EXCEL

5 | Organizing Large Worksheets

In this chapter, you will learn how to effectively manage worksheets containing large amounts of data. You will use some exciting Excel tools to organize and view data, perform calculations, and restrict data entry.

LEARNING OBJECTIVES

- ▸ Create a template
- ▸ Start a workbook from a template
- ▸ Change worksheet view options
- ▸ Sort and filter data
- ▸ Create IF functions
- ▸ Apply data validation rules
- ▸ Use the Scale to Fit printing options
- ▸ Create and modify tables

📂 Project: Preparing Company Payroll Data

Every two weeks, Airspace Travel goes through the process of compiling the data from hours worked and commissions earned to calculate employee paychecks. You have been asked to manage this process, which means taking the data and importing it into a template and then inserting the required formulas into the sheet that will calculate gross pay. You will also need to organize the data so it is presentable, easy to read, and easy to print, if necessary.

Starting with a Template

Using templates in Excel is a way to save yourself a lot of work. Templates allow you to use a preexisting workbook, which usually has the formatting, headings, and formulas already created for you, when creating many similar documents. For example, templates are useful when creating invoices, where the structure and format are the same and only information such as names, dates, and amounts needs to be changed for each new file. Excel offers a large collection of online templates you can search through to find something suitable for your purpose.

Another option is to create your own template. Creating your own template means creating a workbook as usual, inserting text and formulas, and formatting as you desire, but not filling in any actual data. To create the template, you change the type of file to Excel Template when you go to save the workbook.

File name:	Book1
Save as type:	Excel Workbook

File name:	Book1
Save as type:	Excel Template

The default file type when saving your work is Excel Workbook; when creating your own template, change the file type to Excel Template.

	ID	Employee Name	Reg Hours Worked	Vacation Hours	Sick Hours	Overtime Hours	Overtime Rate	Gross Pay	Taxes and Ded's	Other Ded's	Net Pay
		PAYROLL CALCULATOR				**GENERATE PAY STUBS**			**PERIOD ENDING:**		4/8/2013
4	1001	Tony Smith	50	5	1			$560.00	$273.08	$20.00	$266.92
5	1002	David Jones	40					$320.00	$131.76		$188.24
6	1003	Denise Smith	35	3				$532.00	$240.43		$291.57
7	1008	Sebastien Motte	50	5	1			$1,120.00	$441.16		$678.84
8	1011	Isabelle Scemla	40			2	$15.00	$430.00	$223.62		$206.39
9	1012	David Bristol	40	5	1			$552.00	$270.04		$281.96
10	1025	Anne Weiler	36			2	1	$474.00	$225.36	$25.00	$223.64
11	1032	Luka Abrus	40	5	1		$18.00	$460.00	$175.03	$50.00	$234.97
12	1049	David Ludwig	40	1				$615.00	$259.01	$23.00	$332.99
13	Totals	9	371	24	6	3		$5,063.00	$2,239.47	$118.00	$2,705.53

This template is designed for payroll calculations and already has the structure, formatting, and formulas in place.

Note! *Be aware that some templates require users to have advanced Excel knowledge!*

DEVELOP YOUR SKILLS: E5-D1

In this exercise, you will browse templates, create your own template, and start a new workbook using your template.

1. Start Excel.

A list of templates displays. The first is Blank Workbook, and then there are several Excel feature tours, followed by a list of template options you can scroll down and browse through. There are many options, including workbooks, to create different types of schedules, calendars, budgets, and more.

2. Click in the **Search for Online Templates** box at the top of the screen, type **Payroll**, and tap ⌈Enter⌋.

Excel searches through thousands of online templates and shows a list of templates related to your search. If you like, you can click an option to preview it, or open a template to look at it.
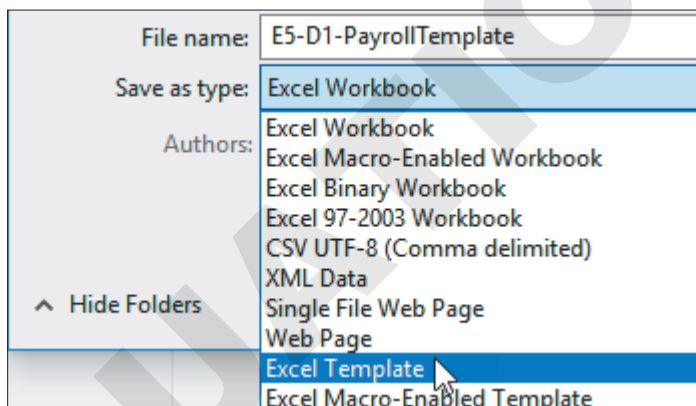
Now you will create a template to be used for Airspace Travel.

