt, then H to select the Home tab, and 1 to select bold. You can repeat those keystrokes to turn bold off (this is known as a toggle key – using the same buttons or keys to turn a command on and off).

## Control your Display

### ScreenTips

When you rest the mouse pointer over a button or command, you may see a small window that describes what that function does. It may also show the Keyboard Shortcut (the text shown in brackets) that can be used to apply that function.

**Bold (Ctrl+B)**  
Make your text bold.

The screen tip itself can be turned off, and you can elect not to show the keyboard shortcut.

### Change Display Size with Zoom

To get a bigger or smaller view of the current spreadsheet use the Quick Zoom feature. It is located on the bottom right corner of the window. Click anywhere on the *Zoom Slider* to increase or decrease the Zoom level.



Zoom settings can be customised through the View tab using the Zoom button; more on this later.



### Use Live Preview

When you run your cursor over a certain command on a tab and pause there a moment, in many cases that command is applied temporarily to your document so you can see what it will actually look like. This is called **Live Preview**. When you move your cursor away, the formatting returns to its previous look.

## The Excel Screen Layout

### The Home Tab

The Home tab is the default tab that displays whenever you first open an Excel spreadsheet. It has all the basic formatting and editing commands.

### Exercise 3, Identify Commands on Home Tab

With your spreadsheet open, make sure you can find the commands in the following section.

#### Home Tab, Font Group



This group contains most of the buttons that you would use for **formatting** or changing the appearance of the text in a cell.

MS Office Excel 2013 has a wide range of fonts, font sizes, colours and other formatting tools to choose from, as well preset styles to help create professional looking documents.

BUTTON	COMMAND	KEYBOARD SHORTCUT (if available)
Calibri      11	Font Type and Size	CTRL + 1 (opens Format Cells dialog box)
A	Font Colour	CTRL + 1 (opens Format Cells dialog box)
A <sup>+</sup>	Grow Font	(or Right Click – Format Cells – Font tab)
A <sup>-</sup>	Shrink Font	(or Right Click – Format Cells – Font tab)
B	Bold	CTRL + B (or CTRL + 2)
I	Italics	CTRL + I (or CTRL + 3)
U	Underline	CTRL + U (or CTRL + 4)
Border icons	Borders	CTRL + Shift + & (Outline Border) CTRL + Shift + _ (Removes Outline Border)
Color swatch	Fill Color	(or Right Click – Format Cells – Fill tab)

## Home Tab, Numbers Group

Find each of these commands.

BUTTON	FORMAT	KEYBOARD SHORTCUT
\$ ▾	Accounting Number Format \$ 12,345.00 (\$ at left of the cell)	
Currency ▾	Currency Format \$12,345.00	CTRL + SHIFT + 4
Date ▾	Date (formats vary) 23-Jun-00 or 23/06/2000	CTRL + SHIFT + #
%	Percentage Style 25%	CTRL + SHIFT + 5
Time ▾	Time Format 10.00 am	CTRL + SHIFT + 2
General ▾	General Format	CTRL + SHIFT + ` (above the Tab key)
Number ▾	Number Format (2 decimal places) 23.00	CTRL + SHIFT + 1

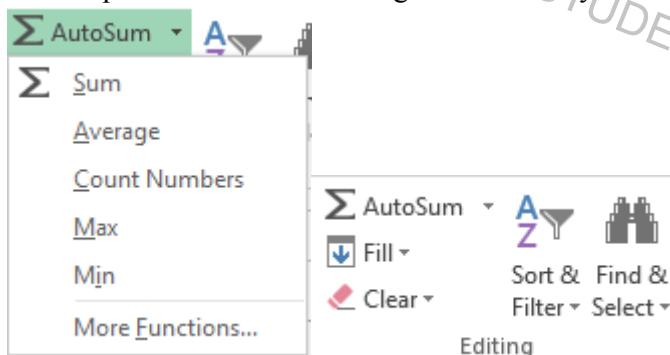
## Home Tab, Alignment Group

Find each of these commands.

BUTTON	FORMAT	RESULT
≡	Align Text Left	Text automatically aligns to the left of the cell
≡	Align Text Centre	Horizontal Centre (middle of cell)
≡	Align Text Right	Numbers automatically align to the right side
Merge & Center ▾	Merge & Centre	Joins multiple cells and positions text across these
≡ ≡ ≡	Vertical Cell Alignment	Positions text between the top and bottom of the cell

## Home Tab, Editing Group

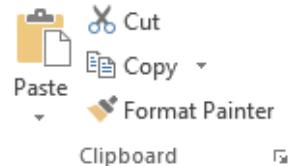
This group contains Sort tools, Find and Replace, Clear feature, Fill series and the AutoSum button **Σ AutoSum** which provides access to a range of commonly used functions.



## Home Tab, Clipboard Group

This group provides you with the necessary commands to Cut, Copy and Paste text and values as well as formatting cells.

The Format Painter is extremely useful to ensure consistency across spreadsheets.



### Clipboard Group Keyboard Shortcuts

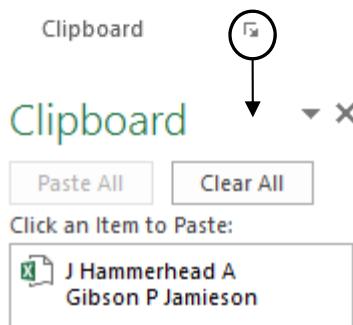
BUTTON	COMMAND	KEYBOARD SHORTCUT
Copy	Copy	CTRL + C
Cut	Cut	CTRL + X
Paste	Paste	CTRL + V (cannot be used for Paste Link)

Cells must be selected before these tools can be used. Note how the Cut and Copy items in the Clipboard group graphic above appear faded or dimmed. This is because no data has been selected.

### *View Copied Values on the Clipboard*

When data is cut or copied it is placed onto the clipboard where it is held until needed. The clipboard holds 24 items and clears the ‘oldest’ items as new ones are added. These items can then be pasted at any point.

To view the Clipboard, click on the Clipboard Dialog Box Launcher (diagonal arrow).



## The Mini Toolbar

You will see the Mini toolbar display when you are working with text. This toolbar has the most commonly used commands from the Home tab, Font group with some additional commands from the Clipboard and Paragraph groups.



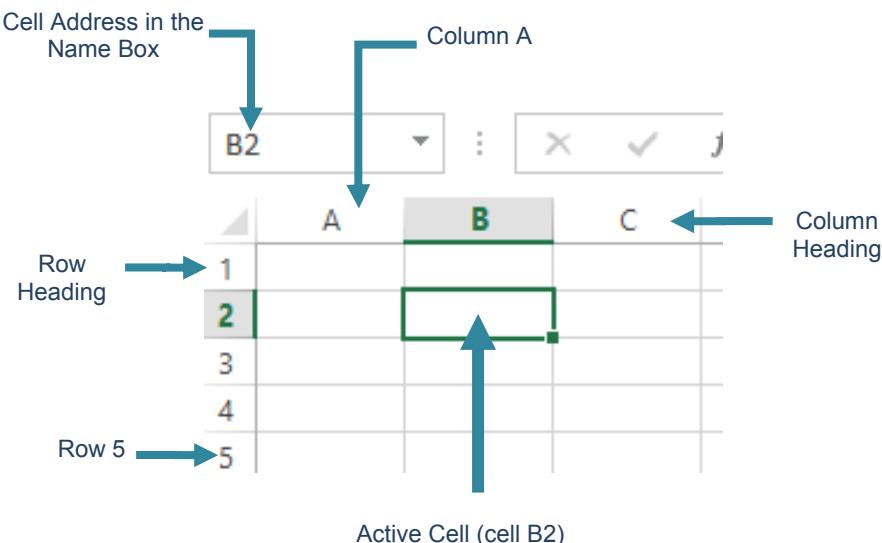
## The Worksheet Grid, Rows, Columns and Cells

You have launched Excel, and you have a new, blank spreadsheet in front of you. You have looked at the components commands around the main worksheet area in the middle. So how does this work?

If you recall, the **grid** divides your worksheet into rows and columns that create cells.

- **Rows** go from left to right across the page and are labelled with numbers 1, 2, 3, etc.
- **Columns** go from top to bottom of the screen and are labelled with letters A, B, C, etc.
- The boxes they create are called **Cells** and are identified with the **Column Heading**, (for example B), plus the **Row Heading** (for example, 2). So the **Cell Reference** for the highlighted cell shown below is B2.

Do this now. Click on cell B2 to place your cursor in that cell. You will see a black box around the cell indicating that this is now the **Active Cell**, and the label B2 appears in the **Name Box** above. This is called the **Cell Address** or the **Cell Reference**.



## Exercise 4, How to Select Cells

You can experiment with using the mouse to select a range of cells across multiple rows and columns.

- You use the Shift key to select a range of contiguous cells (next to each other).
- You use the CTRL key to select a range of non-contiguous cells (not next to each other).

Try this in your open spreadsheet.

### To Select a Contiguous Range:

1. Click in cell A1.
2. Press and hold the Shift key.
3. Click in cell D6.
4. You will see the entire range highlighted.

	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					

### To Select a Non-Contiguous Range:

1. Click in cell A1.
2. Drag the mouse to cell D1.

This has selected the range A1 to D1. You want to add the ranges A3 to D3 and A6 to D6 to your selection.

3. Press and hold the Ctrl key down (A1:D1 should still be highlighted).
4. Click on cell A3 and drag to cell D3, then click on cell A6 and drag to cell D6.

	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					

## Exercise 5, How to Navigate Around a Spreadsheet and Type Data in Cells

1. Using the workbook open on screen, click in cell A4. Type: **John** and press the Enter key to move down to cell A5.

### Note

The Enter key completes the entry and moves down a row.

2. In cell A5 type: **Hannah** and press the **Right Arrow** key on the keyboard to move to cell B5.
3. In cell B5 type: **Celia** and press the **Right Arrow** key to move to cell C5.
4. In cell C5 type: **Lei** and press the **Enter** key to move to cell C6.
5. To move to cell A6, press the **Home** key on the keyboard (above the Direction keys). This will move your cursor to beginning of the row.
6. In cell A6 type: **Nigel** and press the **Right Arrow** key twice.
7. In cell C6 type: **Hannah**. Press **Enter** then Home key to return to Column A.
8. In cell A7, type: **J**. The AutoComplete feature will fill in the text for John.

### Note

AutoComplete only works in the same column. It did not AutoComplete the name Hannah which you typed into two different columns.

9. Press the **Right Arrow** key twice.
10. In cell C7, type: **L** (for Lei) and press **Left Arrow** key to move to cell B7.

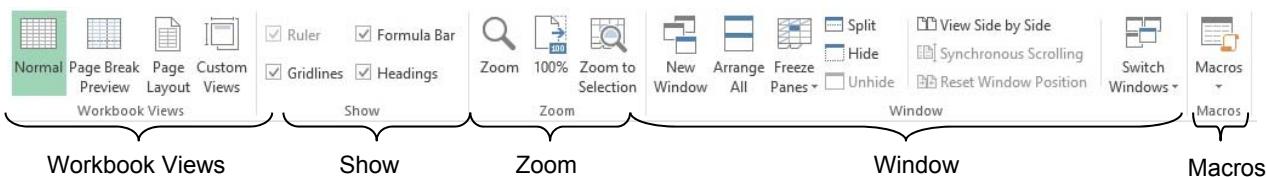
11. In cell **B7** and Type: **John** then press the **Up Arrow** key to move to cell B6.
12. In cell **B6** type: **C** (for Celia) and press the **Enter** key to return to cell B7.
13. In cell **B7** press the **Delete** key to delete the text **John**.
14. Type **Hannah**. Press the **Down Arrow** key to move down a row.
15. Click on cell **A4**. Press and hold the **Shift** key down.
16. Click the mouse in cell **C7**. This will select the range between **A4** and **C7**.
17. Leave this workbook open for the next exercise.

A	B	C	
1			
2			
3			
4	John		
5	Hannah	Celia	Lei
6	Nigel	Celia	Hannah
7	John	Hannah	Lei

#### Note

This ‘smart’ method of selecting a range of cells means that you do not need to hold down the mouse buttons when moving across a range of cells. This is a much more ergonomic method of selecting cells and you have better control of the mouse.

## Change Spreadsheet Views using the View Tab



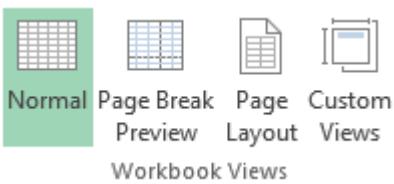
The **View tab** can be used to adjust the way in which the spreadsheet is displayed on your screen.

### The Workbook Views Group

Normal View is the default view of a workbook. Page Layout View gives an overview of the spreadsheet, as it will print (with Headers, Footers and Margins). Full Screen removes all Toolbars so that the spreadsheet covers the entire screen.

#### Normal View

Normal View is the standard view of the worksheet, showing column and row Headings and Gridlines. After Print Preview has been used, dotted lines will show where the page margins are.



## Page Layout View

This view shows Margins, Headers, Footers and the Ruler. Headers and Footers can be added from this view.

	Product A	Product B	Product C
Branch 1	\$9,203.00	\$2,048.00	\$26,987.00
Branch 2	\$16,508.00	\$2,058.00	\$21,611.00
Branch 3	\$14,879.00	\$3,987.00	\$19,687.00
Branch 4	\$18,506.00	\$4,087.00	\$21,387.00

## Page Break Preview

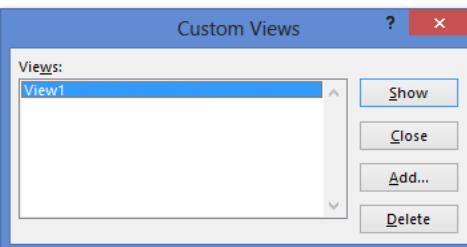
Page Break Preview will show you where a printed page will end and what is on each page.

	A	B	C	D	E	F	G	
Expected Sales 2nd Quarter								
1								
2								
3								
4	Branch 1	\$9,203.00	\$2,048.00	\$26,987.00	\$38,238.00	\$3,823.80	\$34,414.20	
5	Branch 2	\$16,508.00	\$2,058.00	\$21,611.00	\$40,177.00	\$4,017.70	\$36,159.30	
6	Branch 3	\$14,879.00	\$3,987.00	\$19,687.00	\$38,553.00	\$3,855.30	\$34,697.70	
7	Branch 4	\$18,506.00	\$4,087.00	\$21,387.00	\$43,980.00	\$4,398.00	\$39,582.00	
8								
9								
10								
11								
12								
13	Average Total > 40000							
14	Average GST < 2500							
15	Sum Nett Sales > 120000							

## Custom View

This view allows you to save a particular view setting that you use often. Instead of having to adjust the settings each time, they can be saved and shown as needed.

	A	B	C	D	E
1					
2					
3					
4	Branch 1				
5	Branch 2				
6	Branch 3				
7	Branch 4				
8					
9					
10					
11					

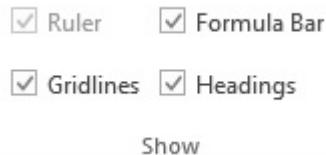


## Exercise 6, Working with Views

1. Using the workbook you have open on your screen, click the View tab, and identify the Workbook Views group.
2. Click on **Normal**. Nothing happens because this is the view you are in.
3. Click on **Page Layout**. You will see the page laid out as it will print.
4. Click on **Page Break Preview**. This will show you exactly where Excel will create pages when it prints the worksheet. You will see how to set page breaks in a later exercise.
5. Click back to **Normal** view.
6. Leave this workbook open for the next exercise.

## The Show Group

The next group along the View tab is the Show group. These commands allow you to turn the main elements of the worksheet on and off.



### Exercise 7, Working with Show and Hide

1. Using the workbook you have open on your screen, and with your spreadsheet in Normal view, click in the Check box  to uncheck the following, one at a time:

- Formula Bar  Formula Bar
- Gridlines  Gridlines
- Headings  Headings

#### Note

You will notice that the Ruler is greyed out.

2. Turn all the elements back on by clicking in each check box.
3. Switch to Page Layout view. The Ruler is available in this view. Repeat the actions in steps 1 and 2 to see what happens.
4. Return to Normal View, and leave the spreadsheet open for the next exercise.

## The Zoom Group

The View tab, Zoom group has various view options for a spreadsheet.



### The Zoom Commands on the Status Bar

To get a bigger or smaller view of your worksheet use the Quick Zoom feature on the Status Bar (bottom right corner of the window). Click anywhere on the *Zoom Slider* to change the Zoom level.



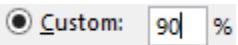
#### Note

This affects the display on the screen only, and does not affect the printout.

## Exercise 8, Working with Zoom

1. Using the workbook you have open on your screen, click on the **View** tab, **Zoom** group,

 **Zoom** button to open the Zoom dialog box.

2. Click  to shrink the worksheet down to 75% and click **OK**.
3. Repeat steps 1 and 2 but this time change the Zoom to 200%.
4. Repeat step 1 to open the Zoom dialog box and click the radio button next to Custom.
5. Where you see **100%** in the Custom box , type **90** and press **Enter** (or click on OK) to change the Zoom to 90%.

6. From the **View** tab, **Zoom** group, click  to restore the worksheet to 100% view.

7. Select cells **A5:C7**. From the **View** tab, **Zoom** group, click  to Zoom in on the selected cells. These will spread across the window.
8. Click on **100%** to return the window to **Normal View**.
9. Leave this workbook open for the next exercise.

## Minimise, Maximise and Close

The Minimise, Maximise (changes to Restore Down) and Close buttons change depending on whether the window is open at the full width of your screen.

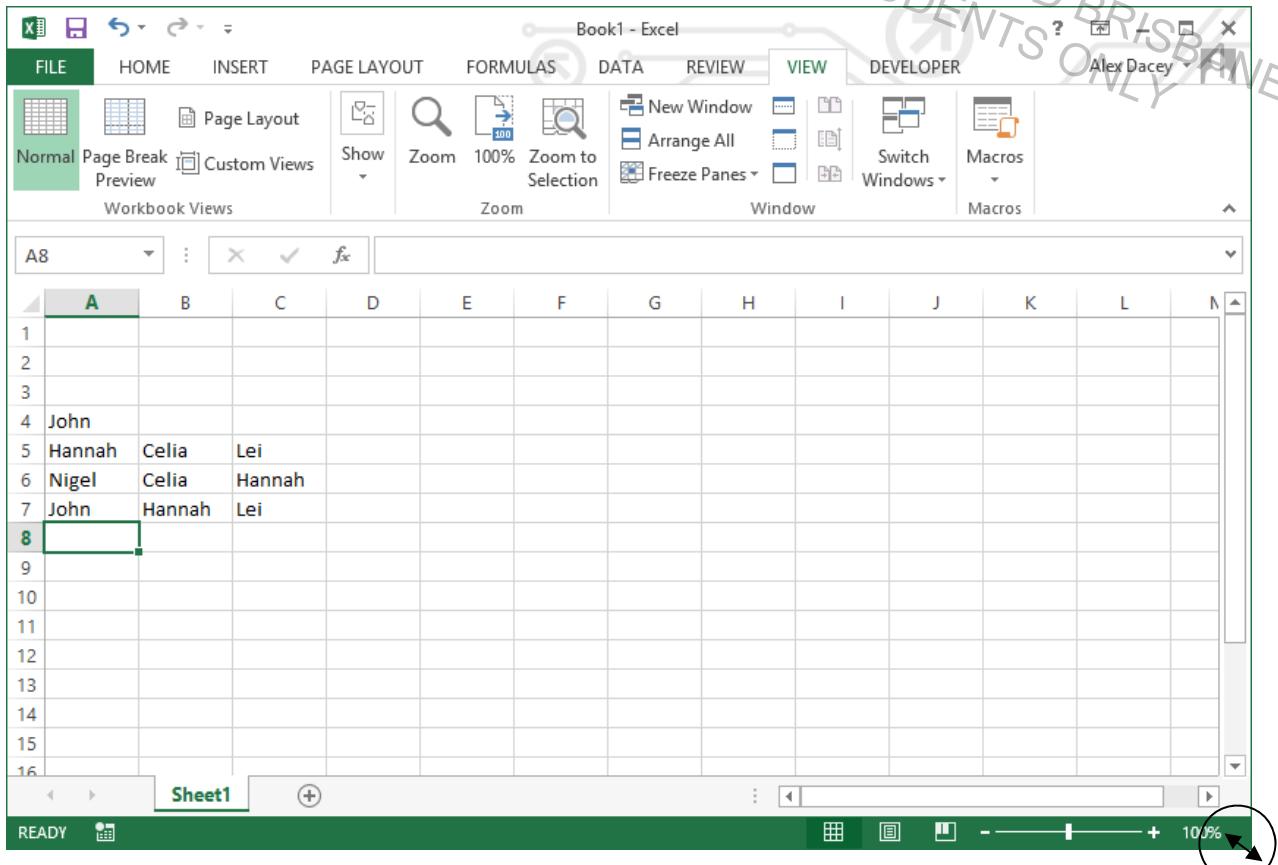
When the window is maximised, Restore Down will reduce the application window in size. The window can be customised to suit your viewing needs.