3. If necessary, close any open files, then open **E5-D1-PayrollBlank** from your **Excel Chapter 5** folder.

This is the file you want to start with every two weeks when you are creating the payroll.

4. Choose **File→Save As→Browse**.

5. In the Save As dialog box, type **E5-D1-PayrollTemplate** in the File Name box, then click the **Save as Type** menu and select **Excel Template**.

File name:	E5-D1-PayrollTemplate
Save as type:	Excel Workbook
Authors:	Excel Workbook
	Excel Macro-Enabled Workbook
	Excel Binary Workbook
	Excel 97-2003 Workbook
	CSV UTF-8 (Comma delimited)
	XML Data
∧ Hide Folders	Single File Web Page
	Web Page
	Excel Template
	Excel Macro-Enabled Template

You are choosing the type of file first because, by default, saving as a template will save the file to a custom Office template directory created by Microsoft. However, you can navigate back to your file storage location and save the template there instead.

6. Navigate to the **Excel Chapter 5** folder in your file storage location and click **Save**.

Now that the file is saved as a template, you don't want to make any more changes to it, so you need to close it and then open a copy of the template using File Explorer.

Note! *To edit the template itself, use File→Open from within Excel to open the template file; to open a copy of the template, you can either use File→New to find templates saved in your custom Office template directory or simply use File Explorer.*

7. Close Excel; then use File Explorer to open **E5-D1-PayrollTemplate** from your **Excel Chapter 5** folder.

Note! *Notice that a 1 has been added to the end of the filename in the title bar, similar to when you create a new blank workbook and the default name is* Book1. *Changing this file will not affect the template; it is a new and separate file.*

8. Use **Save As** to save the workbook as: **E5-D1-PayrollP17**

    Now that it has been saved, this is just a regular Excel file for you to work on, and the template remains unchanged for future use.

Adjusting View Options

When you have large amounts of data, it can be difficult to see it all and do what you need to do. For example, when you scroll down the worksheet, you will no longer see your headings, so you might lose track of what information is in each column. Or, you might want to see different parts of a spreadsheet at the same time for comparison. Using different view options makes it easier to work with these large worksheets.

Freeze Panes

To keep the headings in your worksheet visible while you scroll through your data, you can use the Freeze Panes feature. You can freeze rows or columns, or both at the same time. You can unfreeze the panes again at any time.

If cell B5 is selected, this option would freeze column A *and* rows 1:4, so the Inventory ID and all column headings would always remain visible.

This option freezes row 1 only.

This freezes column A only; you cannot use Freeze Top Row and Freeze First Column at the same time.

☰ View→Window→Freeze Panes 🈀

Split a Window

Another option is to split the Excel window, either into two halves or four quadrants. This allows you to scroll through different areas of your worksheet in the different split views, which is useful if you need to refer back and forth to data from different sections of your worksheet. Similar to Freeze Panes, the location of the split is based on the current active cell. To divide your worksheet in two halves, simply choose a cell in column A before creating the split. You can remove the split at any time.

The split lines shown here divide the worksheet into four quadrants, and each can be scrolled through separately to view four different areas of the worksheet.

≡ View→Window→Split 🔲

Change the Workbook View

Another issue with large worksheets is understanding how your worksheet will look when it is printed. To see how your worksheet will look when printed, or to see where page breaks will occur, you can use the Page Break Preview or Page Layout view.

Page Layout view shows the ruler and allows you to view and edit the margins and header and footer sections.

≡ View→Workbook Views

DEVELOP YOUR SKILLS: E5-D2

In this exercise, you will copy the data for the payroll period, then make adjustments to view the worksheet several different ways.

1. Save your workbook as: **E5-D2-PayrollP17**

   A coworker from the accounting department has sent you the raw data file, which needs to be added to the payroll file for pay period 17. You will insert the data by simply copying and pasting.

2. Open **E5-D2-PayrollPeriod17data**, which is saved in your **Excel Chapter 5** folder.

3. Select all data in the worksheet using the keyboard shortcut Ctrl + A , then copy the data using the keyboard shortcut Ctrl + C .

4. Return to the **E5-D2-PayrollP17** workbook, ensure that **cell A6** is selected, and use the keyboard shortcut Ctrl + V to paste the data.

5. Autofit **column E** so the department names are fully visible.

   Now that you have the data, you can close the workbook you copied the data from.

6. Switch back to and close **E5-D2-PayrollPeriod17data**.

   When closing the file, you may see a dialog box asking you to either save or delete the data on the Clipboard; if so, click No to delete it.

7. Select **cell C6** and choose **View→Window→Split** .

   Use the scroll bars or mouse wheel to scroll through the worksheet in each of the four quadrants.

8. Turn off the split by choosing **View→Window→Split** a second time.

9. Scroll back to the top-left portion of your worksheet if you are not already there.

10. Select **cell C6** again, and this time choose **View→Window→Freeze Panes** menu button ▾ →**Freeze Panes**.

    Use the scroll bars or mouse wheel to scroll through the worksheet up and down, left and right. Notice that the headings and employee names remain visible.

11. Change the view by choosing **View→Workbook Views→Page Layout** .

    Because Page Layout View isn't compatible with Freeze Panes, it will prompt you to unfreeze the panes.

12. Click **OK** to unfreeze and continue.

    The status bar at the bottom now displays the number of pages in your document. You can scroll down to view the second page.

13. Switch back to the **Normal** view.

14. Save the workbook.

Organizing Data with Sorts and Filters

When you have large amounts of data, you need tools to help you make sense of it. Sorting gives you the ability to rearrange your data in the way that makes the most sense for your purpose. Filtering then allows you to narrow down your data to focus on certain parts of it.

Custom Sorts

Sorting can be performed on any column, using text values, numerical values, or even cell color or font color. Values can be sorted in either ascending or descending order, depending on the type of data being sorted: text, numbers, or perhaps dates.

In addition to a simple one-step sort, you can add multiple levels to your sorting for even better organization; for example, you might have an employee database with information like departments, job titles, office locations, sales performance data, and how long employees have been with the company, and you might decide to sort the data based on department first and then by length of time with the company.

To sort by a single column, you can use Ribbon commands or a shortcut menu. For more advanced sorting and to use multiple sort levels, use the Custom Sort dialog box.

Filters

Filtering allows you to choose what data to include (show) and what data to filter out (hide). You can also filter by text or numbers. For text you can create many filters to find data. This can help you find text that begins with or ends with a specific letter or that contains a certain string of text. For numeric values there are also numerous different ways to create rules to find values that are greater than, less than, equal to, and so on. Using the same company example, you could filter the list multiple ways to view only employees in the sales department, with five or more years of experience, and with less than $10,000 in sales last month.

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A customer list with no sort or filter applied

Customers	Country
Carol Gregory	USA
Natasha Dyas	Canada
James Norman	Mexico
Joshua Garcia	USA
Sarah Mckinnon	USA
Shannon Miller	Mexico
Katrina Kormylo	Canada
Susan Colley	USA
William Emerson	Canada
Eugene Fink	USA

A customer list sorted by Country and then by Customers

Customers	Country
Katrina Kormylo	Canada
Natasha Dyas	Canada
William Emerson	Canada
James Norman	Mexico
Shannon Miller	Mexico
Carol Gregory	USA
Eugene Fink	USA
Joshua Garcia	USA
Sarah Mckinnon	USA
Susan Colley	USA

A customer list filtered to show only customers in the USA

Customers	Country
Carol Gregory	USA
Eugene Fink	USA
Joshua Garcia	USA
Sarah Mckinnon	USA
Susan Colley	USA

View the video "Using Sort and Filter."

☰ Data→Sort & Filter→Sort 🔲 | Home→Editing→Sort & Filter 🔤→Custom Sort… | Right-click data→Sort→Custom Sort…

☰ Data→Sort & Filter→Filter 🔽
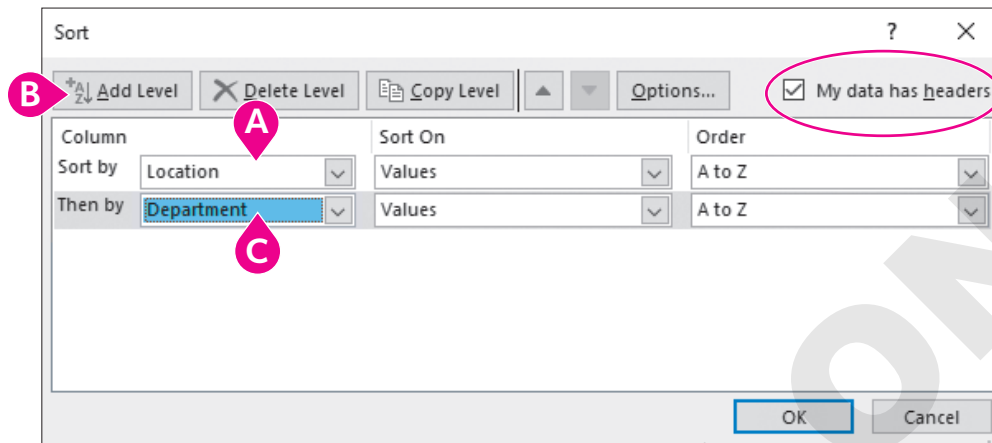
DEVELOP YOUR SKILLS: E5-D3