## Exercise 9, Minimise and Maximise

1. If Excel is not currently maximised (i.e. the  Maximise button is available), click on  in the top right corner on the Microsoft Excel Title bar to maximise the window.
2. Click on the  **Minimise** button to send the spreadsheet to the Taskbar at the bottom of the screen.
3. Hover your mouse over the Excel icon on the taskbar at the bottom of the screen. You will see the icon enlarge to display your exercise. Click on the spreadsheet to restore.



- Click  to **Restore Down** the window to a smaller size.
- Position the mouse pointer over the bottom right corner of the screen until it changes to a sizing arrow .



- Click  to maximise the window.
- Press and hold the mouse and drag the window to the desired size.
- Close the workbook without saving
- You have several choices for how you close a workbook. You can:
  - Click  to close the workbook OR
  - Press CTRL + W (press and hold the CTRL key on the keyboard and type W). This will close the current workbook but not close Excel.
  - Click on the **FILE** tab and click on **Close**.

Whichever you choose you will be presented with this dialog box.



- Click **Don't Save** so that you do not save your changes.
- Leave Excel open for the next exercise.

# File Management

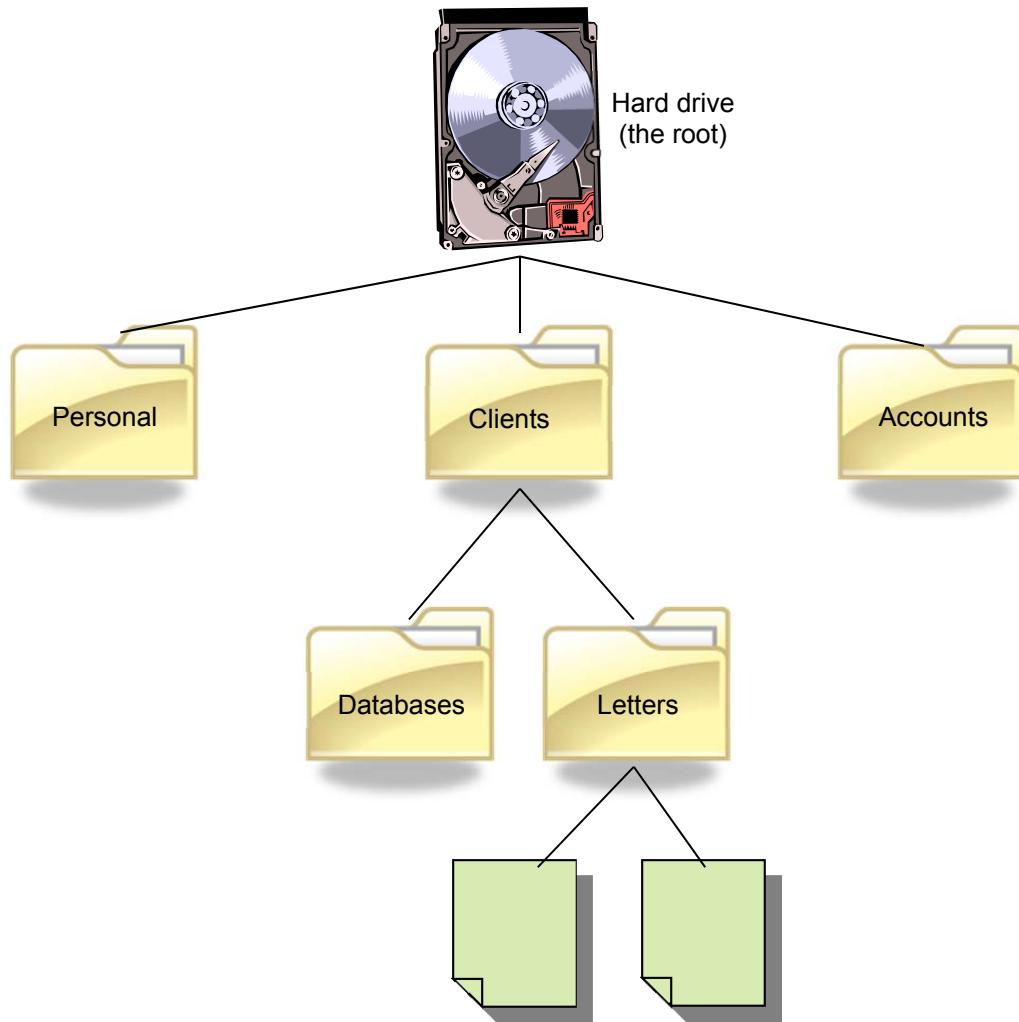
File management refers to the organising of files stored on your computer. Files should be organised in a logical manner to ensure they can be located quickly and easily.

## Folders, Files and Storage

The drives, folders and files on your computer form a hierarchical structure. At the top layer are the drives including the hard drive, removable drives and any network drives you have access to. It may help to think about your computer as a filing cabinet, with each drawer in the cabinet corresponding to a physical drive.

Each computer drive contains folders. Computer folders are virtual storage locations. They can contain other folders (called subfolders) and files. Files are the actual documents you work on such as a word processed document.

This folder structure is sometimes referred to as a directory tree.



### What is the Root?

The root is the top level of a directory tree. For example, if you save a file directly onto the hard disk (rather than in a folder) that file is stored in the root. Similarly you can save a file to the root of a USB memory stick, rather than in a folder.

# File Explorer

File Explorer is a file management program included in Windows 8.1, designed to help you manage your files, folders and drives.

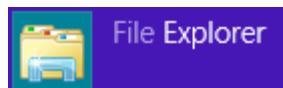
## Starting File Explorer



1. The File Explorer button is usually pinned to the Taskbar. Click on this once to launch the program.

If this icon is not displayed on your Taskbar:

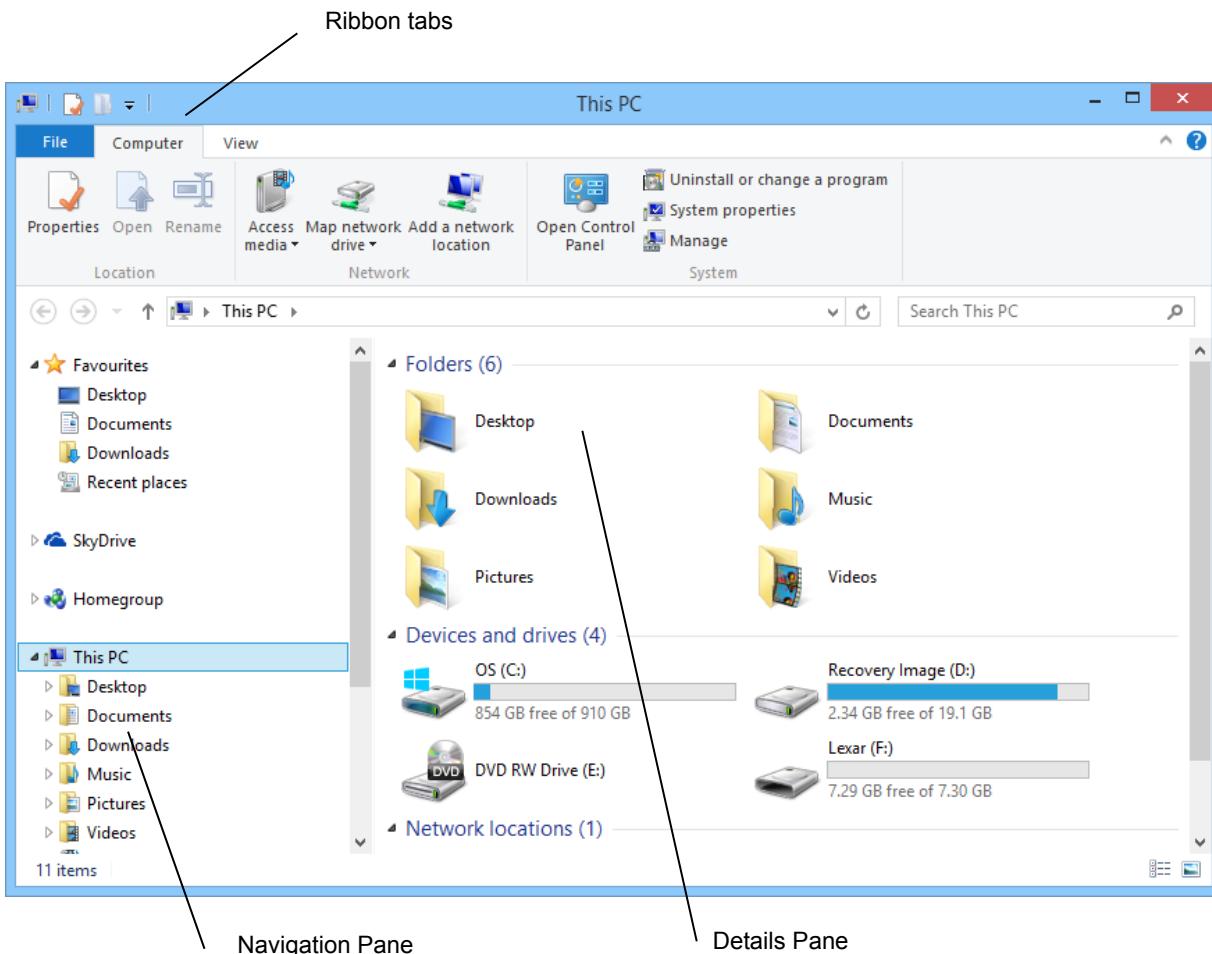
2. Display the Start screen.
3. Type: File Explorer.



4. Click on .

## The File Explorer Screen

Folders and drives are displayed on the left (in the Navigation Pane) and folders and files on the right (in the Details Pane).



## File Explorer Ribbon



The File Explorer window has a Ribbon at the top.

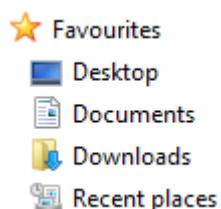
By default, the main part of the Ribbon is hidden; it drops down when you click on a tab. For example, clicking on the Home tab displays the Home Ribbon.

## Navigation Pane

The Navigation Pane provides access to all the drives, folders and network places that make up your computer system. Click on a drive or folder in the Navigation Pane to display the content in the Details Pane.

### Favourites

avourite drives are listed at the top of the Navigation Pane. These provide quick links to useful locations. An example is shown below; your Favourites might be different.



### SkyDrive

The SkyDrive  is a virtual storage device, available if you have a Microsoft account.

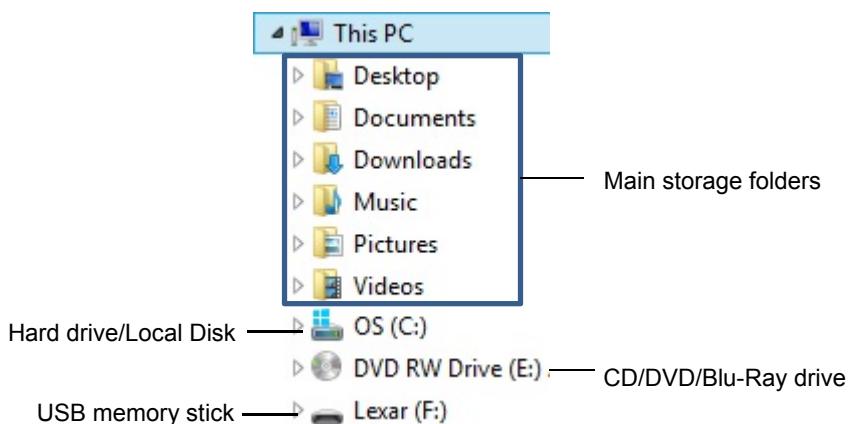
### Homegroup

If your computer is part of a Homegroup (a small network) the users will be listed under Homegroup in the Navigation Pane.



### This PC

This PC lists the main folders and drives that form the basis of the storage space on the computer.



### Note

The letters and names applied to each drive may vary.

The CD/DVD/Blu-ray drive may not display in the Navigation Pane until a disc is inserted.

### Network Locations

If you have access to a network drive, it will be listed under  Network in the Navigation Pane.

## Creating New Folders

1. Select the location for the new folder in the Navigation Pane.

2. Click on the Home Ribbon tab.



3. Click on the New folder button .

4. A new folder is displayed in the list of files. The New Folder box is ready for you to type in the name of the new folder.



5. Type a new name for the folder and press Enter.

## Renaming Files or Folders

Renaming a file or folder only changes the name; it does not alter the contents of either.

1. Select the file to be renamed in the Details Pane.

2. Display the Home Ribbon.



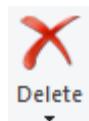
F2 3. Click on the Rename button .

4. Type the new name and press Enter.

## Recycle Confirmation

You can set your computer to give you a warning when you delete a file or folder. This helps to ensure you do not delete material accidentally. Note that your systems administrator may have already turned this option on.

1. Using File Explorer, display the Home Ribbon.



2. Click on the arrow at the bottom of the Delete button .

3. Check there is a tick beside Show recycle confirmation . If there is a tick, click on again to hide the menu. If there is not a tick, select Show recycle confirmation to select this option.

## Deleting a File

1. Select the file to be deleted.

Delete 2. Press the Delete key. Click on Yes to send the file to the Recycle Bin.

Note that if you delete a file from a portable or network drive, it will not go to the Recycle Bin and therefore cannot be retrieved – it will be gone forever.

## Closing File Explorer

Click on the Close button to close File Explorer.

# Using Meaningful File Names

You will find it useful to implement a system for naming files so you can locate them easily again later. Your company may already have a naming convention set up that you should use.

File names are listed alphabetically according to the first word that is typed in. It is therefore important that the first word is meaningful. An example is shown below.

## **A letter to Tim Smythe about Word training**

could be saved as:

**Smythe, Tim - letter re Word training**

or document type first:

**Letter - Smythe, Tim re Word training**

Other naming conventions include:

- Name, Document Type, Description and Version Number**

Type the surname, or company name, of the recipient followed by the document type, e.g. letter, fax, memo, spreadsheet, version number (if required), then description.

Example: The second letter typed to Deltron Electrical Pty Ltd would be saved as

**Deltron, letter 2 - electrical repairs**

- Document Type, Name, Version Number, Description**

Type the document type, e.g. letter, fax, memo, surname or company name of recipient, version number (if desired), then description.

Example: The third fax sent to Enerco Gas Pty Ltd would be saved as

**Fax - Enerco 3, gas installation**

The second letter sent to Micro Services Pty Ltd would be saved as

**Letter - Micro Services 2 - Overdue account**

- Date, Name, Description**

If the date is used at the beginning of the file name, all files will be listed in date order and, within date order, by name. Document type and version can also be included if desired.

Example: **31-3-13, Balance Sheet** indicates that the spreadsheet was a Balance Sheet created on 31 March 2013.

**12-4-13, Seiko Presentation** indicates that the presentation was for Seiko on 12 April 2013.

# Opening an Excel Workbook

So far, you have worked with a default blank workbook that you created when you opened Excel. Now you will open one of the exercise files and work with it.

## Exercise 10, Open a Workbook

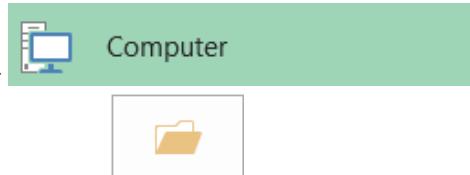
- Ctrl O 1. With Excel open, click on the File Tab **FILE** at the top left of the window and click on **Open** to display the Open options

The Open options will display.

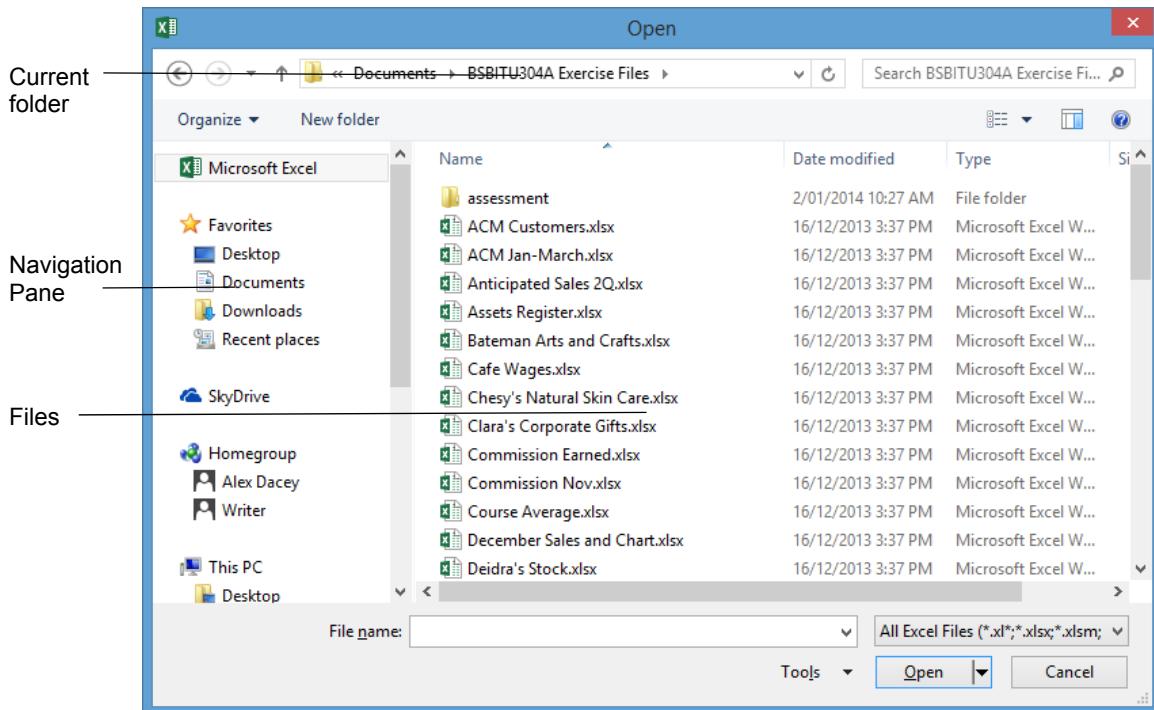
**Open**



2. Click on Computer



3. Click on the Browse button to display the Open dialog box as shown below.

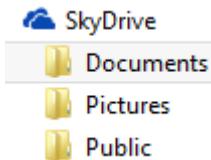


- Current folder:* displays the currently selected folder.  
*Navigation Pane:* lists all drives (including portable USB drives connected to the computer) and main folders.

4. Use the appropriate instruction below to locate your files location.

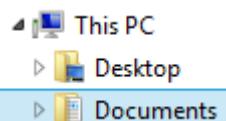
#### To locate files in the SkyDrive

Click on the ▶ beside the SkyDrive in the Navigation Pane to display all subfolders.



#### To locate files in the Documents Folder

Click on Documents under This PC.



#### To locate files on a portable USB drive

- Ensure your portable drive is connected to your computer.
- Select the portable drive from under This PC ▶ Lexar (F:) (the drive name and letter will vary depending on your computer configuration).

#### To locate files on a portable USB drive

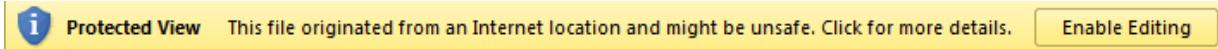
If you have a network drive, it may be listed under Network in the Navigation Pane. Consult your trainer, supervisor or network administrator to check you are accessing the correct network location.

5. Select **Haden's Game Store March Sales** from the list of files.

6. Click on Open ▾. Leave the worksheet open for the next exercise.

## Protected View

Excel 2013 helps protect your computer from viruses and other malicious software. If you try and open a file which was downloaded from the internet, or from an email, Excel will open the spreadsheet in Protected View. The spreadsheet will open with the following bar at the top of the screen:



While this yellow bar is displayed, you can read the spreadsheet, but you cannot edit it. This is a good option if you simply want to check a spreadsheet safely. Clicking on the Enable Editing button allows you to make changes to the spreadsheet. Enabling editing can expose your computer to risk if the file is hiding any malicious software. If you are unsure about the safety of a spreadsheet, check it with a virus scanner before enabling editing.

## Compatibility Mode

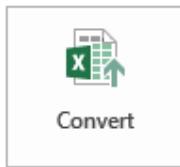
If you open a spreadsheet created in a much older version of Excel (specifically in the Excel 97-2003 format), the spreadsheet will be opened in Compatibility Mode. When a spreadsheet is opened in Compatibility Mode, some of the advanced features of Excel 2013 will not be available. This helps to preserve the functionality of the spreadsheet. When one of these spreadsheets is opened you will see the text Compatibility Mode in the Title bar.