In this exercise, you will use Sort & Filter to organize the employee data and edit the pay rate for some of the employees.

1. Save your workbook as: **E5-D3-PayrollP17**

2. Select one cell that contains data within the **range A6:H63**.

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3. Choose **Data→Sort & Filter→Sort** 🔲.

Excel automatically selects the entire range of adjacent data to sort, which is easier than trying to select the entire range yourself, especially if there are hundreds or even thousands of rows of data.

4. Follow these steps to sort the data with multiple levels:

Sort				?	×
B ⁺ᴬ Add Level × Delete Level 📋 Copy Level ▲ ▼ Options...				☑ My data has headers	
Column		Sort On		Order	
Sort by	Location ⌄	Values	⌄	A to Z	⌄
Then by	Department ⌄	Values	⌄	A to Z	⌄
	C				
				OK	Cancel

ⓐ Choose to sort first by **Location**.

Excel recognizes that your data has headers in the top row, so you can select the name of the column you wish to sort by from the drop-down menu; without headers, the menu would show only Column A, Column B, etc.

ⓑ Click **Add Level** to perform an additional sort.

ⓒ Choose **Department** for the second sort level and click **OK**.

Your data is now sorted, with Los Angeles employees listed at the top and Vancouver employees listed at the bottom. Within each location the employees are sorted by department.

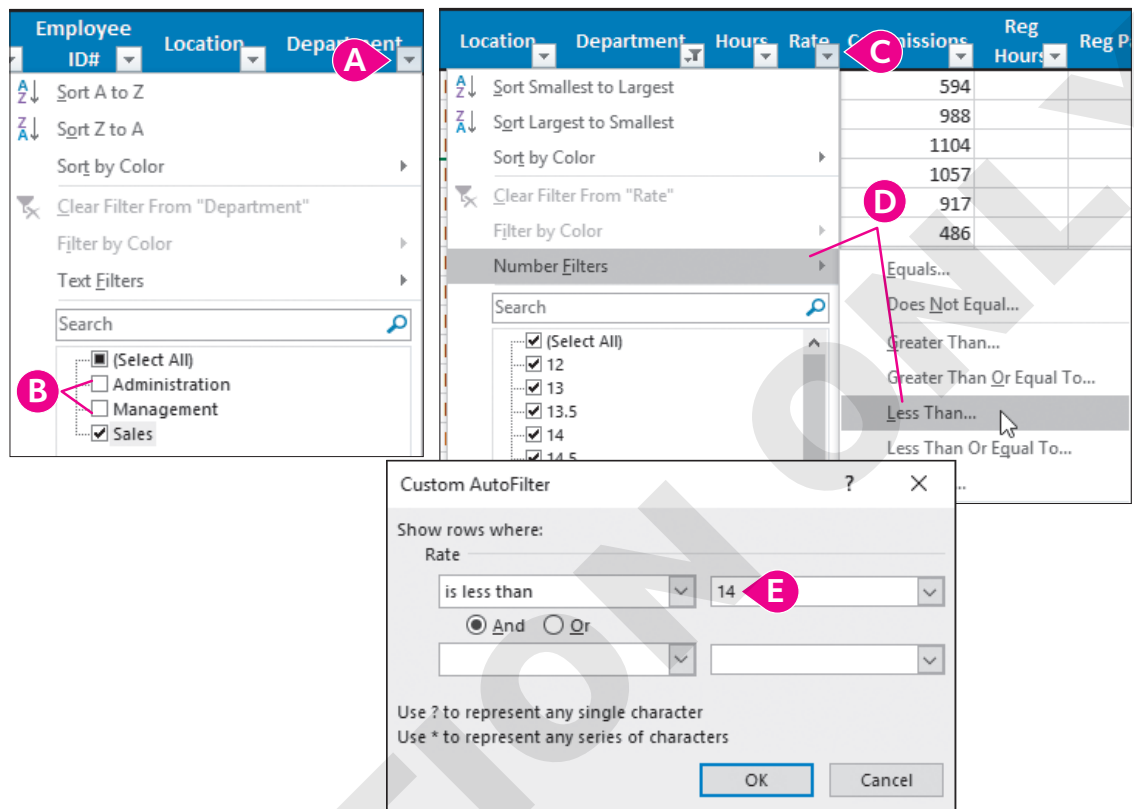| First Name	Last Name	Employee ID#	Location	Department
Jasmin	Newton	13651	Los Angeles	Administration
Tim	Parker	17232	Los Angeles	Administration
Carol	Gregory	16688	Los Angeles	Management
Kobe	Curry	20303	Los Angeles	Sales
Tracy	Bryant	14917	Los Angeles	Sales
Cam	Owens	22404	Los Angeles	Sales
Ashley	Bradford	17571	Miami	Administration
Deborah	Secrett	16735	Miami	Administration
Adel	Kahlmeier	13089	Miami	Administration
Brett	Aberle	22113	Miami	Administration
Tony	Duncan	12743	Miami	Administration
James	Norman	13733	Miami	Management
Melissa	Coelho	21635	Miami	Management
Sophia	Maria	13365	Miami	Management
Steven	Samuel	15563	Miami	Sales

Now you can filter your data to narrow it down.

5. Ensure that you still have a cell selected within the sorted list.

Remember, you need only a single cell selected anywhere within the range of data you wish to sort or filter; Excel will automatically detect the correct range.

6. Choose **Data→Sort & Filter→Filter** 🔽.

Notice the menu buttons that appear beside all of your column headings.

7. Follow these steps to filter your data:

Ⓐ Click the **Department menu** button ▼.

Ⓑ Filter the Department column to include only Sales employees by removing the checks next to **Administration** and **Management**; click **OK**.

Ⓒ Click the **Rate menu** button ▼.

Ⓓ Choose **Number Filters→Less Than** to open the dialog box.

Ⓔ Type **14** to the right of *Show rows where rate is less than* and click **OK**.

Your worksheet now displays only the six employees in the Sales department who have a rate below $14. Notice the Filter symbol beside the two columns with filters applied to them, Department and Rate.

8. The company has decided to increase all Sales employees to a minimum wage of $14 per hour, so adjust the rate for the six employees listed to: **14**

Tip! *After typing the value in the first cell, you can use the fill handle to copy the number 14; it won't affect the rows hidden by the filter.*

9. Choose **Data→Sort & Filter→Filter** 🔽 to remove all filters and redisplay all data.

10. Save the workbook.

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The IF Function

There are many functions available in the Excel Function Library, but most of us use only a handful of these on a regular basis. Once you understand simple functions like SUM and AVERAGE, you can start exploring additional, more advanced functions. As you learn more about functions, it becomes easier to understand which functions to use and how to insert the function with the correct arguments.

The IF function is used quite frequently because it is helpful in many situations. It allows you to determine the value to enter in a cell based on the outcome of a logical test. The IF function also provides the basis for many other statistical functions, such as COUNTIF and SUMIF. Although the IF function seems rather challenging at first, it gets easier to use with some practice and is almost like creating a sentence in the form of a question.

Logical tests for IF functions include comparison operators, and it's important to understand the symbols used.

COMPARISON OPERATORS			
Symbol	**Meaning**	**Symbol**	**Meaning**
=	Equal to	<>	Not equal to
>	Greater than	>=	Greater than or equal to
<	Less than	<=	Less than or equal to

Greater	>	Than
2	>	1

The arrow points to the smaller number. If you can remember 2 is greater than 1, the less than symbol is the opposite.

View the video "Using the IF Function."

Example: IF Function in Practice

Use the IF function where there are two possible outcomes and there are defined criteria to determine each outcome. For example, if you offer sales employees a $100 bonus if they achieve $5,000 in sales for the month, you can use an IF function to determine which employees qualify. In this case, the condition is that sales must be greater than or equal to $5,000, which needs to be written as a logical test.

| THE IF FUNCTION		
Arguments	**Description**	**Examples**
Logical Test	This is a question or criterion that must be a yes/no or true/false question, using a comparison operator, that usually includes at least one cell reference.	D2>5000 D2>=A1
There are two possible outcomes, so you need to enter two values.		
Value if true	If the answer is true, this determines what result is placed in the cell after completing the formula. The result can be text, numbers, cell references, or even another formula.	100 "Yes" D2*10%
Value if false	If the answer is not true, it must be false, so what will the result be? Again, the result can be text, numbers, cell references, or a formula.	0 "No" D2*2%

The Logical test: Is cell D2 greater than 5000?