Haden's Game Store March Sales.xls [Compatibility Mode] - Excel

To ensure all Excel 2013 features are available, you will have to convert the spreadsheet. This will be performed in the following exercise.

### Exercise 11, Compatibility Mode

1. Make sure you have the spreadsheet called **Haden's Game Store March Sales** open.
2. If your exercise files were downloaded from the internet, you may see the Protected View bar at the top of the screen. If this bar displays, click on the Enable Editing button.  
**Note**  
This depends on how your educational provider accessed these files. This bar may not display.
3. The file has been opened in Compatibility Mode (as shown in the Title bar).
4. Click on **FILE** and ensure **Info** is selected at the left.



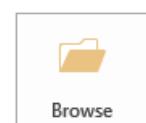
5. Click on the Convert button . A dialog box will display explaining the conversion process.
6. Click on OK to convert the spreadsheet. Click on Yes to close and reopen the file. Press Ctrl S to save the spreadsheet and leave it open for the next exercise.

#### Note

Microsoft Excel refers to individual spreadsheets as **worksheets**. Worksheets are combined into a file called a **workbook**. Therefore you have now opened the workbook called Haden's Game Store March Sales. In this book, the terms worksheet and workbook will be used when referring specifically to Excel files.

### Exercise 12, Save a File Using Save As

1. Click on **FILE** and click on **Save As** .
2. Click on . The Save As dialog box will open. The correct location should be defaulted. If not, navigate to the folder containing your exercise files.
3. In the File name field, type **Haden's Game Store March Commission**.
4. Click on the Save button. Your workbook is saved, but remains open on your screen. Do not close it at this stage. You will see the new name across the top of the screen.



## Working with Columns and Rows

The Cells group on the Home tab allows you to Insert and Delete columns and rows as the spreadsheet changes. The Format button is used to change the look and layout of a cell (not the content of the cell) in a spreadsheet, for example the cell height (Row Height) and width (Column Width).



### Exercise 13, Insert a Row

1. Using **Haden's Game Store March Commission**, click in the Row Heading on **Row 6** to select the entire row (or use Shift + Spacebar in the row).
2. From the **Home** tab, **Cells** group, click on the ▾ below the button.



Insert

3. Click on to insert a row ABOVE the selected row.
4. Press **CTRL + Y** on the keyboard twice to repeat the **Insert** command.  
There are now three blank rows in the worksheet.
5. Click in cell **A6** and press and hold the Shift key. Click in cell **F7**. This is a quick and effective method to select the range between cells **A6:F7**.
6. Type in the following data using the Tab key to move to the next cell:

Sophie	2997	3034	2941	3016	2959
Mike	3871	3893	3855	3882	3849

#### Note

After typing data into the last cell of the first row and pressing the Tab key the cursor moves to the next row.

7. Proofread your entered data to ensure the figures match those above.
8. Save and leave the workbook open for the next exercise.

### Exercise 14, Move a Row

1. Using **Haden's Game Store March Commission**, select **Row 12** (try SHIFT + SPACEBAR) and position the mouse over the first cell in the highlighted row.

The mouse pointer will change to a Move Cursor.



2. Click and drag to push the selected cells up to **Row 8**.
3. Using the same technique, move **Row 9 to Row 8**.
4. This time the row is not empty and you will be asked if you wish to replace the contents of the destination row.
5. Click on **OK** to replace the contents of Row 8 with Row 9.
6. Select Rows 10-11 (drag the mouse down the Row Headings) and move them to **Rows 9-10**.
7. Save and leave this workbook open for the next exercise.

## Exercise 15, Delete a Row

1. Using **Haden's Game Store March Commission**, select Rows 9-10.  
  
Delete
2. On the **Home** tab, **Cells** group, click on the **⋮** below the **⋮** button.
3. Click  **Delete Sheet Rows**.
4. Select Row 11 and press the F4 key (this repeats a command, the same as **CTRL + Y**).
5. Press **CTRL + Z** to undo the action and restore the row.
6. Press **CTRL + Y** to redo the undo action.
7. Click on the Save button  on the Quick Access toolbar to save and leave the workbook open for the next exercise.

## Exercise 16, Insert and Delete a Column

1. Using **Haden's Game Store March Commission**, click in the heading of **Column D**  to select the entire column.



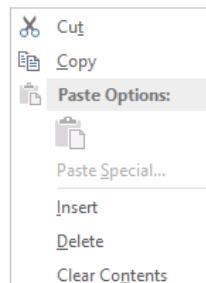
2. Click on the **⋮** below **⋮** and select  **Insert Sheet Columns**.

### Note

The column has been inserted before the column D which is now column E.

3. Select **Column D** and click on **⋮** in the cells group.
4. Another option is to access the pop-up menu using the right mouse key. Select **Column D** and **right mouse** click on the column heading. A pop-up menu appears as shown at the right. Click on **Insert**.
5. In the new blank column select cell **D4** and type: **PS2 Console** and press **Enter**.
6. Type the following data information into the inserted column cells **D5:D8**:

PS2 Console
2418
2979
3860
6859



7. Proofread entered data checking against the original.
8. Use the keyboard shortcut, **Ctrl + S**, to save and leave the workbook open for the next exercise.

## Exercise 17, Auto Fit Cell Contents

You can auto fit your cell contents, which means changing the column width to exactly fit the cell contents.

1. Using **Haden's Game Store March Commission**, select **Column F**.

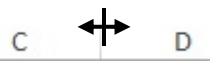
2. On the **Home** tab, in the **Cells** group, click **Format**.

3. Under Cell Size, click AutoFit Column Width.

There is a quicker way to do this.

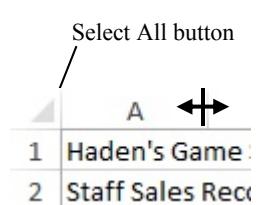
4. Select Column C.

5. Position the mouse over the dividing line between columns C and D



6. Double click on the dividing line to get the exact fit.

7. To auto fit all columns, click the **Select All** button and then double-click any boundary between two column headings.



8. Save and leave the workbook open for the next exercise.

## Exercise 18, Widen a Column to a Specified Width

1. Using **Haden's Game Store March Commission**, click to position the cursor in Column A.



2. On the **Home** tab, **Cells** group, click on the **Format** icon below .

3. Click to open the **Column Width** window.



4. Type: **11** in the **Column Width:** box and click on **OK**.

5. To change all columns to a consistent width for readability, click the **Select All** button and



then on the **Home** tab, **Cells** group, click on the **Format** icon below .

6. Click to open the **Column Width** window.

7. Type: **11** in the **Column Width:** box and click on **OK**.

8. Save and leave the workbook open for the next exercise.

## Basic Formulas and Functions

Common formulas and functions are included at the beginning of the following section. If you have learned these previously and feel confident using them, you may wish to skip the first few exercises. We do however strongly recommend that you do Practical Activities 1 and 2, to test your knowledge before moving on.

The exercises that follow cover:

- AutoSum, Average, Minimum, Maximum
- Copy and paste formulas
- Wrap text in a cell
- Column Width
- Fill Command
- Basic operations (multiplication, subtraction and division) and Percentages
- Format Painter, Formatting and Styles
- Working with and checking GST calculations
- Print, Print Preview and Print Options
- Sorting Data
- Changing Margins, Orientation and Paper Size
- Print Sheet/View Options

### *What is in a Formula*

Formulas are split into parts and the following definitions and explanations will help you to better understand how to create a formula:

- A **formula** always starts with an = (equals sign).
- **Reference** is the name of the cell, for example B7.
- A **range** is a group or block of cells, shown with a colon in-between (A3:B5 is the range of all cells between cell A3 and B5) and the selected values in the range are shown in parentheses (brackets).
- An **argument** is the values in the range.
- A **constant** is the value entered in the formula, for example =B5 + 10, the number 10 does not change if you copy or move the formula, it remains constant.
- An **operator** helps to perform the calculation (+ add, – subtract, \* multiply and / divide > greater than, < less than).
- A **function** is a predefined formula, for example, =sum adds selected values together.

- The **formula** is always calculated from left to right, except that multiply and divide are calculated first, before add and subtract.

2		20
3		50
4		70
5		60
6		=AVERAGE(A2:A5)
3	Sold	2000
4	Costs	1200
5	Profit	=B3-B4

=Average(A3:A6)  
= is the function  
A2:A5 is the range

=B3-B4  
= is the function  
B3 and B4 are references  
The minus sign is the operator

## Exercise 19, AutoSum

The AutoSum (Sum) feature  uses the formula =Sum(range). This frequently used feature can be found on both the Home and Formulas tabs.

- Using **Haden's Game Store March Commission**, type the text **Total** in cell A10.
- Select cells **B10** to **G10** and click on the  AutoSum button on the Home tab, Editing group. This will add the amounts in each column and put the results in the Total row.
- Note**  
If there are any gaps (empty cells) in the range, the Autosum will only add the values up to the first empty cell.
- Type: **Total** in cell **H4** (don't press Enter yet).
- To wrap the text onto the next line, hold down the Alt key and press **Enter**. Type: **Sales** and press the **Enter** key. Note that row 4 has been increased in size to accommodate the two rows in this cell.
- Your cursor is now in cell **H5**. Click on  to total the data to the left of **H5** and press **Enter**. Your cursor is now in cell H6. Click back up to cell **H5**.
- From the **Home** tab, **Clipboard** group, click  **Copy** then select cells **H6** to **H8**.

### Note

A range of cells can also be written as H6:H8, the way they would appear in a formula.



- From the **Home** tab, **Clipboard** group, click  **Paste**. The formula will be copied down the selected range.

### Note

**Keyboard Shortcuts:** Copy (CTRL + C) and Paste (CTRL + V).

- Copy the formula from cell G10 and paste it into H10.
- Click in cell I4 and type: **Commission**
- Save and leave the workbook open for the next exercise.

## Understanding Percentages

### Exercise 20, Calculate Percentages

1. Using **Haden's Game Store March Commission**, click on cell **I5**, type:  $=$  to start the formula, type: **H5\*10%** and press **Ctrl Enter** to enter the formula and leave the cursor in the current cell. The formula changes to the number result. The formula is shown in the

Formula bar above the spreadsheet grid.



2. Repeat the formula in **I6** (for practice) specifying H6 as the referenced cell.
3. Save and leave the workbook open for the next exercise.

In the exercise that follows, you will use the Fill command to copy the formula.

### Copy a Formula Using the Fill Handle

Use the following steps to copy the formula using the Fill Handle feature, which is a quick and effective method to replicate a formula to adjacent cells in a spreadsheet.

### Exercise 21, Copy a Formula

1. Using **Haden's Game Store March Commission**, click in cell **I6** and check that the Formula bar reads **=H6\*10%**
2. Position the mouse pointer over the bottom right corner of the cell; it changes to a **Fill Handle +**.
3. Press and hold the left mouse button; drag the mouse down to **Row 8**.
4. Release the mouse button; the formula has been copied into each cell and the results calculated. Click on cell **I8** and check the Formula Bar. It should read **=H8\*10%**.
5. The Fill Handle can also go sideways across columns. Click on cell **H10** and use the Fill Handle to copy the formula into cell **I10**.
6. Save and leave the workbook open for the next exercise.

Commission
1455.7
1792.6
2321
4164.2

## Formatting Cells

### Exercise 22, Format Currency

There are different standards for displaying currency. Check your company *Style Guide* for the preferred format.

1. Using **Haden's Game Store March Commission**, click in cell **B5** and press and hold the Shift key. Click in cell **B10**. This is a quick and effective method to select the range between cells **B5:B10**.
2. From the **Home** tab, **Number** group, click on the **\$ Accounting Number Format**. **Accounting Number Format** positions the \$ sign against the Left Margin.

#### Note

If you want the dollar sign aligned with the first number, you need **Currency Format**.

3. From the **Home** tab, **Number** group, click on the down arrow  next to the word Accounting, and click on  from the drop down list.
4. Click in cell **C5** and press and hold the Shift key. Click in cell **I10**. This is a quick and effective method to select the range between cells **C5:I10**.
5. Format all these cells to Currency format.
6. Save and leave the workbook open for the next exercise.

### Exercise 23, Format Cell Borders

1. Using **Haden's Game Store March Commission**, select cells A4:I4.
2. Click on **Home** tab, **Font** group,  **B Bold** (or press **CTRL + B**).
3. Select cells **B10:I10**.
4. From the **Home** tab, **Font** group, click on the down arrow next to the  button.
5. Click  **Top and Double Bottom Border** from the Borders menu.

	PS3 Console	XBox	PS2 Console	Games	Wii	iPhone	Total Sales	Commission
4								
5 Haley	\$2,434.00	\$2,466.00	\$2,418.00	\$2,387.00	\$2,450.00	\$2,402.00	\$14,557.00	\$1,455.70
6 Sophie	\$2,997.00	\$3,034.00	\$2,979.00	\$2,941.00	\$3,016.00	\$2,959.00	\$17,926.00	\$1,792.60
7 Mike	\$3,871.00	\$3,893.00	\$3,860.00	\$3,855.00	\$3,882.00	\$3,849.00	\$23,210.00	\$2,321.00
8 Jay	\$6,868.00	\$6,977.00	\$6,859.00	\$6,841.00	\$7,247.00	\$6,850.00	\$41,642.00	\$4,164.20
9								
10 Total	\$16,170.00	\$16,370.00	\$16,116.00	\$16,024.00	\$16,595.00	\$16,060.00	\$97,335.00	\$9,733.50
11								

#### Note

This button changes to the last Border style used.

6. Save and leave the workbook open for the next exercise.

### Exercise 24, Format Cell Alignment

1. Using **Haden's Game Store March Commission**, click in cell J4 and type: Sales Less Comm.
2. Select cells **A4:J4** and from the **Home** tab, **Alignment** group click on the  **Align Text Right** button.
3. From the **Home** tab, **Alignment** group click  **Wrap Text**, to wrap the text.
4. Save and leave the workbook open for the next exercise.

### Exercise 25, Change Text Size

1. Using **Haden's Game Store March Commission**, select cell A1.
2. On the Home tab, Font group, click on  twice to increase text size.
3. Click in cell A2 and click on  once.
4. Save and leave the workbook open for the next exercise.

## Create Formulas using the Mouse

You have two ways of creating a formula. You can manually type it in the cell address, or you can click the mouse on the cells you require in the formula. This method is recognised as being far more accurate than typing in the cell address.

### Exercise 26, Use the Mouse to Ensure Accuracy

1. Using **Haden's Game Store March Commission**, click in cell J5.
2. To enter the formula =H5-I5, type =, click on cell H5, type the minus sign, click on cell I5. Instead of pressing Enter, click on the Tick ✓ (Enter) in the formula bar. Cell J5 is still selected.
3. Check that your formula says =H5-I5
4. Use the Fill Handle to copy the formula down the column to J8. If you get a series of hash signs, this means that your column is too narrow. Use the auto fit method to correct this. (Hint: Double click on the right edge of the Column heading.)
5. Check your answer.
6. Click in cell J10 and use AutoSum to add the figures in column J.
7. Click in cell I10.
8. From the Home tab, Clipboard group, click Format Painter .
9. Click on cell J10 to copy the formatted border to the cell.
10. Save and leave the workbook open for the next exercise.

Total	Sales	Commission	Sales Less Comm.
\$14,557.00		\$1,455.70	=H5-I5

## Goods and Services Tax

Goods and Services tax is 10% on most goods, services and other items sold and consumed in Australia. When an invoice shows the GST as part of the total, that is the **inclusive** amount. If the amount shown is before GST, that is the **exclusive** amount.

### Exercise 27, GST (Goods and Services Tax)

1. Using **Haden's Game Store March Commission**, type: **GST** in cell **K4** and click ✓ to enter. Right Align  the cell, if necessary.
2. In cell **K5**, create the formula =H5/11 to calculate the GST. Format to Currency if necessary.
3. Fill the formula down, and copy the Total across.
4. Save and leave the workbook open for the next exercise.

#### Note

The GST is included in the Total Sales. The number 11 calculates the inclusive amount for 10% tax.

## Exercise 28, Check the GST

1. Using **Haden's Game Store March Commission**, type: **Check GST** in cell A12.
2. In cell **B12** enter the following formula: **=H5\*10/11**. This will give you the amount of the Total Sales *before GST*. Format the result to Currency.
3. In cell **C12** enter the formula: **=B12\*10%**. The result should match **K5**.
4. In cell **D12** enter: **=B12\*1.10**. Format to Currency. This **increase percentage** is the same as adding the 10% tax back to the base amount. The result should match your Total Sales **H5**.
5. Save and leave the workbook open for the next exercise.

## The Styles Group

In the Styles group on the Home tab, there are preset styles to help format a worksheet. Styles help to keep documents consistent. These can also be modified. For the purpose of this exercise, we will focus on Cell Styles only in this group.



## Exercise 29, Work with Styles

1. Using **Haden's Game Store March Commission**, press CTRL + Home to go to cell A1.
2. Select cells **A1:K1**
3. From the **Home** tab, **Alignment** group, click the down arrow next to the **Merge & Centre** button Merge & Center ▾, and select **Merge & Centre**. The cells have been merged into a single cell and the heading has been centred.
4. Select cells **A2:K2**. Press the Function key F4 to repeat Merge & Centre.
5. Click in cell **A1**.
6. Click the ▾ down arrow next under the **Cell Styles** button to display the palette of styles.

The screenshot shows the Cell Styles palette in Microsoft Word. It includes sections for Good, Bad and Neutral, Data and Model, and Titles and Headings. Under Titles and Headings, the **Heading 1** style is selected, highlighted in blue. Other styles listed include Heading 2, Heading 3, Heading 4, Title, and Total. Below these are Themed Cell Styles with various color combinations.

7. Position the mouse over Style **Heading 1**. **Live Preview** will display cell A1 in that style.

The screenshot shows the Microsoft Word ribbon with the **Cell Styles** palette open. The **Heading 1** style is selected, highlighted in blue. The palette also shows **Calculation** and **Output** categories. The main window displays the **Haden's Game Store** worksheet with the title and subtitle cells formatted according to the selected style.

8. Click on **Heading 1** to apply it to the cell and apply **Heading 2** to **A2**.

9. Format all Column Headings in **Row 4** to **Heading 3**

10. Apply the following formatting:

- Numbers in **Row 10** to **Good** Good (green shading)
- **Column A** (names only) to **Accent1**
- **A10** to **Heading 4**



Sort &

Filter ▾

11. Select cells **A5:K8**. Click on the **Sort & Filter button (Editing group)** and select **A to Z** to sort all the names and related data into ascending order. Hint: Be careful not to include the column heading or total row in the sort selection.

4		PS3 Console	XBox	PS2 Console	Games	Wii	iPhone	Total Sales	Commission	Sales Less Comm.	GST
5	Haley	\$2,434.00	\$2,466.00	\$2,418.00	\$2,387.00	\$2,450.00	\$2,402.00	\$14,557.00	\$1,455.70	\$13,101.30	\$1,323.36
6	Jay	\$6,868.00	\$6,977.00	\$6,859.00	\$6,841.00	\$7,247.00	\$6,850.00	\$41,642.00	\$4,164.20	\$37,477.80	\$3,785.64
7	Mike	\$3,871.00	\$3,893.00	\$3,860.00	\$3,855.00	\$3,882.00	\$3,849.00	\$23,210.00	\$2,321.00	\$20,889.00	\$2,110.00
8	Sophie	\$2,997.00	\$3,034.00	\$2,979.00	\$2,941.00	\$3,016.00	\$2,959.00	\$17,926.00	\$1,792.60	\$16,133.40	\$1,629.64

12. Save and leave the workbook open for the next exercise.

## Preview and Print a File

### Exercise 30, Print a File

The current worksheet will print over two pages, which is a waste of paper resources. A small adjustment to the Page Setup can Ensure this file will print on one sheet of paper. This method does not always work with every spreadsheet as they vary in the number of **columns** and **column width**. Always check to Ensure all values are printing clearly.

1. Using **Haden's Game Store March Commission**, click on the File Tab **FILE** and click on **Print**. The spreadsheet will be previewed in **Backstage View**.

Haden's Game Store						
Staff Sales Records March 2011						
	PS3 Console	XBox	PS2 Console	Games	Wii	iPhone
Haley	\$2,434.00	\$2,466.00	\$2,418.00	\$2,387.00	\$2,450.00	\$2,402.00
Jay	\$6,868.00	\$6,977.00	\$6,859.00	\$6,841.00	\$7,247.00	\$6,850.00
Mike	\$3,871.00	\$3,893.00	\$3,860.00	\$3,855.00	\$3,882.00	\$3,849.00
Sophie	\$2,997.00	\$3,034.00	\$2,979.00	\$2,941.00	\$3,016.00	\$2,959.00
<b>Total</b>	<b>\$16,170.00</b>	<b>\$16,370.00</b>	<b>\$16,116.00</b>	<b>\$16,024.00</b>	<b>\$16,595.00</b>	<b>\$16,060.00</b>
Check GST	\$13,233.64	\$1,323.36	\$14,557.00			

2. Click on **►** below the preview **1 of 2 ►** to display the second page.
3. Click on **Page Setup** to open the Page setup dialog box.

4. Click the  **Landscape** option button in the Orientation section to change paper direction. Then click on Fit to 1 page wide by 1 tall  
 **Fit to:**    **tall**

5. Click on the **Header/Footer** tab.

6. Click **Custom Footer...** and type your name in the Left section.

7. Press the Tab key on the keyboard to move to the Centre section:

8. Click to insert the Date.

9. Press Tab key to move to the Right section:

10. Click to insert the file name in the Right section.

11. Click OK to close the Footer.

12. Click OK to close the Page Setup dialog box. Check the preview to Ensure the footer displays correctly and that all columns are now displayed on one page.

13. Click on **Page Setup**

14. Click on the **Margins** tab. In the **Centre on page:** section, click in the **Horizontally** and **Vertically** check boxes to position the worksheet in the middle of the page when printing.

**Center on page** –  
 **Horizontally**  
 **Vertically**

**Note**

Vertical Centre is usually not suitable for such a small worksheet.

15. Click OK.



16. Click on the Print button to print a copy of the spreadsheet.

17. Click on the File Tab then click on to close the workbook.

## More on Formulas

### Exercise 31, Average

**Formula:** =AVERAGE(range) determines the average of the amounts in the range.

1. Open the supplied file **Course Average** (enable editing if required) and save it as **Design Average**.

2. Click in cell **B14** and click the down arrow next to the AutoSum button.

3. Click on to insert the Average formula into the cell.

4. Select cells **D5:D11** so that the formula reads **=AVERAGE(D5:D11)**. Press **Enter**.

	LastName	FirstName	IDCode	Fee Due
5	Ahn	Su	TT2038	\$1,200.00
6	Chotitawan	Sorrell	TT2037	\$2,400.00
7	Hart	Jennifer	TT2036	\$1,200.00
8	Murie	Alissa	TT2039	\$1,250.00
9	Schoones	Rose	TT2035	\$1,250.00
10	Stone	Russell	TT2040	\$1,200.00
11	White	Cassey	TT2041	\$2,400.00
12				
13				
14	Average fee			=AVERAGE(D5:D11)
15	Average paid to date			AVERAGE(number1, [number2], ...)

5. In cell **B15**, calculate the average amount paid to date: **G5:G11**.  
 6. In cell **B16**, calculate the average balance: **H5:H11**.

#### Note

The function will automatically try to calculate the amounts above the active cell. Just continue to select the appropriate range.

7. Check your answer below.

14	Average fee	\$ 1,557.14
15	Average paid to date	\$ 705.00
16	Average balance	\$ 696.43

8. Save and leave the workbook open.

## Exercise 32, Minimum and Maximum

**Formula:** `=MIN(range)` – determines the minimum (lowest) value in the range. This is very useful over a large spreadsheet.

**Formula:** `=MAX(range)` – determines the maximum (highest) value in the range.

1. Using **Design Average**, click in cell **A18** and type: **Minimum deposit paid** and press the Tab key to move to cell **B18**.
2. Select **Min** from the AutoSum  $\sum$  **AutoSum** ▾ (**Editing group**).
3. Select the range **(E5:E11)** that displays the Deposit amounts paid and press **Enter**. Widen Column A.
4. In cell **A19** type: **Maximum deposit paid** and in cell **B19** calculate the **Max** Maximum deposit.

18	Minimum deposit paid	\$ 120.00
19	Maximum deposit paid	\$ 240.00

5. Save and close the workbook.

## Practical Activity 1



### Scenario

Haden's Game Store has received all the sales figures for April. Open the file **Haden's Sales April** and save as **April Commission**.

You need to calculate the following:

- Total Sales per product
- Total Sales per salesperson
- The Commission paid on each product at 10%
- Sales less Commission for each product
- GST calculated on the Total sales for each product which show the **inclusive** amount
- Check the GST below the data area
- Calculate the **average sales** for each salesperson below the GST calculations. Also calculate the **minimum** and **maximum** amount sold for each person. Hint – set this up below each person's column.

14	Average	??	??	??	??
15	Minimum	??	??	??	??
16	Maximum	??	??	??	??

### Further Instructions:

- Format the spreadsheet so that all numbers and information are displayed professionally and are easy to read. Change money figures to Currency format.
- Enter all the necessary headings and wrap the text where appropriate.
- Sort the product range into alphabetical order.
- Check the entered text for accuracy. Preview the worksheet, ensure it fits on one page and is easy to read, and has your name, date and file name in the footer.
- Print the worksheet, then save and close.

## Practical Activity 2



### Scenario

Ocean Skin Care needs to calculate the sales figures and commissions for July. Open the supplied file **Ocean Commission** and save as **July Commission**.

Perform the following actions:

- Calculate Total Sales per outlet (units sold \* unit price).
- In the Totals row, calculate Total Units sold and the Total Sales of all products.
- Calculate Commission at 8%.
- Calculate Sales after the Commission has been deducted.
- Calculate GST. This is calculated on the Total sales which show the **inclusive** amount.
- Check to Ensure the GST is correct below the data area.
- Format the spreadsheet so that all numbers and information are displayed professionally and easy to read.
- Format the spreadsheet, entering any necessary headings.
- Check the entered text for accuracy. Preview the worksheet, ensure it fits on one page and is easy to read, and has your name, date and file name in the footer.
- Save and print the worksheet.
- Close the workbook.

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## Activity 4



1. Write down the Keyboard Shortcuts for both the Copy and Paste commands.  
.....  
.....
2. What quick method (not Copy and Paste) can be used to copy a formula down a column or along a row?  
.....  
.....

3. What can you do to adjust a page so that it prints on one page only?  
.....  
.....

4. Explain how to calculate the GST amount in a total that includes GST. Include the formula in your answer.  
.....  
.....

5. Write down the formulas for the following:

Add a range of numbers .....  
.....

Determine an average .....  
.....

Determine a minimum amount .....  
.....

Determine a maximum amount .....  
.....

6. What feature can you use to quickly format headings and data in a spreadsheet to ensure consistency across the spreadsheet? Include where this feature can be found (the name of the group) in your answer.  
.....  
.....

7. Write down the Keyboard Shortcut to save a file.  
.....  
.....

## Understanding Relative and Absolute Cell References

In the previous exercises, you have copied a formula down to fill a range.

When you copy a formula from one cell to another, cell references in the formula will change. Excel attempts to help you by automatically updating cell formulas as they are moved or copied from one location to another. This is known as a **Relative Cell Reference**.

### Relative Cell References

#### Exercise 33, View Relative Cell References

1. Open the file **Haden's Game Store March Commission**, click in cell **H5**. Look in the Formula bar and you will see the formula **=SUM(B5:G5)**
2. Click in cell **H6**. This is the first cell you copied this formula to. You will see that this formula is **=SUM(B6:G6)**.

Look at all the remaining formulas in column H. You will see that Excel automatically changed the row letter in each formula to relate to the row you copied it to. Close the workbook.

### Absolute Cell References

Most of the time these automatic changes to a copied formula are exactly what you want, but sometimes you do not want to have the cell references changed.

If you need a formula to remain constant you need to make it an **Absolute** cell address. This displays as a \$ in a cell address, e.g. \$B\$2.

Rate	60		Discount	
	Hours	Labour Cost	Parts	Sub-Total
19.5	$=$C\$3*B5$	125	$=C5+D5$	
27	$=$C\$3*B6$	385	$=C6+D6$	
28	$=$C\$3*B7$	124.95	$=C7+D7$	
19	$=$C\$3*B8$	602.8	$=C8+D8$	
4.5	$=$C\$3*B9$	302.1	$=C9+D9$	
32.5	$=$C\$3*B10$	251.1	$=C10+D10$	

Absolute References (\$C\$3 in each formula)      Relative References  
Each cell reference different

#### Exercise 34, Use Absolute Reference

1. Open the file **Seaview Job Sheet** and save as **Job Sheet November**.
2. Calculate the Labour cost using the Rate value in C3 as an **Absolute Reference** using the instructions on the next page.

3. In cell **C5** start the formula with = then click on cell **C3** and press the **F4** key once. The cell reference changes to **\$C\$3**.

**Note**

**F4** is a toggle key, press it again, the reference changes to **C\$3** (relative column, absolute row) press again, it changes to **\$C3**, press again and it goes back to **C3**.

4. Make sure you leave it as **\$C\$3**.  
 5. Complete the formula by typing \* then click on cell **B5** (leave this as a relative reference).

A	B	C
1		Seav
2		Jobs C
3	Rate	\$ 60.00
4	Job Sheet No.	Labour
5	Hours	Cost
C7985	19.5	= \$C\$3 * B5

6. Copy the formula to the range **C6:C10**, look at cell **C10** and see that it still refers to **\$C\$3**.  
 7. Calculate the Sub Total (Hint: = Labour Costs + Parts).  
 8. Calculate the Discount Allowed using the value in **F3** as an **Absolute Reference**.  
 9. Calculate the final total (Hint: discount reduces the total amount).  
 10. Calculate the GST amount on the final total.  
 11. Select cells **B5:H11** and click on  $\sum$  AutoSum in the Home tab.  
 12. Click on each result and check the range to Ensure all cells are included.  
 13. Right click on cell **D11** (Parts) to activate the Mini Toolbar.



14. Click on the Format Painter icon and then click on cell **C11** to copy the formatted Border and Number Format used in D11.  
 15. Select cells **C5:H11** (Hint: Click in **C5**, press Shift, click in **H11** to smart select).  
 16. Format the cells to Currency (Home tab) so that they all have the same formatting.  
 17. Select **E5:E10** and look at the Status Bar beneath the worksheet.

AVERAGE: \$1,603.49 COUNT: 6 SUM: \$9,620.95

This feature displays the Average, Count (number of selected items) and the Sum of the data selected. This can be used to cross-check the total.

18. Click in cell **B16** and click the  $\sum$  next to AutoSum .  
 19. Select Average from the list.  
 20. Select cells **B5:B10** with the mouse 16 Average Hours =AVERAGE(B5:B10) and press Enter.  
 21. Calculate the Average Parts, Minimum and Maximum Hours; Ensure the range for each is correct.

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22. Select **Row 18** (click in the Row heading), right click and select Insert from the menu (this inserts a row as a row is selected).
  23. Press the F4 key to repeat the action.
  24. Type Average Labour in cell **A18** and Average Discount in **A19**.
  25. Calculate the averages for both.
  26. Display **Print Backstage View** to preview the spreadsheet. Add an appropriate footer and ensure the document fits on one page and is easy to read.
  27. Click on the Home tab to close Backstage View.
  28. Save and leave the workbook open.

### Exercise 35, Printing Showing Formulas

It is useful to be able to print the formulas in a spreadsheet to check their accuracy and keep a record of the spreadsheet's construction.

1. Using **Job Sheet November**, press CTRL + ` (above the Tab key with the ~ ) to view the formulas.

#### Note

CTRL + ` is a toggle button and pressing it again will turn formulas off. Leave formulas showing for the next step.

2. Check to Ensure the formulas inserted match those shown below.
3. Showing the formulas widened the columns. To compact the column widths for printing, click on the Select All button and double click on the boundary between the columns to get the exact fit for each column.
4. Click on the Page Layout Tab and Ensure Gridlines and Headings will be printed.



Show

	A	B	C	D	E	F	G	H
1			<b>Seaview Job Sheet</b>					
2			Jobs Completed Nov					
3		Rate	60		Discount	0.1		
4	Job Sheet No.	Hours	Labour Cost	Parts	Sub-Total	Discount Allowed	Total (Incl.)	GST
5	C7985	19.5	=\\$C\$3*B5	125	=C5+D5	=E5*\$F\$3	=E5-F5	=G5*10%
6	C7986	27	=\\$C\$3*B6	385	=C6+D6	=E6*\$F\$3	=E6-F6	=G6*10%
7	C7987	28	=\\$C\$3*B7	124.95	=C7+D7	=E7*\$F\$3	=E7-F7	=G7*10%
8	C7988	19	=\\$C\$3*B8	602.8	=C8+D8	=E8*\$F\$3	=E8-F8	=G8*10%
9	C7989	4.5	=\\$C\$3*B9	302.1	=C9+D9	=E9*\$F\$3	=E9-F9	=G9*10%
10	C7990	32.5	=\\$C\$3*B10	251.1	=C10+D10	=E10*\$F\$3	=E10-F10	=G10*10%
11	<b>Total</b>	=SUM(B5:B10)	=SUM(C5:C10)	=SUM(D5:D10)	=SUM(E5:E10)	=SUM(F5:F10)	=SUM(G5:G10)	=SUM(H5:H10)
12								
13								
14								
15								
16	<b>Average Hours</b>		=AVERAGE(B5:B10)					
17	<b>Average Parts</b>		=AVERAGE(D5:D10)					
18	<b>Average Labour</b>		=AVERAGE(C5:C10)					
19	<b>Average Discount</b>		=AVERAGE(F5:F10)					
20	<b>Minimum Hours</b>		=MIN(B5:B10)					
21	<b>Maximum Hours</b>		=MAX(B5:B10)					

5. Print Preview and Print the worksheet then close the workbook **without** saving again.

## Work with the Function Library Group

You will find the Function Library group on the Formulas tab.



This group offers quick and easy access to a range of predefined formulas. This saves time when entering more common/basic formulas into a spreadsheet.

The exercises that follow cover:

- More on Absolute References
- Date functions
- Calculating time

More functions will be covered in later sections of this book.

## Working with Dates

### Date Function =Today()

When a date is typed into a cell the information will appear in the date format in which it is typed, but the information in the cell is actually stored as a number. This number is the number of days since 1 January 1900. For example, if 14/3/13 is typed into a cell it appears as 14/3/13, but the number in the cell is actually 41347. So when a date is entered into a spreadsheet cell it is a number that can be used in calculations. Some date functions include:

- =Today() inserts today's date
- =Now() inserts today's date and the current time. (This is especially useful if you need to enter the current date, especially in a Template).
- =Month(Serial\_Number) displays the month value; e.g. 29/07/2013 will display 7.

### Exercise 36, Work with Functions in the Function Library Group – Dates

1. Create a new workbook (CTRL + N) and Ensure you are in cell A1. Save the workbook as **Dates**.
2. On the **Formulas** tab, **Function Library** group,

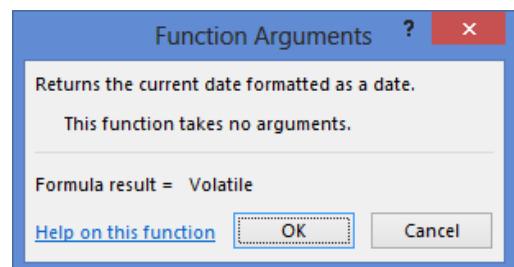


click on **Time\*** and select **TODAY**. The Functions Arguments dialog box will display.

#### Note

Your buttons may display slightly differently.

3. In the Function Arguments dialog box, click OK or press the **Enter** key to insert today's date.
4. Use the same process to insert the function **NOW** in cell A2. This will insert the current date and time.
5. Select cells A4:A8 and click the Home tab. Click the Dialog Box Launcher for the Number group.



6. Click on **Date** in the Category Pane and choose **14 March 2012** from the Type: window (you need to scroll down). Click OK.

7. Type the following list, using the format shown, starting in cell **A4**. You may have to widen the column. When you press Enter to move to the next cell, the formatting will change to the formatting you have applied to the cells. Note that you can use slashes or dashes for this to happen.

28/07/2013

13/09/2013

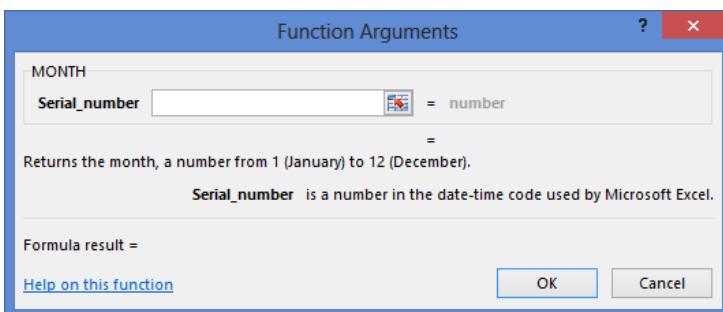
15/08/2013

6/01/2013

19/02/2013

8. Click in cell **B3** and Type: Month. Press **Enter**.

9. In cell **B4** from the **Formulas** tab, **Function Library** group, click **Date & Time** and select the formula **MONTH** from the list. The Function Arguments dialog box displays.



10. If the dialog box is covering some of your data, position the mouse over the blue bar (title bar of dialog box), click and drag the Function Arguments Box so that you can see all the data.

11. With the dialog box open, click the mouse in cell **A4** then click on OK in the dialog box. Excel has detected that the date in cell **A4** is July, and so has displayed the result 7 (for the 7<sup>th</sup> month) in cell **B4**.

12. Use the Fill Handle to copy the Formula down to **B8**.

13. Click in cell **A4**. Change the date to **18/03/13**. The value in cell **B4** will update to 3.

14. Save and leave the workbook open.

### Exercise 37, End of Month

1. Using **Dates**, click in cell **C3** and type: End of Month.

2. Format cell **C4** to the same date format used in **A4** (**Home** tab, **Numbers** group, or try the **Format Painter**).

3. Click in cell **C4** and insert the Formula **EOMONTH** from the **Date & Time** Function menu.

4. With the Function Arguments dialog box open, and the **Start\_date** field live, click back in cell **A4** to enter the cell reference for a **Start\_date**.

5. Click back into the Function Arguments dialog box, type **3** in the **Months:** box. Click OK. The result will display the **End of Month** date 3 months from the date entered in **A4**.

This is useful if you need to calculate a date at the end of the month of a specific period such as a financial quarter (every 3 months).

6. Use the Fill Command to copy the function down the column. If the result displays as ##### you need to widen the column.

### **Reminder**

Excel will not display calculated data or numbers if they do not fit in the cell. It will only display text. Text will be cut off at the boundary if there is data in the cell to the right of it.

		Month	End of Month
3			
4	18 March 2013	3	30 June 2013
5	13 September 2013	9	31 December 2013
6	15 August 2013	8	30 November 2013
7	6 January 2013	1	30 April 2013
8	19 February 2013	2	31 May 2013

7. Save and leave the workbook open.

### **Exercise 38, Week Number**

Many organisations need to know the week number in which a transaction or event will take place. The **WEEKNUM** Function will return a number between 1 and 52 (number of weeks in a year) showing which week that date is. This is much easier and more reliable than counting it out in a calendar.

1. Using **Dates**, click in cell **D3**, type: Week Number and press **Enter**
2. Insert the Function **WEEKNUM** into cell **D4**.
3. Click on cell **A4** for the Serial\_number and leave the Return Type Blank. Press **Enter** and use Fill to copy the Function down the column.
4. Change the date in **A4** to read 01 January 2011. The week and month numbers will change to 1.
5. Save and leave the workbook open.

### **Exercise 39, Work Days**

This function can be used to exclude weekends or holidays when calculating dates for contract dates, or to calculate when invoices or payments are due.

1. Using **Dates** is still open from the previous exercise, click in cell **E3** and type: Work Day, press **Enter**.
2. Format cell **E4** to the same date format used in **A4**.
3. Insert the Function **WORKDAY** into cell **E4**.

Week Number	Work Day
1	12 February 2013
37	25 October 2013
33	26 September 2013
2	15 February 2013
8	2 April 2013

4. Click on cell **A4** for the Start\_date and type in **30** as the number of days. Leave the Holidays field blank.
5. Press **Enter** and widen the column as required. The result will display a date 30 working days (no weekends) from the date in cell A4. Copy the formula down the column.
6. Save and leave the workbook open.

## Exercise 40, Net Work Days

If a company needs to calculate the Net number of days that an employee has worked, this function will calculate from the start date to the end of employment date as well as deduct any leave or days off taken in-between.

Create the following information as shown in the table below.

1. Using **Dates**, click in cell **A11** and type: Work Day. Press **Enter**.
2. Type in the text and data shown below and format cells **B13:B18** to match cell **A4**, widen column as needed to display data in this format.

11	Work Day	
12	Employee	Emily Steal
13	Start Date	12-Aug-13
14	End Date	17-Oct-13
15	Leave Taken	14-Oct-13
16	Leave Taken	15-Oct-13
17	Leave Taken	16-Oct-13
18	Leave Taken	17-Oct-13
19	Days Worked	

3. Click in cell **B19** and insert the function **NETWORKDAYS**.
4. Enter the Start and End dates and then select all the dates for leave taken to enter the range as shown below:



5. Press **Enter**.

Emily has worked **45** days in total. The Formula reads: **=NETWORKDAYS(B13,B14,B15:B18)**.