The Value if true: If D2 is greater than 5000, the employee gets a $100 bonus.

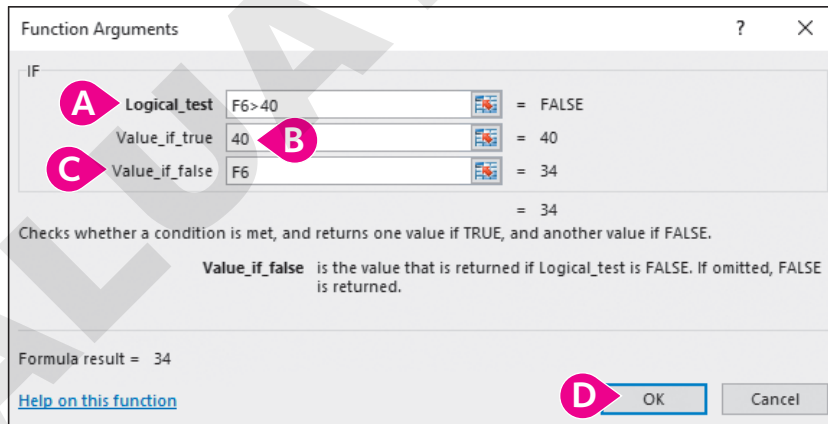The Value if false: If D2 is *not* greater than 5000, the employee does not get any bonus ($0).

=IF(D2>5000,100,0)

D	E
Monthly Sales	**Bonus**
$6,500	$100
$4,000	$0
$7,150	$100
$5,800	$100
$3,720	$0

The formula results

DEVELOP YOUR SKILLS: E5-D4

In this exercise, you will create several formulas using the IF function to calculate the number of regular hours and overtime hours each employee worked. You will then calculate total Gross Pay.

1. Save your workbook as: **E5-D4-PayrollP17**
2. Select **cell I6** and click **Insert Function** *fx* on the Formula Bar.
3. Choose the **IF** function (usually displayed by default under Most Recently Used; if not, select the **Logical** category) and click **OK**.
4. Follow these steps to create a formula using the IF function to calculate the number of regular hours for employees:

Ⓐ In the Logical_Test box enter **F6>40** to determine whether the employee worked more than 40 hours.

Ⓑ In the Value_If_True box enter **40** because if the employee did work more than 40 hours, that person would receive regular pay for 40 hours and the rest would be considered overtime.

Ⓒ In the Value_If_False box enter **F6** because if the employee worked 40 hours or fewer, all hours worked would be considered regular hours.

Ⓓ Click **OK**.

The result of the formula is 34; Jasmin worked 34 hours total, so her regular hours equal 34.

The IF Function   **303**

5. Select **cell K6** and enter this formula: **=IF(F6>40,F6-40,0)**

   The function arguments are typed within parentheses and separated by commas. The result of the formula is zero; Jasmin only worked 34 hours, so there are no overtime hours to be paid.

   To edit or to simply double-check the formula, you can click Insert Function at any time to open the Function Arguments dialog box.

6. If necessary, select **cell K6** again, and then click **Insert Function** fx and compare your screen to the following:

The Logical_test box has the same logical test, *F6>40*, which determines whether the employee worked more than 40 hours.

The Value_if_true box contains *F6-40*, because if the employee did in fact work more than 40 hours, that employee would receive overtime pay for the total number of hours less 40, the first 40 of which would be paid at the regular rate.