11	Work Day	
12	Employee	Emily Steal
13	Start Date	12-Aug-13
14	End Date	17-Oct-13
15	Leave Taken	14-Oct-13
16	Leave Taken	15-Oct-13
17	Leave Taken	16-Oct-13
18	Leave Taken	17-Oct-13
19	Days Worked	45

6. Save and close.

### Practical Activity 3



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1. Create a new workbook and save as **Calculating Dates**.
2. Enter Formulas to calculate the following in the cell numbers identified below:

Cell Number	Formula	Formatting Style (if any)
A1	To insert today's date	14 March 2013
A2	Insert today's date again	General e.g. 39886
A3	Insert current date and time	
B4 – B8	Calculate the Month for the following dates (type the dates into cells A4:A8:  19-8-2012 23-01-2013 24-2-2013 28-3-2013 29-7-2013	
C4 – C8	End of Month for the dates given above.	<b>Note</b> To calculate end of month for the month in the date use <b>0</b> for months.  e.g. =EOMONTH(A4,0)
D4 – D8	Week Number	

3. Click in cell **A12** and enter the following data to calculate the Net number of days that the following employee has worked.

Rick De Villiers

Start Date: 01 March 2013

End Date: 28 November 2013

Leave Taken: 13 June 2013, 14 June 2013, 15 June 2013

Days Worked: \_\_\_\_\_

4. Save and close the workbook.

## Entering and Calculating Numbers

The Number group on the Home tab has the formatting buttons to change how values such as Date, Time, Text and Percentages display in a cell.



### Exercise 41, Calculating Time

When entering a time value into a cell, you need to use a colon (:) in-between the hours and minutes, for example **8:30** (half-past eight o' clock). It is also preferable to use a 24-hour clock (military style time) so that one o' clock in the afternoon is entered as 13:00 hours.

1. Open the supplied file **Wages – Staff Hours** and save as **Wages 30 Oct**.
2. Select cells **C5:D10**.
3. Click on the next to **Custom** in the **Number** group.
4. Click **Time** from the Gallery. The format shows Hours, Minutes and Seconds.
5. Save and leave the workbook open.

### Exercise 42, Customise Time Values

1. Make sure that the workbook **Wages 30 Oct** is still open.
2. Ensure cells **C5:D10** are still selected.
3. Click on the Dialog Box Launcher next to the **Number** group name.
4. Click on **Custom** in the Category: list on the left-hand side of the dialog box.
5. Scroll up the list and select the option **h:mm** for Hours and Minutes only.
6. Click **OK**.

5	Starr	Kayla	8:30	12:30
6	Fuller	Lina	12:30	17:30
7	Wall	Rhys	9:15	13:15
8	Capella	Frank	8:30	14:00
9	Lopez	Jack	14:00	18:30
10	Crane	Keith	7:30	14:00

7. Save and leave the workbook open.

## **Calculate Time Values**

As with a date, time entered into a spreadsheet is a number and can be used in calculations. The following factors must be considered.

- Time values are calculated over a 24-hour period and are not a whole number but a fraction.
- For example, 12:00 hours is the number 0.5 or a half of the 24 hour period. To make it a whole number it is multiplied by 24 (equalling 12). Therefore to convert time into a whole number it is multiplied by 24.
- If the starting time of a job is subtracted from the finishing time and multiplied by 24 the result will be the hours as a whole number. A starting time of 8.30 am subtracted from a finishing time of 12:00 pm would be 3.5 hours. In this case half an hour (30 minutes) becomes 0.5. For example, 0.5 will be 30 minutes (half an hour) worked, not 50 minutes.
- Deduct the starting time from the finishing time (=time finished **less** time started).
- If time is displayed or formatted as text – it cannot be calculated.

## **Calculating Hours Paid – Working with Brackets**

To calculate wages based on an hourly rate, there will be more than one formula in the cell. The order of the calculations is important and brackets () must be used to separate the different equations. This is the same method called **BEDMAS** used in mathematics where the sum in brackets is calculated first.

- B** Brackets first  
**E** Exponents (ie Powers and Square Roots, etc.)  
**DM** Division and Multiplication (left-to-right)  
**AS** Addition and Subtraction (left-to-right)

Examine the following equations:

$$3 \times 5 + 2 = 17$$

$$3 \times (5 + 2) = 21$$

The first example is  $(3 \times 5) + 2 = 17$

The second example is  $3 \times (5 + 2) = 21$

The results will differ depending on the order in which the calculation is done (i.e. where the brackets have been placed).

## **Exercise 43, Calculating Hours**

1. Using **Wages 30 Oct**, click in cell **E5** and enter the formula **= $(D5-C5)*24$** . The result displays as 4 hours. Repeat this formula in E6 for Row 6.
2. Click on cell **E6** and position the mouse in the bottom right corner of the cell. The Fill Handle will appear. Drag the Fill Handle to copy the formula down the column.
3. Ensure cells **E5:E10** are formatted to General.
4. Select cells **F5:I10** and format to Currency style from the **Number** group.
5. In cell **F5**, enter the value: 12.5

### **Note**

Because this is set to Currency you do not need to add the 0 after the 5 for 50c). Use the Fill Handle to copy the value down the column to **F10**.

6. Save and leave the workbook open.

## Exercise 44, Calculating Wages

1. Using **Wages 30 Oct**, click in cell **G5**.
2. Enter the formula shown below to calculate Total Time \*(multiplied by) Rate.  
Type: **=E5\*F5** and press **Enter**.
3. Position the mouse over the Fill Handle in the bottom right corner of cell **G5**. Double click on the Fill Handle. It will automatically fill all the appropriate cells down the column. This can be a speedy way of using the Fill Handle.
4. Save and leave the workbook open.

## More on Absolute References

This feature allows you to calculate **Tax** for all employees at 19%. Instead of typing out the 19% each time in the formula, you can have a specific cell with this value and use an **Absolute Reference**.

When you used the Fill Handle earlier, the cell reference/address e.g. H5 updates automatically if cells are moved or copied to another location. As you will recall, this is a **Relative Reference**. You have seen that, to stop a cell reference in a formula updating (to ‘freeze’ the reference) you need to make the cell reference ‘absolute’. This means that the cell reference in the formula will not change if the cell is filled down or copied to another location.

Tap the F4 key (Function key 4) on the keyboard to toggle between the relative and absolute reference options. A cell can have both a relative and absolute reference. This is known as a mixed reference.

It is easy to identify a cell with an Absolute Reference as there is a \$ (dollar sign) marking the row and column that is fixed, for example \$A\$1 shows that the reference to Column A, Row 1 is fixed (absolute) in the formula.

## Exercise 45, Use Fill Handle to Copy an Absolute Reference

1. Using **Wages 30 Oct**, click in cell **G5**.
2. Type: Tax in cell **A3**.
3. Type: **19%** in cell **H3**. This value will be the common amount used for all the calculations and will become the **Absolute Reference** in our formula.
4. In cell **H5** enter the formula **=G5\*H3**; press the F4 key immediately after you click on H3 **=G5\*\$H\$3**. Press **Enter** to complete the entry.

Practice this formula in **H6** and Ensure you use the F4 key to make the reference to H3 (19%) absolute.

5. Once you feel confident, use the Fill Handle to copy the formula down.

### Note

If you did not make the reference to cell **H3** Absolute, this formula would not work. The error result **#VALUE!** would display in the cell. (**H4** is Text. You cannot multiply a number by text).

6. Calculate **Net Pay** for all employees (=Gross Pay minus Tax) in **Column I**. Copy the formula down the column.
7. Save and leave the workbook open.

## Exercise 46, Calculate Pay

1. Using **Wages 30 Oct**, click in cell **H3** change the value to **17.5%**. This will display as 18% (the decimal is rounded up).
2. Use the  Increase Decimal button in the **Number** group to display the decimal points.

### Note

All the values are automatically updated. If you had used the tax amount (19%) in each formula in each row, you would have had to change all the rows. That would be a lot of unnecessary work in a large spreadsheet.

3. In cell **G3**, type: **12.50** and format this to Currency. This will be used as the Rate. Select cells **G5:G10** and press Delete to clear the cells.
4. Delete **Column F** (Hint: Delete button, Cells group). Column G now becomes Column F. Ensure the format of the cells is Currency.
5. In cell **F5**, calculate the Gross Pay and make the Rate **Absolute** **=E5\*\$F\$3**.
6. Practice the formula and then copy it down the column.
7. Change the Rate in **F3** to **13.25**. All calculations that are connected will automatically update.
8. Save the workbook.

	A	B	C	D	E	F	G	H
1	Production Staff Wages Week Ending 30 October							
2	Hours worked							
3	Tax							
	First							
4	Last Name	Name	Time In	Time Out	Total Time	Gross Pay	Tax	Net Pay
5	Starr	Kayla	8:30	12:30	4	\$53.00	\$9.28	\$43.73
6	Fuller	Lina	12:30	17:30	5	\$66.25	\$11.59	\$54.66
7	Wall	Rhys	9:15	13:15	4	\$53.00	\$9.28	\$43.73
8	Capella	Frank	8:30	14:00	5.5	\$72.88	\$12.75	\$60.12
9	Lopez	Jack	14:00	18:30	4.5	\$59.63	\$10.43	\$49.19
10	Crane	Keith	7:30	14:00	6.5	\$86.13	\$15.07	\$71.05

## Check Formulas Using the MS Calculator

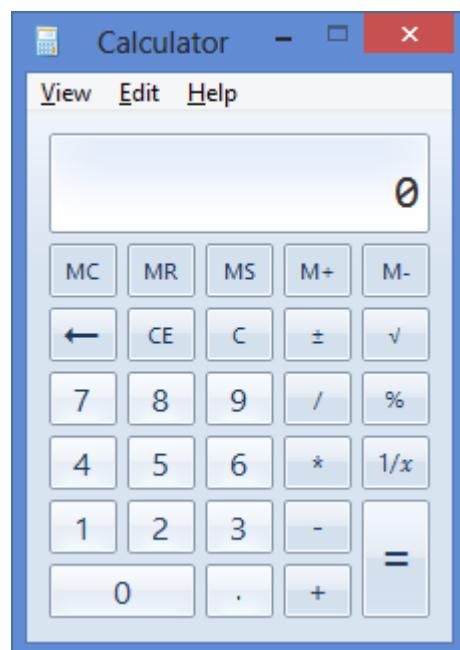
**Part of this competency includes checking formulas with a calculator.** Windows has a built-in calculator as part of the mini applications that come with the software. If you do not have access to a calculator at your desk, this handy application will help you to check that your formulas are accurate. You will also use other methods later on to check calculations.

### Exercise 47, Use Microsoft Calculator

1. Make sure that the workbook **Wages 30 Oct** is still open as this exercise checks the result in cell **E5**.
2. Press the Windows key  on the keyboard to display the Start screen.



3. Type **Calculator** and click on  from the search results to open the program.
4. Type the Time Out number: 12.5 (on the keyboard). This will display in the text box where the 0 currently is.
5. Type: - (*minus*) and enter the Time In: 8.5 (remember the .5 is for  $\frac{1}{2}$  an hour)
6. Press Enter and the result will display 4 which is the same as the 4 hours shown as the Total Time on your worksheet.
7. Click on  to clear the current calculation.
8. Check your other calculations.



#### Note

You do not need to multiply the Gross Pay by 24, as you did in the worksheet, as the calculator is not working with a decimal of 24.

The operators are the same as those used in Excel.

   	<table border="1"><tr><td>Divide</td><td></td><td></td><td></td></tr><tr><td>Multiply</td><td></td><td></td><td></td></tr><tr><td>Subtract</td><td></td><td></td><td></td></tr><tr><td>Add</td><td></td><td></td><td></td></tr></table>	Divide				Multiply				Subtract				Add			
Divide																	
Multiply																	
Subtract																	
Add																	
	Back arrow – deletes the most recent entered digit. CE – clears the most recent number. C – clears all.																

9. Make any changes (if needed) to the spreadsheet.
10. Save and close the workbook.
11. Click  to close the Calculator.
12. Save and close the workbook **Wages 30 Oct**.

#### Note

Formula Auditing is covered later in this book.

## Exercise 48, Calculate Hours Worked, Gross Pay and Net Pay

1. Open the file **Wages II – Staff Hours** and save as **Wages 7 Nov.**
2. Enter the following times:

Kayla	7:30	13:00
Lina	13:00	17:30
Rhys	7:30	13:00
Frank	13:30	18:00
Jack	8:00	12:30
Keith	9:45	14:30

### Note

It is essential to use the colon (:) so that Excel reads the data as a time. Also these figures use the 24 hour clock. Instead of using the 24 hour clock time may be entered with an AM or PM after and still have the same result.

3. Calculate the Total number of hours worked. Don't forget to multiply by 24 and format the result to General.
4. Format all columns that will display money as Currency.
5. Calculate the Gross Pay (you must use the rate supplied in **B4** as an Absolute Reference).
6. Calculate the Tax due (you must use the rate supplied in **B5** as an Absolute Reference).
7. Calculate the Net Pay.
8. Check all your data to ensure accuracy and check your formulas with a calculator.
9. Save, print the worksheet and close the workbook.

## Practical Activity 4



Your supervisor has asked you to create a spreadsheet to calculate the wages to be paid to the workshop staff. You have been supplied with staff timesheets. Read the entire activity before creating your worksheet. **You must use Absolute References in this activity.** You may wish to plan the outline on paper first.

1. Create a new workbook and type in a Main Heading **Workshop Wages** and save the file with the same name.
2. Create a sub-heading **April Wages**
3. Enter appropriate Column Headings so that each staff member, their hours worked, money earned and deductions can be calculated.
4. Record the **Name** of each staff member. Keep their Last Name separate from the First Name. This is useful if you wish to sort the data later on.
5. Enter the **Start** and **Finish times** for each employee.
6. Calculate the **Total Hours** worked.
7. Each employee is on the same **Pay Rate** of **\$22.50**. Calculate the **Gross Pay** (before Tax).
8. Calculate the **Tax** for each person (they are on the same rate – **19%**) Type 19 and % sign.
9. Calculate **Net Pay** (after tax deductions).
10. Format all cells appropriately to make the worksheet readable and attractive.
11. Check all data against the originals provided and your calculations.
12. Tick off each item in this activity to Ensure the task is fully completed.
13. Print the worksheet, then save and close.

Last Name: Dickson  
First Name: Eric  
Hours Worked: 7:30 to 14:00

Last Name: Watson  
First Name: Mike  
Hours Worked: 8:30 to 15:00

Last Name: Cohn  
First Name: Dennis  
Hours Worked: 8:00 to 16:00

Last Name: Gross  
First Name: Angela  
Hours Worked: 8:00 to 16:00

Last Name: LeClerk  
First Name: Luc  
Hours Worked: 8:00 to 16:00

Last Name: Bayer  
First Name: Ted  
Hours Worked: 8:00 to 16:00

## The Review Tab

The **Review tab** is mainly used during the final checking or editing stages of a spreadsheet. For the purpose of this unit, you will mainly focus on tools in the Proofing group.

### Spelling and Grammar

The Spelling Tool (Proofing group) checks the text in your spreadsheet for typing errors. It will not detect any errors in formulas or values that have been entered.



### Exercise 49, Correcting Spelling Errors

1. Open the supplied file **Gifts Forecast Sales** and save as **Forecast Sales**.

2. Click on the **File** tab and select **Options**.

3. Click on **Proofing** in the left-hand pane in the **Excel Options** dialog box.

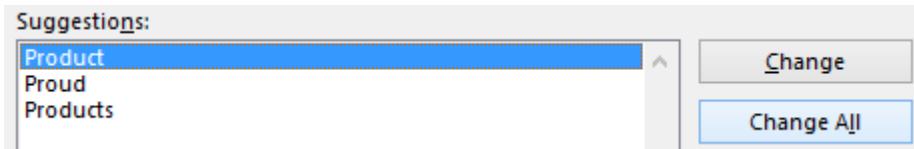
4. Check that the Dictionary language is set to: **English Australia**.

**Dictionary language:** English (Australia) A small dropdown arrow icon indicating a menu or list is available.

5. If not, click on the drop down arrow next to the displayed language and scroll through the options. Click on the correct option.

6. Click OK.

7. Click on cell **A1** then click on the Spelling Tool in the **Proofing** group The word 'Product' is highlighted as a suggestion for the incorrectly spelt, 'Produt'.  
8. Click on Change to accept this suggestion; the change is then made in the cell.



9. Continue the spell checking process selecting and/or accepting the suggested changes for the misspelt words (click on Ignore Once for Qty).

#### Note

To change the word to one not recommended, simply type the text in the Not in Dictionary: text box.

Keyboard Shortcut for the Spell Checker is the **F7** key.

10. Spell checking does not pick up inconsistencies in capitalisation. Read the text and make sure the capitalisation is consistent. Hint: Cell A2 'Estimated Sales for new branch' should be 'New Branch. Look for one other inconsistency.'

#### Note

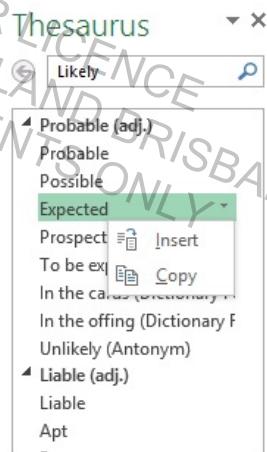
**Always** proofread as well after using the Spelling tool as it has its limitations.

11. Save and leave the workbook open.

## Exercise 50, Use the Thesaurus

The Thesaurus helps to find words that have a similar meaning to the word in the selected cell. Where there are product names or specified items you should not change them unless you have been instructed to do so by your supervisor.

1. Using **Forecast Sales**, click on cell **E5** and press **Shift + F7**. The Thesaurus pane appears on the right.
2. Click on the down arrow next to the desired word '*expected*' and select Insert then close the Thesaurus task pane (click on ).
3. Save and leave the workbook open.



## Exercise 51, Gifts Galore Scenario

Organisations often need to predict sales (*forecast*) or estimate amounts to be sold over a specified period. These sales can also be calculated as a *percentage* of the total sales.

Gifts Galore are opening a new branch and need to calculate sales based on a 24-day working month. They have been given amounts based on average sales from other branches in the region, as well as the retail prices.

1. Using **Forecast Sales**, click in cell **A2** and insert the text: **April** between the text: **Estimated** and **Sales**.

### Hint

Either type directly in the Formula Bar or press the F2 key to edit the text in the cell.

2. Click in cell **E6**. Enter the formula =**B6\*C6\*D6** to calculate Qty \* Sales \* Workdays.
3. Practice the formula in cell **E7**. Use the **Fill Handle** to copy the formula down once you feel confident with it.
4. Save and leave the workbook open.

### Note

You should still be clicking on the cell to enter the reference instead of typing it in as this is considered by spreadsheet experts as far more accurate. Typing can result in mistakes.

## Exercise 52, Percentage of Sales

This will calculate the sales of each item as a percentage of the Total Sales. This result will display as % value (the number in the cell will be a fraction e.g. 19% = 0.19 or 19/100).

1. Using **Forecast Sales**, click in cell **A16** and type: **Total Monthly Sales**.
2. Calculate the total in cell **E16** (AutoSum).
3. Click in cell **F6**. Enter the formula: =**E6/E16** and press the F4 key to make **E16** an Absolute Reference =**E6/\$E\$16**.
4. Press **CTRL + Enter** to remain in the cell. Format the cell to **%**.
5. Use the **Fill Handle** to copy the formula down to the Total Amount cell **F16**. The last cell should read 100%. Delete the contents of cell F15.
6. Save and leave the workbook open.

## Exercise 53, Calculate Estimated Sales

In this exercise you will create a worksheet to calculate the estimated sales for May for Gifts Galore.

1. Using **Forecast Sales**, click in cell **A1**, hold the Shift key down and click in cell **F16** to select the range **A1:F16**.

2. Press **CTRL + C** to copy the data.

3. Click on the **Sheet2** Sheet tab at the bottom of the worksheet.

4. Press **(CTRL + V)** to paste the data. Click on the  Paste Options button.

5. Click on  Keep Source Column Widths.

6. Edit cell **A2** to read *Estimated May Sales* ...

7. Delete all values in the **Qty** and **Work Days** columns.

Ignore the #DIV/0!\* error message as this will disappear once new data is entered.

This error message means: *unable to divide by zero*.

8. Enter the data shown at the right into the **Qty** column.

9. Enter **25** as the number of Work Days. Use the **Fill Handle** to copy the number of Work Days.

10. Widen any columns that display ##### characters.

11. Check all the entered data to ensure accuracy.

12. Save and leave the workbook open.

Item	Qty
Basket A	11
Basket B	19
Basket C	36
Gift Bag A	45
Gift Bag B	60
Gift Bag C	52
Baby A	40
Baby B	25
Baby C	35

## Exercise 54, Rename Sheet Tab

The workbook has one worksheet labelled Sheet1. You can add more sheets and they will be labelled Sheet2 and Sheet3 etc. These can be renamed to better identify the contents.

1. Using **Forecast Sales**, double click on the **Sheet1** tab.

### Note

Pressing the F2 key on an active Sheet tab will also allow you to rename the Sheet tab. The F2 key can also be used to rename files in a folder or file management program.

2. Type: **April Forecast** then press **Enter**.
3. Rename Sheet 2 to read **May Forecast**
4. Proofread the worksheet and check your data for any errors.
5. Save, print preview (adjust layout, include headers and footers if required by your organisation) and print the worksheet (by default only the active sheet will print).
6. Close the workbook.

## Practical Activity 5



Sally-May Rainnes is the owner of a small clothing repair and dry-cleaning store, **Stitch In Time**, in the suburbs. She employs several tailors and also sells accessories in the shop. Sally wants to open another store near the city and needs to forecast some sales for her bank manager in order to secure a loan.

You have been provided with the two periods of January and February. Sally has asked you to create **two** separate worksheets in a single spreadsheet workbook to help her forecast her sales. The **Sheet tabs** must be named appropriately and the worksheets must be professionally **formatted** and **accurate** so that they can be presented to her bank manager. Save the workbook with an appropriate name.

Sally would like you to:

- Prepare a plan showing your spreadsheet design (a template has been provided on the following pages).
- Create a spreadsheet and enter the data provided.
- Enter the number of Work Days in the month (**21** for January and **20** February).
- Calculate the Expected Total.
- Check your spreadsheet for accuracy.

You will come back to this spreadsheet later to add % of Sales. Save and close the workbook for now.

### January

Item	Qty	Average Price	Work Days	Expected Total	% of Sales
Alterations - Men	4	\$28.00			
Alterations - Ladies	11	\$35.00			
Alterations - Children	5	\$20.00			
Alterations - Teens	2	\$22.50			
Alterations - Pensioners	4	\$18.50			
Dry-cleaning A	25	\$23.00			
Dry-cleaning B	20	\$8.00			
Dry-cleaning Special	12	\$16.00			
Dry-cleaning Other	8	\$12.00			
Accessories	30	\$19.95			

February

Item	Qty	Average Price	Work Days	Expected Total	% of Sales
Alterations - Men	5	\$28.00			
Alterations - Ladies	9	\$35.00			
Alterations - Children	18	\$20.00			
Alterations - Teens	12	\$22.50			
Alterations - Pensioners	3	\$18.50			
Dry-cleaning A	12	\$23.00			
Dry-cleaning B	25	\$8.00			
Dry-cleaning Special	20	\$16.00			
Dry-cleaning Other	9	\$12.00			
Accessories	25	\$19.95			

### Spreadsheet Planning Template

PURPOSE:

**TARGET AUDIENCE:**

USED UNDER LICENCE  
FOR TAFE QUEENSLAND BRISBANE  
ENROLLED STUDENTS ONLY

**REQUIREMENTS:**

**FILE NAME:**

**LAYOUT:**

**LOCATION:**

USED UNDER LICENCE  
FOR TAFE QUEENSLAND BRISBANE  
ENROLLED STUDENTS ONLY

**FORMULAS USED:**

	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						

### Exercise 55, Compare Values

This exercise examines two sets of values and calculates whether one number is greater or smaller than the other, and what the percentage is. This is used when businesses compare last year's sales against this year's sales. The formula to calculate a % change will essentially be:  $=\frac{\text{This Year} - \text{Last Year}}{\text{Last Year}}$

1. Open the supplied file **Sales Comparisons** and save as **Percentage Changes**.
2. Calculate the difference between the sales for 2012 and 2013 in cell **D4**.

**Hint**

Subtract the old amount from the new amount). Some figures are a *negative* amount.

3. Copy the formula down.
4. In cell **E4** enter the formula  $=\frac{C4-B4}{B4}$  =(new value - old value)/ old value.
5. **Check your answer:** This result of 9.51% can be checked as follows:
  6. Click in cell **E4** and click on the  Increase Decimal button (Number group, Home tab) until 4 decimals are displayed after the decimal point (. ) **9.5122%**.
  7. Click in cell **A13** and enter the formula  $=B4*9.5122\%$ ; you must type the % sign. Remove the decimal places from the result in A13.  
The result matches the answer in **D4**, showing that there is a 9.51% increase in sales between 2010 and 2011. If there is a *negative* result, then you must enter the – (minus sign) in front of the % change. For example,  $=B6*-2.2794\%$ .
  8. Practice the answer down the column. If you get an unusual result, for example 3686000.00%, check to ensure you have used brackets (see earlier explanation of BEDMAS).
  9. Check your answers below the data area.
  10. Save and leave the workbook open.

## Exercise 56, Calculate Percentage Increase

1. Using **Percentage Changes**, click in cell **F4**, enter the formula  $=C4*10\%$  and press **Enter**.

### Note

This result only gives you 10% of the base amount. You would still need to add the base amount back to this result. It is much easier if you multiply by 1.10 which calculates the base amount plus 10%.

2. Click in cell **F4** and change the 10% to read **1.10** (no percentage) or 110%. This result is a percentage increase.
3. Copy the formula down the column.
4. Make any amendments to the formatting required.
5. Save and close the workbook.

## Exercise 57, Calculations

The calculations for the Fixed Assets Register exercise below will include using the **Fill Command**, use of **Brackets** and **Division**. The annual depreciation percentage is calculated and then the results divided by 12 (to calculate the monthly depreciation).

1. Open the supplied file **Assets Register** and save as **March Fixed Assets**.
2. Format cells **D4:Q8** as Currency.
3. Click on Decrease Decimal twice to reduce the decimal places to 0.
4. In cell **F4** enter the formula  $=($E4*\$C4)/12$  which is the same as **=(Opening Balance\*Dep Rate)/12**. Press the F4 key 3 times to lock the reference to the column as an absolute reference leaving the row reference relative.

### Note

Both the Depreciation Rate (Dep Rate %) and the Opening Balance will be fixed amounts. They must therefore both be entered as Absolute References. This is to ‘fix/set’ relevant cells before the formula is copied across the columns for the monthly depreciation values.

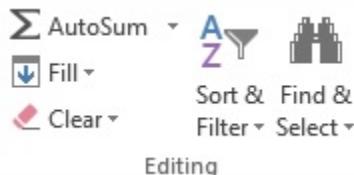
5. Copy the formula down to **F5:F8**.
6. Use the **Fill Handle** to fill all the formulas across all the months of the year.
7. Select **F4:R8** and use the **AutoSum** feature to add all the months together. Ensure the Range is correct and only values for April to March are included the formula.
8. In cell **S3**, type Check.
9. In cell **S4**, enter a formula to calculate 30% of the opening balance, which should be the same as the total depreciation for the year. Format to 0 decimal places if required.
10. Hint
11. Use cell **C4** for the 30%.
12. Do this for the remaining products. Note that depreciation on the Binding Machine is 10% not 30% like the others.
13. Save and leave the workbook open.

## The Auto Fill Features

Instead of entering data manually on a worksheet, you can use the Auto Fill feature to fill cells with data that follows a pattern or that is based on data in other cells.

You have already seen a range of these in operation: AutoComplete will guess the data you want to enter into a cell from letters already entered. You can use the Fill Handle to copy and increment data.

When using the Fill Handle, the AutoFill Options button  will display. Clicking on this button will display a range of AutoFill options.



You can also use the **Fill** button  in the Editing group on the Home tab.

### Exercise 58, Fill Cells with a Series of Numbers

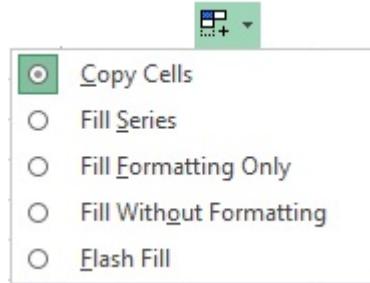
1. Create a new spreadsheet and type **1** in cell **A1** and press **CTRL + Enter** to remain in the same cell.
2. Drag the Fill Handle down to cell **A15**.
3. Click on the AutoFill Options button  to display the AutoFill options.
4. Select **Fill Series**; number 1-15 display.

#### Note

If you had just used the Fill Handle the value 1 could have repeated.

5. Type **10** in cell **B1** and press **CTRL + Enter**.
6. Drag the Fill Handle down to cell **B15**.
7. Click on the AutoFill Options button  to display the AutoFill options.
8. Select **Fill Series**.
9. Leave the spreadsheet open for the next exercise.

You now have two number series.



#### Note

You can suppress series AutoFill by holding down **CTRL** as you drag the fill handle of a selection of two or more cells. The selected values are then copied to the adjacent cells, and Excel does not extend a series.

### Exercise 59, Automatically Fill a Formula Downward

In the previous exercise, you created two number series in columns A and B.

1. Make sure the spreadsheet you created in the previous exercise is still open.
2. In Cell **C1**, enter the formula **=A1+B1**.
3. To copy that formula into cells **C2:C15**, double click the fill handle of cell **C1**.
4. Leave the spreadsheet open for the next exercise.

## Exercise 60, Fill in a Series of Numbers, Dates, or Other Built-In Series Items

Ensure you still have the spreadsheet open from the previous exercise.

Using the Fill Handle, you can quickly fill cells in a range with a series of numbers or dates, or with a built-in series for days, weekdays, months, or years.

1. Make sure you still have the spreadsheet open from the previous exercise.
2. In cell **E1**, type **1**.
3. In cell **E2**, type **3**. This will establish a pattern.
4. Highlight both cells **E1:E2** and drag your Fill Handle down to **E15**. You have filled an odd number series.
5. Look at the table below and experiment with a variety of series to see how they fill. Close this spreadsheet without saving when finished

### Note

To fill in increasing order, drag down or to the right. To fill in decreasing order, drag up or to the left.

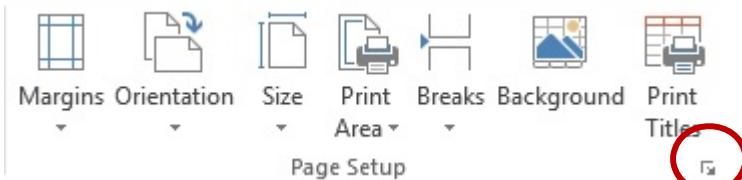
When you fill a series, the selections are extended as shown in the following table. In this table, items that are separated by commas are contained in individual adjacent cells on the worksheet.

Initial selection	Extended series
1, 2, 3	4, 5, 6,...
9:00	10:00, 11:00, 12:00,...
Mon	Tue, Wed, Thu,...
Monday	Tuesday, Wednesday, Thursday,...
Jan	Feb, Mar, Apr,...
Jan, Apr	Jul, Oct, Jan,...
15-Jan, 15-Apr	15-Jul, 15-Oct,...
2007, 2008	2009, 2010, 2011,...
1-Jan, 1-Mar	1-May, 1-Jul, 1-Sep,...
Qtr3 (or Q3 or Quarter3)	Qtr4, Qtr1, Qtr2,...
text1, textA	text2, textA, text3, textA,...
Product 1	Product 2, Product 3,...

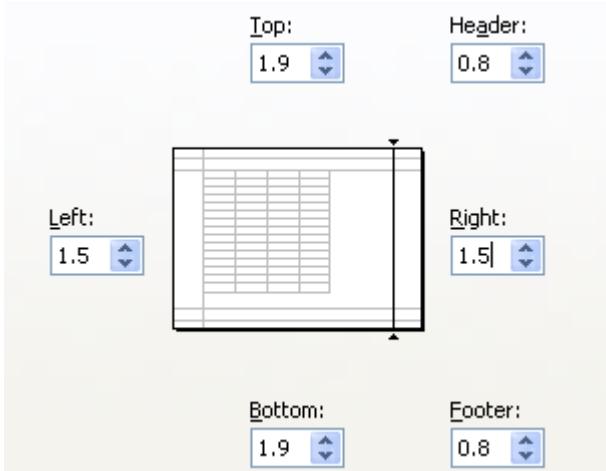
## Page Layout

### Exercise 61, Setup a Large Spreadsheet Page

1. Using **March Fixed Assets**, click on the **Page Layout** tab. The **Page Setup** group contains all the buttons to change the appearance of the spreadsheet.
2. Click on the **Orientation** button and change the paper direction to **Landscape** mode.  
If dotted lines appear in the spreadsheet, (page break lines) these display where each page ends. Everything to the right or below the dotted line will print on the following page.
3. Click on the **Page Setup Dialog Box Launcher**  to open the **Page Setup** dialog box.



4. Click on the **Margins** tab and reduce the Left and Right Margins to 1.5 (in the Left Margin area select the 8 (in the 1.8) and type the number 5 over the selection).



5. Save and leave the workbook open.

### Exercise 62, Headers and Footers

1. Make sure that the workbook **March Fixed Assets** is still open.
2. In the Page Setup dialog box, click on the **Header/Footer** tab and select **Custom Header...**.
3. Click in the **Right section:** and click on the  **Path and File name** button to insert the location of the file and file name into the Header. It will display **&[Path]&[File]** so that if these are changed, the new location and file name will print on the file.
4. Click on OK. A preview is available in the top panel of the Header.
5. Click on the down arrow  next to the **Footer:** to view some Footer options.
6. Scroll up the list and click on the **Page 1 of ?** option, to insert the **page number** and the **number of pages**.
7. Click on the **Print Preview** button at the bottom of the dialog box.

8. Click on [Page Setup](#) to return to the Page Setup dialog box.
9. Display the Header/Footer tab. Click on [Custom Footer...](#) and type your name into the Left section.
10. Insert the Sheet tab (Sheet Name) into the Right section: and click on OK.
11. Click on OK again to return to the Print Preview view.
12. Save and leave the workbook open.

### Exercise 63, Print Options (Page Setup)

1. Make sure that the file **March Fixed Assets** is still open and you are in **Print Preview** mode.
2. Click on [Page Setup](#) and click on the Sheet tab.
3. Click in the  Gridlines Gridlines check box (Print: section) to print Gridlines.

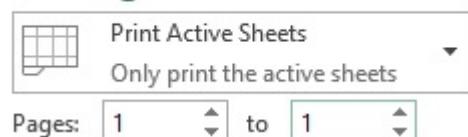
#### Note

If you want to print out the row and column headings, select the  Row and column headings check box.

4. Click on the **Margins** tab. In the **Centre on page:** section, click in the **Horizontally** and **Vertically** check boxes to position the worksheet in the middle of the page and click on OK.
5. Click on the Next Page button at the bottom of the preview.
6. Click on **Page Setup** and deselect the Horizontal Centre on page. Click OK.
7. Click on the Previous Page button.
8. In the Settings section, type 1 in both the **Pages:** and **to:** boxes. This will only print page 1 of the worksheet.
9. Click on the Print button.
10. Save and close the workbook.

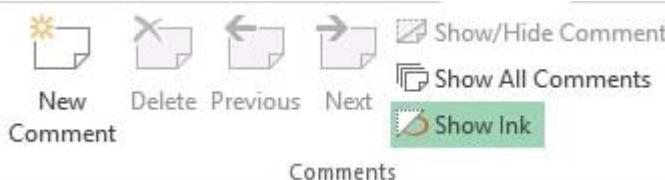
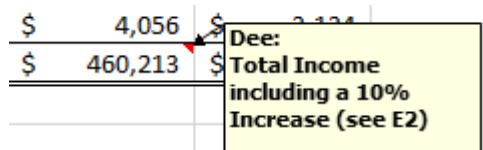
**Center on page** –  
 **Horizontally**  
 **Vertically**

### Settings



## Spreadsheet Comments

Comments are used to provide extra information on the contents of a cell in addition to that provided by text or labels in the spreadsheet. The comments do not print, unless desired. When a comment is inserted into a worksheet, a small red triangle appears at the top right corner of the cell. This is to alert the user of the spreadsheet that there is a comment in the cell. When the mouse is positioned over the cell, the comment box will appear. The Comments group is situated on the Review tab.



## Exercise 64, Insert Comments

1. Open the supplied file **Forecast Dee Gees Training** and save as **Income Scenarios**.
2. Position the mouse over cell **E8** to display the Comment.
3. Read the Comment in cell **F8**.
4. Click in cell **D22** and click on the **Review** tab.



New

5. Click on the **New Comment** button in the Comments group (Shift + F2).
6. Type into the Comments box: **Anticipated Increase/Decrease in Income** (below your name/computer name in the box). Then click elsewhere in the spreadsheet to deselect the comment box.

### Note

The name that appears at the top of the Comments box can be deleted.

7. Save and leave the workbook open.

## Exercise 65, Insert a Comment

1. Using **Income Scenarios**, insert a comment into cells **E2** and **F2** to state that these are protected cells (Shift + F2).

### Note

You can also use the Right mouse menu **Insert Comment**.

2. Also add the comment below to the data in Column C – (insert the comment into cell **C4**).  
Type this comment: **To be able to edit the protected data, you must unprotect the worksheet and enter the password (your name)**.
3. Deselect the cell and then position your mouse over the cell to view the comment. You will notice that the text does not fit into the comment box.
4. Save and leave the workbook open.

## Exercise 66, Edit Comment

1. Using **Income Scenarios**, click in cell **E2** (you should be able to see the red triangle indicating that the cell has a comment).

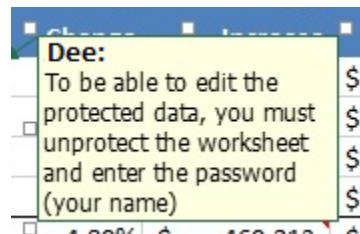


Edit

2. Click on the cell and select the **Edit Comment** button **Comment** in the Comments Group. Add the comment: **see your supervisor if you need to edit this cell**.
3. Save and leave the workbook open.

## Exercise 67, Resize Comment Box

1. Using **Income Scenarios**, click in cell **C4** and select **Edit Comment** button to make the comment active.
2. Position the mouse pointer over the bottom left corner Handle (the circle on the border) until it changes to a double-sided arrow.



3. Press and hold the mouse and drag the arrow outwards to make it bigger.

**Note**

To shrink a comment box you drag the Handles in towards the centre of the box

4. Save and leave the workbook open.

### Exercise 68, Delete a Comment



1. Using **Income Scenarios**, right click on cell E2 and select the Delete button in the Comments Group. (Or you can click on a comment and press Delete.)

**Note**

The red triangle will disappear from the cell once the comment is deleted.

2. Save and leave the workbook open.

### Exercise 69, Show/Hide Comments

1. Using **Income Scenarios**, click on the Show/Hide Comment button in the Comments group on the Review tab to reveal all the Comments in the worksheet (CTRL + Shift + O will select the cells with comments).
2. To view individual comments, right click on the cell and select the [Show/Hide Comments](#) from the menu.
3. If a comment is visible and you wish to hide it again, right click on the cell and select [Hide Comment](#).
4. Save and leave the workbook open.

### Exercise 70, Set Print Area

The Print Area helps to select a printing range in the document. This is useful when certain data is **confidential** and only parts of the spreadsheet needs to be printed. (*This is also covered in the Multiple Worksheets section*).



1. Using **Income Scenarios**, select the cells to be printed, e.g. A1:F8. Click on the button in the Page Setup group (Page Layout tab).
2. Click to select a 'print only' range.
3. Preview the spreadsheet in Backstage View. Change the Orientation to Landscape  
 Landscape Orientation ▾
4. Click on the **Page Layout** tab to return to the spreadsheet.

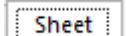
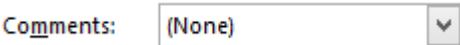
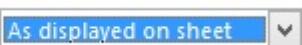
**Note**

You can select [Clear Print Area](#) to remove the selection.

5. Save and leave the workbook open.

## Exercise 71, Print Comments

You cannot set the option to print Comments directly from Print Backstage View – you need to use the Page Setup dialog box.

1. Using **Income Scenarios**, click on the  Dialog Launcher button in the **Page Setup** group,
2. Click on the  Sheet tab and click on the  drop down arrow next to None in the Comments box.  

3. Select the  option.
4. Add your name to the Footer, preview and print the worksheet. (If the comments are not showing make sure  Show/Hide Comment is selected in the **Review** Tab first.)
5. Save and close the workbook.

## More on Performing Calculations

### Exercise 72, Calculate Depreciation

1. Create a new workbook and save as **Van Depreciation**.
2. In cell **A1** type: **Depreciation Table for New Van**. Select cells **A1** to **D1**, click on the  Merge & Center  and select  Merge Across. Format the cell as a Heading 1.
3. In cell **B2** type: **Depreciation:** and format to Heading 4.
4. Widen column **B** slightly.
5. In cell **C2** type: **30%**.
6. Type the following headings in Row 3.  