The Value_if_false box says *0*, because if the employee worked 40 hours or less, that employee does not receive any overtime pay.
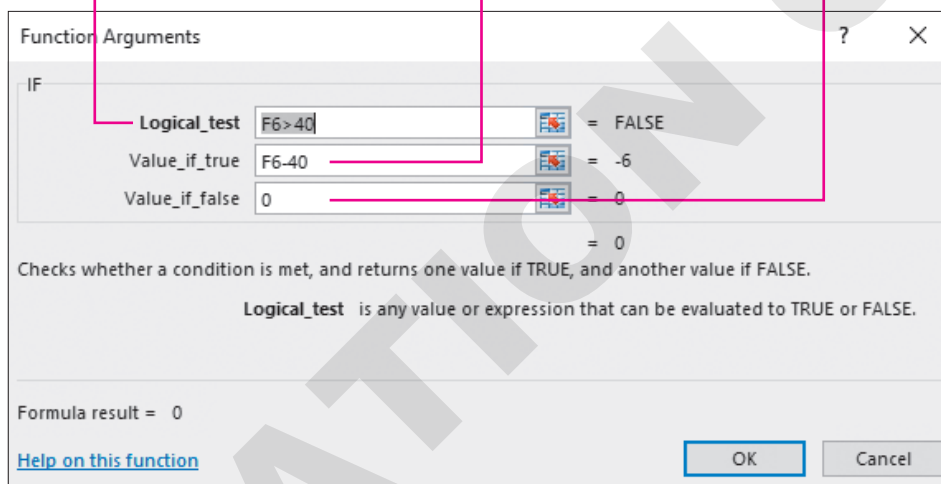
7. Click **OK** to close the window.

   Since the regular hours and overtime hours have been calculated, you can now calculate the regular pay and overtime pay for employees by multiplying hours by their rate.

8. In **cell J6**, enter the formula **=I6*G6** and tap ⟨Tab⟩ twice.

   We know that Jasmin doesn't receive any overtime, but you will set up the formula to calculate overtime pay for all employees. Overtime pay is calculated as OT Hours x Rate x 1.5 because employees get time-and-a-half for overtime (100% + 50% = 150% or 1.5).

9. In **cell L6**, enter the formula **=K6*G6*1.5** and tap ⟨Tab⟩.

   Total gross pay includes regular pay, as well as any overtime pay and commissions.

10. Enter the formula to calculate gross pay, which is: **=J6+L6+H6**

11. Apply bold formatting and **Currency** number formatting to **cell M6**.

12. Select the **range I6:M6** and double-click the **fill handle** to fill down the formulas for all employees.

Double-clicking is much easier in this case than dragging the fill handle all the way down to row 63, and all five columns can be filled at once rather than one at a time.

Gross pay is now calculated for all employees. You can double-check your formulas visually by checking a few examples of employees who worked overtime and a few who didn't. For example, you can quickly see that Cam Owens (row 11) worked 47 hours and received 7 hours of overtime pay.

13. Save the workbook.

Controlling Data Entry with Data Validation

When entering values into an Excel worksheet, it is important to be consistent and accurate. However, mistakes can be made, especially if you ask someone else to do the data entry for you. To ensure accuracy and consistency, you can use data validation to create criteria for cells that limit the possible entries into those cells.

Normally, you set up data validation rules before entering the values. You also need to select the entire range where you intend to enter the data, so you are creating the rule for that full range. This is important because creating criteria for a cell that already contains data won't tell you if that data was correctly entered—unless you use the Circle Invalid Data option from the Data Validation menu.

The criteria you choose can restrict the type of data as well as the range of acceptable values. For example, you could restrict data entry to whole numbers between 0 and 100, or you could restrict data entry to a text list. You can also create a custom input message to assist the user in entering the acceptable data and an error alert if they enter an unacceptable value.

First choose the type of data to allow.

Then set the criteria for the data; the choices will vary depending on the type of data allowed.

If desired, create an input message or error alert.
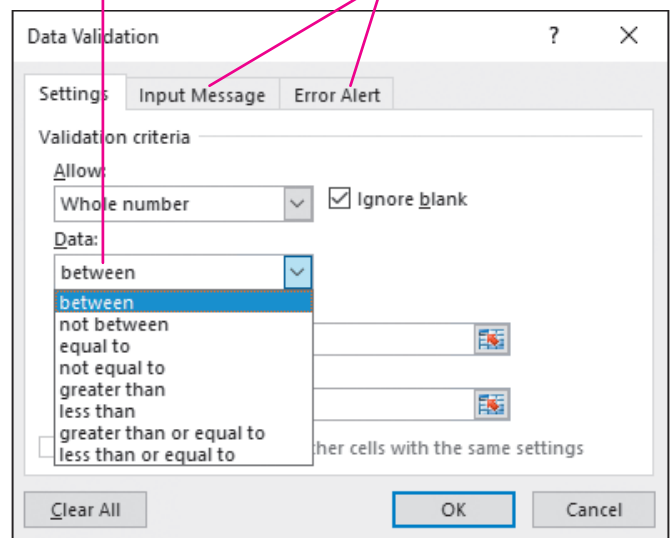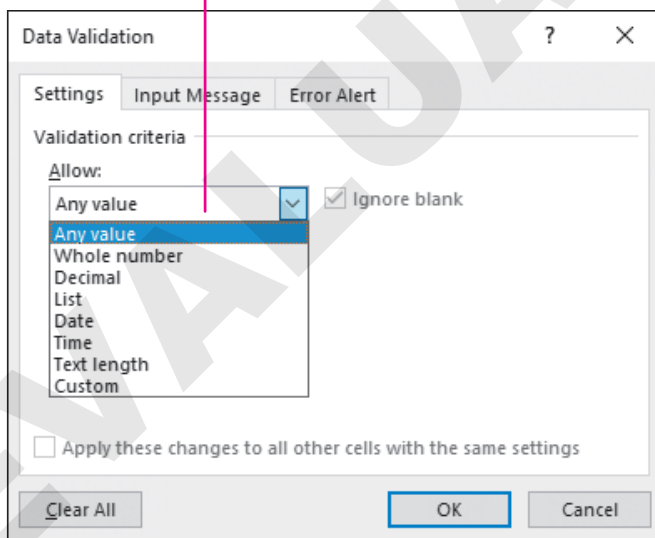
Data→Data Tools→Data Validation