		Diminishing Value	Accumulated Depreciation	Book Value
3	Tax Year			
7. Widen column **C** and wrap the text in the cells as shown.
8. Right Align  (Home tab) Column Headings and apply Heading 3 style.
9. Select cell **A5** and Type: **2012**. Using the Fill Handle drag down to cell **A9**.
10. Click on the  AutoFill Options button and select Fill Series to increase each year by 1 value to 2016.
11. Select cell **D4** and type: **48000** to enter the Book Value of the Van.
12. Click in cell **B5**. Enter the formula **=D4\*C2** (make C2 an Absolute Reference). **=D4\*\$C\$2**  
This is calculating 30% depreciation on the value of the Truck in its first year.
13. Click in cell **C5** and enter the formula **=D4\*C2** (this is not Absolute).
14. Click in cell **D5** and deduct the Diminishing Value from the Book Value **=D4-B5**.
15. Select cell **C6** and enter the formula **=C5+B6**.
16. Fill the formulas down in Column D, then Columns C and B to complete the depreciation table. Any 0 values will update once each dependent calculation is completed.

17. Select cells **B4:D9**. Click on the drop down arrow next to the **\$** Accounting Number Format and select [More Accounting Formats...](#)
18. In the Decimal places: box, reduce the number to **0** and ensure the Symbol shows **\$**. Click on OK.
19. **Delete** Row 9 (Tax Year 2016).
20. Insert the file name into the Header.
21. Insert your name and Page Number into the Footer.
22. Set the Gridline option so that all Gridlines will print. Set Page Layout options so that the worksheet is centred horizontally and vertically for printing.
23. Press CTRL + ` (above the Tab key) to view the formulas.

A	B	C	D
1	Depreciation Table for New Van		
2	Depreciation	0.3	
3	Tax Year	Diminishing Value	Accumulated Depreciation
4			48000
5	2012	=D4*\$C\$2	=D4+C2
6	2013	=D5*\$C\$2	=C5+B6
7	2014	=D6*\$C\$2	=C6+B7
8	2015	=D7*\$C\$2	=C7+B8

24. Repeat to return to normal view.

A	B	C	D
1	Depreciation Table for New Van		
2	Depreciation	30%	
3	Tax Year	Diminishing Value	Accumulated Depreciation
4			\$ 48,000
5	2012	\$ 14,400	\$ 14,400
6	2013	\$ 10,080	\$ 24,480
7	2014	\$ 7,056	\$ 31,536
8	2015	\$ 4,939	\$ 36,475
			\$ 11,525

25. Preview, save, print and close the workbook.

## Financial Statements

**Gifts Galore Limited**  
**Statement of Financial Position**  
**As at 31 March 2013**

<b>ASSETS</b>		<b>LIABILITIES</b>	
<b>Current Assets</b>		<b>Current Liabilities</b>	
Bank Account	96400	Accounts Payable	200
Debtors	400		200
<b>Fixed Assets</b>		<b>Owners Equity</b>	
Buildings	2500	Capital	18000
Equipment	18000	Net Profit	123500
<i>Less Acc. Depreciation</i>	-3600		141500
Furniture & Fittings	5000	<i>Less: Drawings</i>	125700
<b>Long Term Asset</b>			
Motor Vehicle	9000		
<i>Less Acc. Depreciation</i>	-1800		
	7200		
			125900
			125900

A Statement of Financial Position gives a clear picture of the financial state of an organisation at a particular point in time. It always states the company name at the top, the name of the financial document and the date. There are different layout formats, one example is shown above.

### Exercise 73, Create a Financial Statement

1. Open the supplied file **Landscape Limited** and save as **Financial Position March**.
2. Click in cell **B8**; click on the down arrow next to the Borders button (**Font** group, **Home** tab). Select Bottom Border from the menu.

#### Note

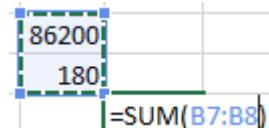
Your Border button may display slightly differently from that shown, depending on the option last used.

3. Select cell **B15** and press the F4 key to repeat the Border formatting. Repeat again in cell **B19**.

#### Note

This will only work if the Border formatting was the last action on the keyboard.

4. Apply Bottom Borders to **F7**, **F13** and **F15**.
5. Select cell **C8** and click on the AutoSum button (**Editing** group, **Home** tab or the **Function Library** group).
6. Drag the mouse over cells **B7:B8** to include them in the range. Press **Enter**.
7. Click in cell **C15** and insert the AutoSum formula into the cell.



8. Ensure the range includes all cells between **B12:B15**. The negative amount (with a minus (-) in front of the value, will be deducted from the range).
9. Insert the AutoSum function into cell **C19** to add the values between **B18:19**.
10. In Column **G**, calculate the total for the Current Liabilities =SUM(F7).
11. Click in cell **F14** and insert the AutoSum function to add **F12:F13** (this is the Owner's Equity before Drawings are deducted).
12. Select cell **G15** and use AutoSum to calculate **F14:F15**.
13. Click in cell **C21** and click on AutoSum. Ensure cell **C19** is automatically selected. Hold down the **CTRL** key and click on cell **C15** and then cell **C8** **=SUM(C9,C15,C19)**.
14. Press **Enter**.

**Note**

The **CTRL** key allows you to select other cells in the range without you having to add a + sign in-between each value being added together.

15. Click in cell **G21** and total the two values in **G7** and **G15**. The two totals should balance (i.e. be the same amount).
16. Add a Top and Bottom Border (single lines only) to the two totals in Row **21**.
17. Change the Sheet tab to read **March 13**.
18. Check all the formulas.
19. Add your name, the Sheet tab and a Page Number to the Footer.
20. Save, check, preview, print and close the workbook.

	A	B	C	D	E	F	G	
1	<b>Landscapes Limited</b>							
2	<b>Statement of Financial Position</b>							
3	<b>As at 31 March 2011</b>							
4								
5	<b>ASSETS</b>			<b>LIABILITIES</b>				
6	<b>Current Assets</b>			<b>Current Liabilities</b>				
7	Bank Account	86200		Accounts Payable	600		600	
8	Debtors	180						
9			86380					
10								
11	<b>Fixed Assets</b>			<b>Owners Equity</b>				
12	Buildings	3800		Capital	18000			
13	Equipment	19000		Net Profit	139740			
14	Less Acc. Depreciation	-3800			157740			
15	Furniture & Fittings	2000	21000	Less: Drawings	-38000	119740		
16								
17	<b>Long Term Asset</b>							
18	Motor Vehicle	16200						
19	Less Acc. Depreciation	-3240	12960					
20								
21			120340				120340	

## Practical Activity 6



USED UNDER LICENCE  
FOR TAFE QUEENSLAND BRISBANE  
ENROLLED STUDENTS ONLY

1. Open the supplied file **Hamilton Processing Plant** and save as **Hamilton Production Sheet**.
2. Calculate the formulas as shown below and widen any columns as needed:
  - **Total Cost:** Cost *plus* COGS (Cost of Goods Sold).
  - **RRP** (Recommended Retail Price): Total Cost *multiplied by* 40% Mark-up. Use an **Absolute Reference**.

### Note

The RRP needs to reflect the **40% Mark-up** plus the Total cost amount in the RRP price. Write down the formula that you need here.

3. Total Columns **B, C and D**.
4. Type: **Transport** in cell **C17** and **22%** in cell **D17**.
5. Insert the following headings in Row 18 and format appropriately.

17			Transport	22%
			Production	Transport Costs
18	Produced	Numbers	Cost	per Item

6. Copy and paste the Product list into cells **A19:A25** and enter the following numbers:

18	Produced	Numbers
19	Shreddies	200
20	Puffins	350
21	X-Bran	600
22	EasyOats	300
23	JelloMint	180
24	JelloChoc	180
25	Cornocakes	300

7. Calculate the Production Cost for each item (number of products *multiplied by* Total Cost per item).
8. Calculate the **Transport Cost per Item** (Multiply Total Cost by Transport percentage).
9. Use the Format Painter to format the currency results to the same style as the cells above, if required.
10. Use a calculator to check your answers.
11. Add your name, the date to the footer and the file name to the header.
12. Preview the worksheet and change the orientation to Landscape mode.
13. Centre the worksheet horizontally and vertically on the page.

14. Set gridlines to print and print the worksheet.

	A	B	C	D	E	F	G
1	Hamilton Processing Plant						
2	Production Sheet	24-Oct					
3							
4			Mark-up	40%	Shelf Life	300	
5	Product	Cost	COGS	Total Cost	RRP	Production Date	Expiry Date
6	Shreddies	\$3.25	\$1.90	\$5.15	\$7.21	8-Nov-13	4-Sep-14
7	Puffins	\$2.85	\$1.10	\$3.95	\$5.53	9-Nov-13	5-Sep-14
8	X-Bran	\$4.58	\$1.30	\$5.88	\$8.23	10-Nov-13	6-Sep-14
9	EasyOats	\$3.68	\$0.85	\$4.53	\$6.34	11-Nov-13	7-Sep-14
10	JelloMint	\$4.87	\$2.10	\$6.97	\$9.76	12-Nov-13	8-Sep-14
11	JelloChoc	\$2.85	\$2.10	\$4.95	\$6.93	13-Nov-13	9-Sep-14
12	Cornocakes	\$4.28	\$1.90	\$6.18	\$8.65	14-Nov-13	10-Sep-14
13	Total	\$26.36	\$11.25	\$37.61			
14							
15							
16							
17		Transport		22%			
18	Produced	Numbers	Production Cost	Transport Costs per Item			
19	Shreddies	200	\$1,030.00	\$226.60			
20	Puffins	350	\$1,382.50	\$304.15			
21	X-Bran	600	\$3,528.00	\$776.16			
22	EasyOats	300	\$1,359.00	\$298.98			
23	JelloMint	180	\$1,254.60	\$276.01			
24	JelloChoc	180	\$891.00	\$196.02			
25	Cornocakes	300	\$1,854.00	\$407.88			

15. Check your formulas against those shown below (Transport Costs) and close the workbook.

17			Transport	0.22
18	Produced	Numbers	Production Cost	Transport Costs per Item
19	Shreddies	200	=B19*D6	=C19*\$D\$17
20	Puffins	350	=B20*D7	=C20*\$D\$17
21	X-Bran	600	=B21*D8	=C21*\$D\$17
22	EasyOats	300	=B22*D9	=C22*\$D\$17
23	JelloMint	180	=B23*D10	=C23*\$D\$17
24	JelloChoc	180	=B24*D11	=C24*\$D\$17
25	Cornocakes	300	=B25*D12	=C25*\$D\$17

## Activity 5



USED UNDER LICENCE  
FOR TAFE QUEENSLAND BRISBANE  
ENROLLED STUDENTS ONLY

1. Write down *three* ways in which you can increase your productivity by using the AutoFill feature in Excel.

.....  
.....  
.....  
.....  
.....

2. Explain how to open the Page Setup dialog box so that the layout of a spreadsheet can be changed. Include the name of the tab and the group in your answer.

.....  
.....  
.....  
.....

3. List at least *three* features found in the Page Setup dialog box. An example has been given:  
Centre on page horizontally.

.....  
.....  
.....  
.....

## Logical Functions

### If Function =IF()

There is a range of Logical Functions included in Excel. This includes the IF Function which uses ‘conditional logic’ to test one value against another, with the results being ‘true’ or ‘false’.

The IF function tests if something is true, or false. If it is true, a result (either a number or text) appears in the cell and if it is not true (i.e. false), a different result appears in the cell.

For example, a store that is using a spreadsheet to evaluate stock levels can use the IF Function to remind the purchaser to order goods when stock reaches a specified level. The text ‘Order’ or ‘No’ is applied to make the result more meaningful than ‘true’ or ‘false’.

A	B	C	D	E	F	
1	Code	Description	Quantity	Cost Price	Stock Value	Order Stock
2	A1254	Black Picture Frame L	8	\$ 99.59	\$ 796.72	No
3	A1255	White Picture Frame L	3	\$ 99.59	\$ 298.77	Order
4	A1256	Red Picture Frame M	12	\$ 59.82	\$ 717.84	No
5	A1257	Blue Gallery Frame L	4	\$ 120.00	\$ 480.00	Order
6	A1258	Black Gallery Frame M	8	\$ 90.25	\$ 722.00	No

Examine the formula above.

**IF** (Quantity in cell C2 is less than 5, **then** “Order”, otherwise “No”).

The IF function uses three parts (Logical test of a cell contents, result if True, result if False):

**Logical test:** the value in cell C2 is being tested to see if the stock quantity is less than 5.

**True result:** “Order”

**False result:** “No” (text is always entered in a formula with double inverted commas “”)

When the value in cell C2 is less than 5, **C2<5** is true when it is greater than 5 it is false.

### Insert Function Feature (Using the Function Wizard)

This is a built-in feature to help you insert the correct formula and arguments into a worksheet.



Logical

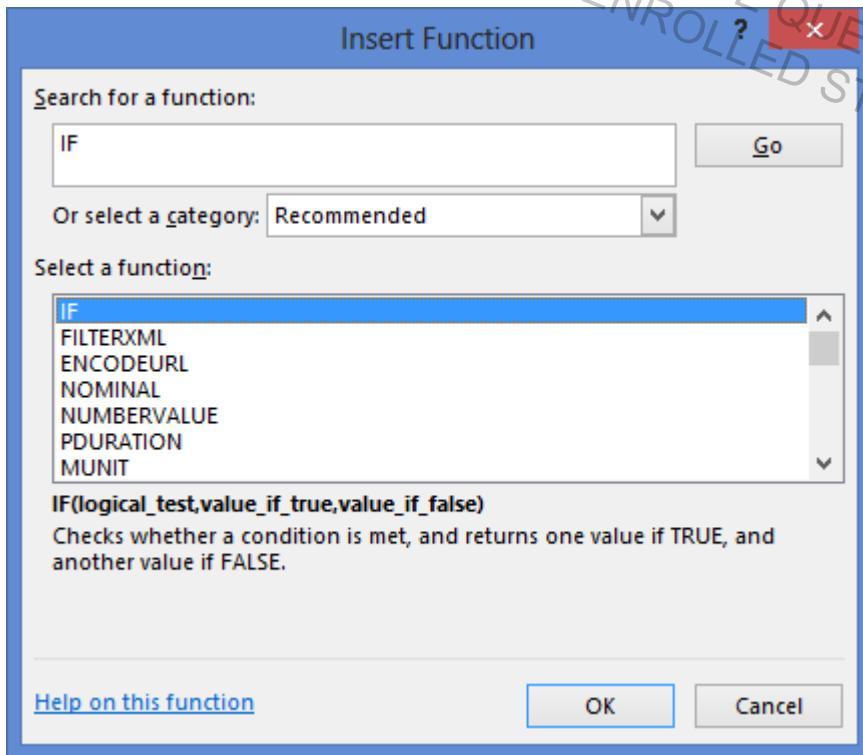
The Function Wizard may be accessed two ways: via the button on the Formula Tab or via the Insert Function button on the Formula bar.

### Exercise 74, =IF Function

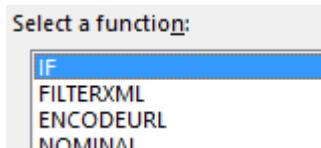
The IF Function will be used to calculate the Tax Rates. Salaries **less than or equal to \$35000** will be **19%**, otherwise **35%**.

1. Open the supplied file **Tax Rates** and save as **Staff Tax Rates**.
2. Click in cell **D5**.
3. Click on the (Insert Function button) next to the Formula Bar.

4. In the Search for a function: box, type: IF and click on the Go button.

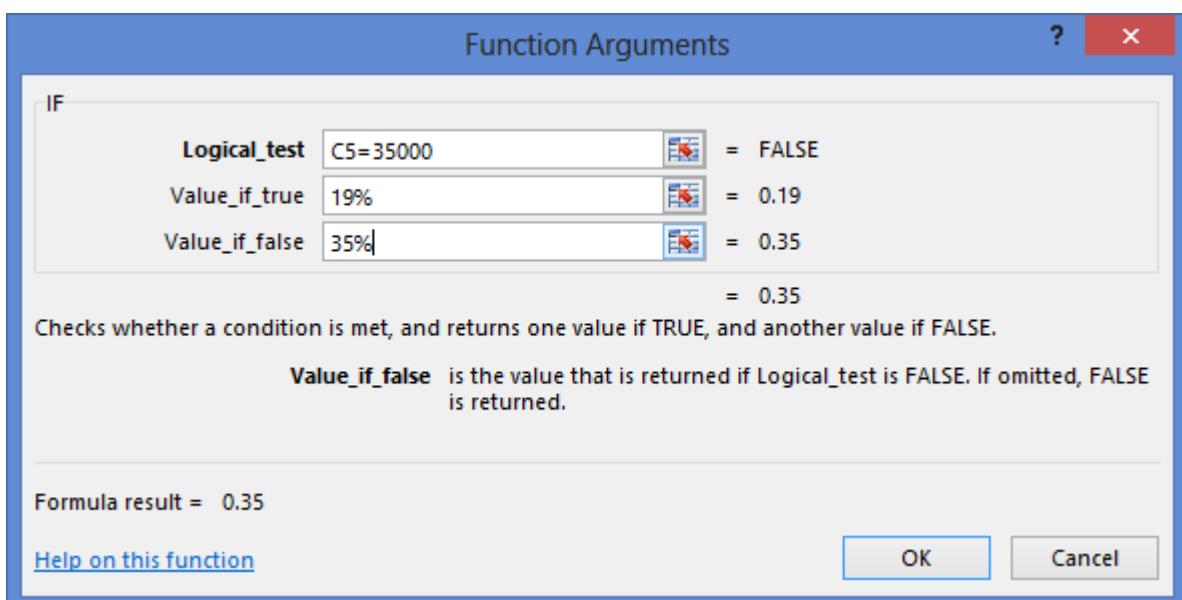


5. From the Select a function: list ensure IF is selected



6.

7. Click on OK to open the Function Arguments dialog box.  
 8. Click in the first text box, Logical\_test: and type: C5<=35000 (<= less than or equal to)  
 9. Click in the Value\_if\_true: box and type: 19%  
 10. Click in the Value\_if\_false: box and type: 35%



11. Click on OK and copy the formula down.

### Note

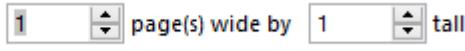
If the results are not showing as a % click on the  $\%$  button in the Number group on the Home tab.

12. Create a column for **Annual Tax** and calculate the tax to be paid by each employee.

13. Check your results using a calculator.

14. Show Formulas (CTRL+`).

15. Preview the worksheet and from Page Setup, select:

16.  to print on one page only.

17. Set the page up so that the gridlines will print (Sheet tab).

18. Add your name to the footer.

19. Print the spreadsheet with the formulas showing.

20. Turn the formulas off (same Keyboard Shortcut as show formulas).

21. Save and close the workbook.

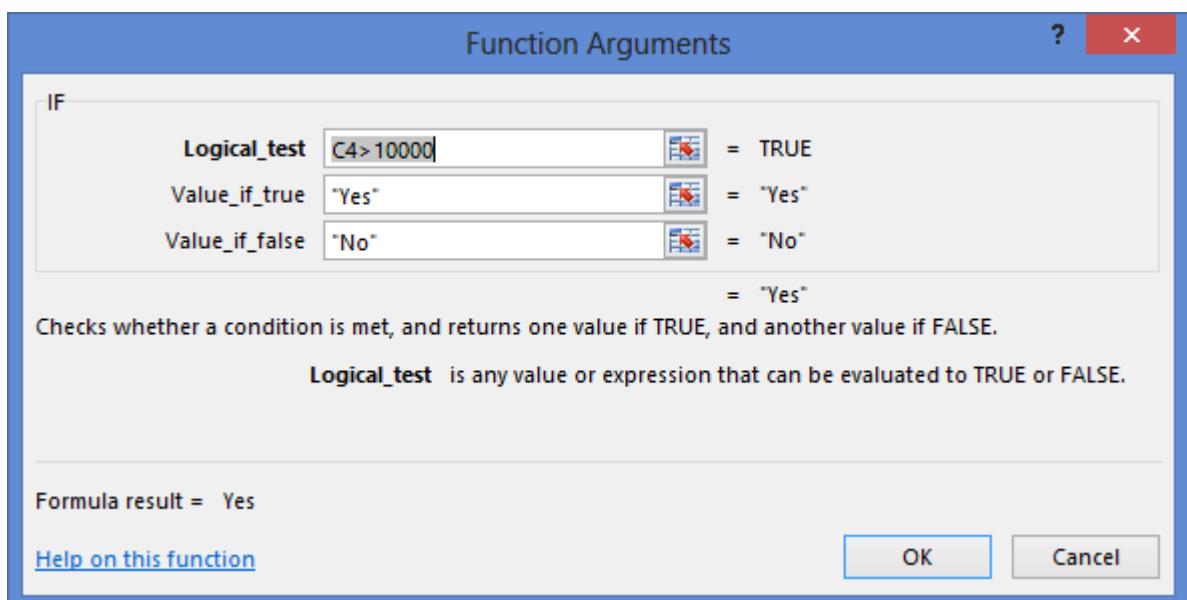
### Exercise 75, Create an IF statement

1. Open the supplied file **Commission Earned** and save as **October Sales Commission**.



Logical

2. Click in cell **D4** and in the **Formulas** tab click on  and click on IF
3. Click in the first text box, Logical\_test: and type: **C4>10000** ( $>$  greater than)
4. Click in the Value\_if\_true: box and type: **Yes**
5. Click in the Value\_if\_false: box and type: **No**



6. Notice that inverted commas have been put around the text in the resulting formula:

**=IF(C4>10000,"Yes","No")**

7. Practice typing the formula in yourself down the rest of the column. Right align the text. Save the workbook.

	<b>First Name</b>	<b>Last Name</b>	<b>Sales</b>	<b>Commission</b>
3	Hedley	Jackson	\$12,500.00	Yes
4	Jenna	Kent	\$10,250.00	Yes
5	Lee	Te'Atu	\$8,064.00	No
6	Mica	Vogel	\$12,648.00	Yes
7	Jo	Wong	\$9,506.00	No
8	Rita	De Clerk	\$11,208.00	Yes

8. Click in cell **E3** and type: **Training**.  
 9. Add an IF Function to cell **E4** to establish if training is needed for Sales less than **9000**.

**Hint**

If sales are < 9000 then “Training” otherwise “No”.

10. Fill the formula down the rest of column **E** and right align the text.  
 11. Change the Sales Value in **C7** to **7950**. The Commission status will change to No and the Training cell will change to **Training**.  
 12. Press CTRL + Z to undo the changed value in C7.  
 13. Save and leave the workbook open.

### Exercise 76, Calculate a Commission Percentage using an IF statement

In the next column, you are going to calculate a commission percentage based on whether or not the **Commission** Column says **Yes** or **No**.

If the formula had to be written out in text language, it would read:

If (D4 equals “yes” then calculate C4 **multiplied by 5%**, otherwise **Zero**).

1. Using **October Sales Commission**, click in cell **F3** and type: **Bonus** and press the Enter key.
2. In cell **F4** enter the following formula (reminder: use the mouse to enter cell references):  
 $=IF(D4="Yes",C4*5%,0)$
3. Practice the formula down the column.
4. Format all cells in **Column F** to Currency.
5. Save and close the workbook.

A	B	C	D	E	F	
1	Sales October					
2						
3	First Name	Last Name	Sales	Commission	Training	Bonus
4	Hedley	Jackson	\$12,500.00	Yes	No	\$625.00
5	Jenna	Kent	\$10,250.00	Yes	No	\$512.50
6	Lee	Te'Atu	\$8,064.00	No	Training	\$0.00
7	Mica	Vogel	\$12,648.00	Yes	No	\$632.40
8	Jo	Wong	\$9,506.00	No	No	\$0.00
9	Rita	De Clerk	\$11,208.00	Yes	No	\$560.40

## Exercise 77, Use the IF function

1. Open the supplied file **Commission Nov** and save as **Bonus November**.
2. In **Column D** use the IF Function to find out which Sales staff members qualify for commission. Their sales must be higher than **\$10300**.

### Note

Do not use the \$ symbol in your formulas – just the number.

3. In **Column E** find out if any sales staff members should be attending a training session. Management suggest staff members with sales below **\$8000** should attend training.
4. Edit the data for Jo Wong. A customer returned some goods and sales are only **\$7995**.
5. In **Column F**, calculate a 7% Bonus for staff members that earned more than **\$7500**.
6. Hint
7. The true result part of the formula is the sales amount multiplied by 7% ( $C4*7\%$ )
8. Check the data and the formulas and save the workbook.
9. Add your name to the footer and print the worksheet
10. Save and close the workbook.

## Exercise 78, Use the IF function

1. Design a worksheet to calculate the scores earned by the students in their international language exams for French. Save the workbook as **Language Test**.
2. Create an overall **Total** for each Student.
3. Insert an **Average** score for each part of the test e.g. Reading, Writing etc.
4. Create a **Result** column that shows if the Total scores are **greater than or equal to 15**, then show a result of Excellence otherwise Merit (Hint:  $\geq 15$ ).

Last Name	First Name	Reading	Writing	Speaking	Listening
McVey	JoAnne	4	4	4.5	4
Thomas	Lisl	3	4	4.5	3.5
Randell	Vivienne	4	3.5	3.5	4
Landsberg	Jack	4.5	4	4	4.5
Bell	James	4	4.5	4	5
Von Ash	Erica	3	4	3.5	4.5
Stills	Peta	3.5	3	4	4
Stewart	Mere	4	4	4	4.5

5. Check your data.
6. Add your name and the file name to the footer.
7. Change the orientation to Landscape then print the worksheet.
8. Save and close the workbook.

## Exercise 79, Use the IF function

1. Open the supplied workbook **Ratings** and save as **Star Award Ratings**.
2. Total each Company's overall scores in **Column G**.
3. Calculate an **Average Score** rating for each appliance (Row 9).
4. Use the Overall Total of appliances tested in **H2**, i.e. **50**, to create a **% of the Total**.

### Note

H2 must be set up as an Absolute Reference:  $=\text{Total} / \text{H2} (\text{Absolute}) * 100$

Multiplying by 100 converts the percentage into a whole number. The formatting of the cell must remain a whole number format or it will read 8000%.

5. Insert an **IF** statement into **Column I**, that shows if a Company scored more than **73** per cent then they receive an Award, otherwise None.
6. Check your results, save and leave the workbook open.

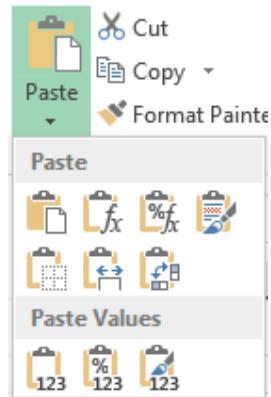
`=IF(H4>73,"Award","None")`

## Percentage Total

This calculation can be used to find out the percentage an amount makes up of a sum of values. For example, the value 10 is 20% of the sum of numbers that totals 50.

## Exercise 80, Show a Percentage Total

1. Using **Star Award Ratings**, copy cells **A3:A8** and paste cells in **A15**
2. To copy the Totals to cell **B15** as numbers rather than a formula we need to use a Paste Option. First copy cells **G3:G8** and click in cell **B15**. Then click on the Paste down arrow in the Home tab and select **Paste Values**.
3. Right align and bold **Total**.
4. Type: **Total** in **A21**
5. Insert a formula to add the totals above in **B21**.
6. Type: **% Total** in cell **C15** and right align and bold.
7. Click in cell **C16** and type the following formula (remember to enter cell references by clicking the mouse on that cell): **=B16/B21** making **B21** an **Absolute Reference** **=B16/\$B\$21**.
8. Press **CTRL + Enter** to remain in the cell but complete the formula.
9. Click on the **%** button in the Number group to Format the cells to a percentage.
10. Copy the formula down using the Fill Handle (The Total should read 100%).
11. Save and close the workbook.
12. For practice, return to your document created in Practical Activity 5, on page 82, and complete the **% of Sales** column.



## Practical Activity 7



1. **Design and create** a new workbook for Auto Supplies Limited and save as **Loyalty Discounts Given**. The worksheet will be used to calculate discounts given in the month of July for work done on account (that is, they haven't paid yet and will be invoiced). The data required for the spreadsheet is provided on the following page.
2. **Create your plan** on the table below. You must show your **formulas** in the plan.
  - Include a **Heading** and **Sub-heading**.
  - Create column headings for each column.
  - Create a column for each customer's **name** and **total amount spent** for the month.
  - Create a column for the **Discount %**.
    - Use an **IF Function** (try the Wizard) to calculate discounts: where customers have spent 4000 or less, they get 5% discount otherwise 10%.
  - Create a column for the **Discount Amount**
  - Create a column for the **Final Amount Owing** after discount.

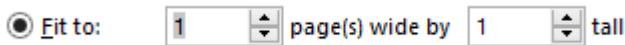
	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

3. Complete your spreadsheet from your plan and the data from the customer records shown below.

- Cells with financial data must be formatted to Currency, percentages must be formatted % and column headings with values must be right aligned.
- Sort by customer name in ascending order.
- Adjust column widths.
- Rename the Sheet tab to **Discounts**.
- Add your name, the file name and date to the Footer.

4. Print a copy of the worksheet.

5. Show Formulas (CTRL+`), and from Page Setup, select:



Turn the Gridlines and Row and column headings on for the formula printout. This allows you to check the accuracy of your formulas.

6. Print a copy of the worksheet with formulas.

7. Save and close the workbook.

On-The-Road Limited

\$ 6025.50

Top Gears Limited

\$9802.00

Mikes Automotive

\$3980.50

Redvale Autos & Security

\$2647.00

Silver Service Autoshop

\$4985.60

Tony's Alarms & Sound Systems

\$8985.60

Littleton Trucks

\$7347.35

T. B. Systems

\$4000.00

## VLookup (Vertical Lookup)

VLookup is used to look up information stored in an existing worksheet or table. The information in the table must be laid out in columns (vertically) and be sorted alphanumerically.

In the example below, commission percentages for sales staff are based on the amount each person sells. A worksheet is used to enter the employee details and the value of the sales made. In column three, there is a VLookup Formula to find the Commission Fee percentage. The VLookup formula looks up information in the table below the entered data. Excel finds the closest match to the data in the first column in the lookup table and returns the commission amount (from second column in the lookup table) to the cell.

### Note

Reference to the table is an **absolute reference** and does not include the heading.

	A	B	C
1	Commission Table		
2			
3	Name	Sales Achieved	Comm Fee
4	Keith Rowland	6020	4%
5	Kerry Coombs	7500	5%
6	Kevin Buchanan	7200	5%
7	Julia Venter	8005	7%
8	Kris Herring	8600	7%
9	Noelene Starr	9800	10%

=VLOOKUP(B4,\$A\$14:\$B\$20,2,TRUE)

13	Commission Fee	
14	4000	2%
15	5000	3%
16	6000	4%
17	7000	5%
18	8000	7%
19	9000	10%
20	10000	12%

6020 is entered into cell B4.

The Vlookup function looks for the closest match in the Commission Fee table to the contents of B4 (6000) and returns the Value 4%.

### Exercise 81, Work with VLookup Function

You are going to create the VLookup Function used in the example shown above.

1. Open the supplied workbook **Sales Commission Calculator** and save as **Commission Calculator**.
2. Enter the following sales data into **Column B**.

	A	B
1	Commission Table	
2		
3	Name	Sales Achieved
4	Keith Rowland	6020
5	Kerry Coombs	7500
6	Kevin Buchanan	7200
7	Julia Venter	8005
8	Kris Herring	8600
9	Noelene Starr	9800

3. Click in cell C4, click on the button and locate the VLOOKUP Function.

- Position the Function Arguments Box so that you can see the worksheet data.
- Ensure the Lookup\_value: box is active (has a flashing cursor in it) and click on cell **B4** in the worksheet.
- Click in the Table\_array: box and select cells **A14:B20** and press the **F4** Function key to make the Range an **Absolute Reference**.

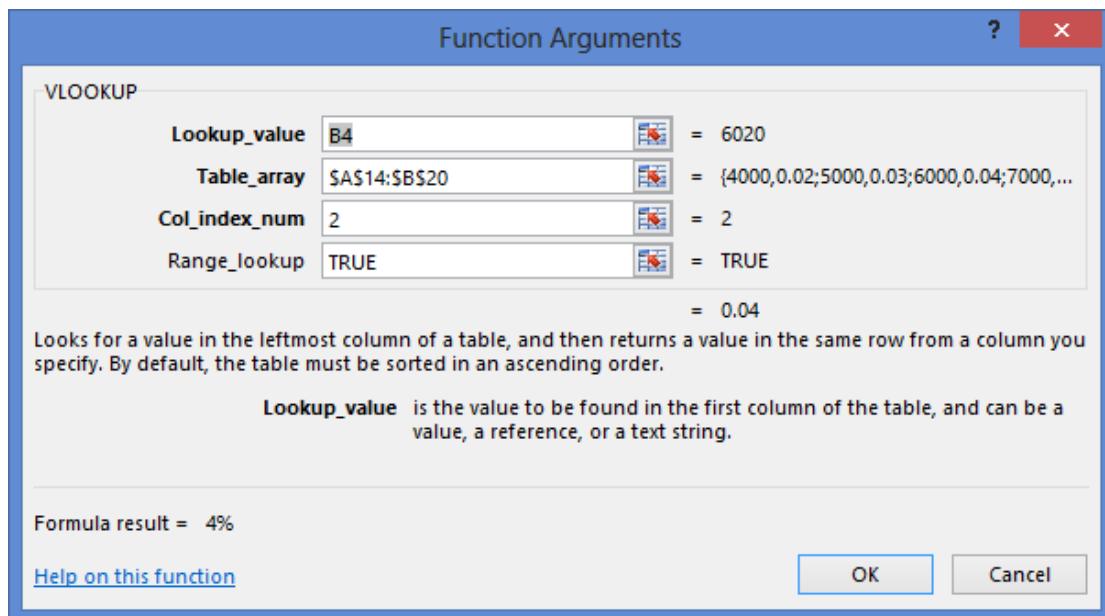
**Note**

The Table must be made an **Absolute Reference** so that you can copy the formula down the column.

- Click in the Col\_index\_num: and type: **2** (this tells Excel which column to use to return a value).
- Click in the Range\_lookup: box and type: *True* (this can be omitted and it will default to True).

**Note**

This part of the formula is important in this instance as the values entered are not an exact match. Excel will match the values as closely as possible if the Range\_lookup is True or left empty. If you type False it will look for an exact match.



- Click on **OK**.
- Use the Fill Handle to copy the formula down.

**Note**

If you get errors in the formula, Ensure you have made your array (Table Range) **A14:B20**, an Absolute Reference – there should be \$ symbols around the cell references as shown above.

- Save the workbook.
- Change Kerry Coombs to read: **8020** and Noelene Starr to **10500**.
- Save and close the workbook.

## Exercise 82, Work with VLOOKUP Function

1. Open the supplied workbook **Income subsidies** and save as **Subsidy**.

	A	B	C
1	<b>Subsidy</b>		
2			
3			<b>Subsidy</b>
4	<b>Client No</b>	<b>Age</b>	<b>Amount</b>
4	A123	28	\$0.00
5	A124	50	\$300.00
6	A125	65	\$380.00
7	A126	80	\$420.00
8	A127	75	\$380.00
9	A128	80	\$420.00
10	A129	75	\$380.00
11	A130	65	\$380.00
12	A131	80	\$420.00

2. Click in cell C4 and use the **VLOOKUP** Function to calculate the **Subsidy Amount**.
3. Use the Rates table supplied for your table array (don't include the heading).  
Remember to make the Table\_array an **Absolute Reference**!
4. Check your answers match those shown at the right.
5. Change the age of Client No: **A123** to **35** and press Enter.
6. Save and close the workbook.

## Use a Table Array in a Different Sheet

**Scenario:** A small insurance company has policy amounts stored in a table that is set up to calculate monthly premiums for their clients. When a client requests a quote, the broker enters the client information onto the **Quote** page so that he has this on record, Excel uses the **Table** worksheet to look up monthly fees.

In the exercise that follows, you will reference a table that is *set up in another worksheet* in the same workbook. The first worksheet **Quote** has the name of the client, the type of business they operate and the value that they wish to insure. The second worksheet **Table** is the lookup table that will be used to find out the monthly premium for the client. The monthly fee uses a calculation that is rounded to two decimals.

## Exercise 83, Work with Table Array

1. Open the supplied workbook **Insurance Quotes** and save as **Monthly Fees**.
2. Make sure that the **Quote** worksheet is displayed  and click in cell **D4**.



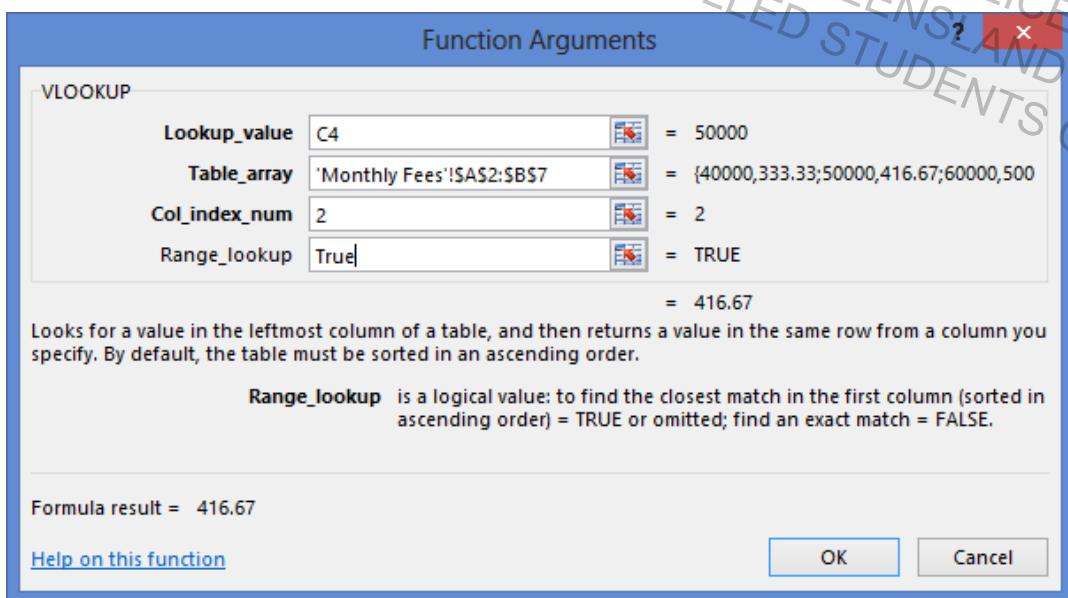
Lookup &

3. From the Formulas tab click on **Reference** and select **VLOOKUP**.

4. Use cell **C4** as the **lookup\_value**.

5. Click in the **Table\_array**: box and click on the **Sheet tab**  to open the second worksheet.

- Select cells A2:B7 and press the F4 key to make the range Absolute.
- Type: 2 in the Col\_index\_num: box and True in the Range\_lookup.



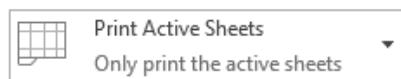
- Click on OK.
- Use the Fill Handle to copy the formula down the column and format the results to Currency if required.
- Save the file.
- Enter the following data:

Bowen's Irrigation	Retailer	\$100,000
Cute As Designs	Retailer	\$50,000

- Copy the formula down to calculate the monthly rates for the above potential clients.
- Add your name to the footer.
- Save and leave the workbook open.

### Exercise 84, Print Active Worksheet Only

- Using Monthly Fees, check the Quote worksheet is displayed.
- Press CTRL + P to display Print Backstage View.



- Ensure Print Active Sheets is selected.
- Click on the Print button to print the active worksheet.
- Save and close the workbook.

## Practical Activity 8



1. Open the supplied workbook **Suppliers Discounts** and save as **September Discount Allowed**.
2. Make sure that the Parts worksheet is displayed.
3. Change the heading on column **C** to **Order Amount Inc GST** and wrap the text.
4. Insert a VLookup Function in column **E** to calculate the discounts that apply to each order based on the supplier.

### Note

The Table is located in the Suppliers worksheet; look at the contents of this worksheet first to plan the formula.

5. Use the Fill Handle to copy the Function down (Ensure the Function command includes an Absolute Reference or the Fill Feature will not work).
6. Open the Suppliers Sheet and change the discount for **Oldens** to 5.5% (if needed, use the Increase Decimal to view the decimals).
7. Add the following columns and calculations to the Parts worksheet as follows:
  - **Column F**, calculate the discount amount
  - **Column G**, calculate the total of the order after discount
  - **Column H**, calculate the **GST** amount in the total after discount (Hint: Check the section on GST if you are not sure what to do)
  - **Column I**, calculate 28 days from the date (Hint: Date +28). Type a column heading **Payment Due**.
  - **Column J**, use an **IF** Function to alert the user to pay discounts that are more than \$50 to **Pay Early** otherwise **On Time**. Type a column heading **Payment Required**.
8. **In Cell F14** calculate the average discount amount (add a suitable heading in **Column A**)
9. **In Cell H15** calculate the Total GST paid (add a suitable heading in **Column A**)
10. Ensure all cells with financial information are formatted to **Currency**.
11. Change the page orientation to **Landscape**.
12. Print the **Parts** Worksheet only as follows:
  - Ensure Gridlines are displayed.
  - Add your name and the date to the footer.
  - Print with formulas displayed to fit on one sheet only.
  - Print with values displayed.
13. Click on the in the top right corner until all workbooks have been closed and exit Excel.

## Notes

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