DEVELOP YOUR SKILLS: E5-D5

In this exercise, you will create data validation criteria to choose the Department for each employee from a list and to restrict the number of hours that can be entered.

1. Save your workbook as: **E5-D5-PayrollP17**

   To begin, you will remove the data in the Department and Hours columns for the first six employees so you can create data validation rules that change how data is entered.

2. Select the **range E6:F11** and delete the data.

   Now you will use data validation rules to ensure the Department column is correctly populated using one of three choices from a list.

3. Follow these steps to create the data validation rule:

- Ⓐ Select the cells where the department data will be entered (**range E6:E11**) and choose **Data→Data Tools→Data Validation**.
- Ⓑ Click the **Allow menu** button ▾ and choose **List**.

   Allowing the List data type means only values you specify can be entered into the cells, which the user chooses from a list.

- Ⓒ In the Source box, type **Administration,Management,Sales** and ensure each word is separated by a comma but *no space*.
- Ⓓ Click **OK**.

The three items typed into the Source box will appear for the user to choose from; an alternative to typing the source options is using cell references to a list of items on your worksheet.

4. Select **cell E6**.

5. Type **Mgmt** and then tap ⌷Enter⌷.

   A window will pop up telling you the value you entered doesn't match the data validation restrictions for the cell.

6. Click **Cancel**.

7. Now type **Ad** and tap ⎡Enter⎤.

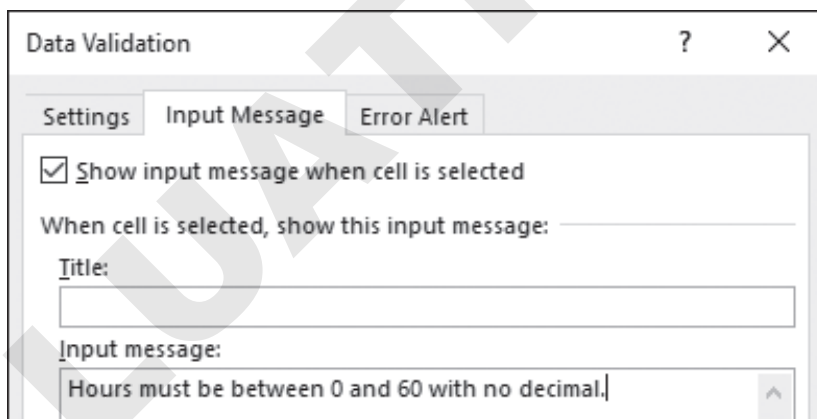*This time typing just a few letters enters the entire department name from the list.*

You can also use the mouse to select a name from the drop-down menu button ▾ to the right of the cell, which displays the options you typed for the source of the list.

Department	H
	▾
Administration	
Management	
Sales	
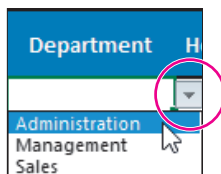
8. Use the **menu** button ▾ to select **Administration** from the list of Departments for Tim in **cell E7**.

9. Using whichever method you prefer, enter the departments for the other four employees:

First Name	Last Name	Employee ID#	Location	Department	Ho
Jasmin	Newton	13651	Los Angeles	Administration	
Tim	Parker	17232	Los Angeles	Administration	
Carol	Gregory	16688	Los Angeles	Management	
Kobe	Curry	20303	Los Angeles	Sales	
Tracy	Bryant	14917	Los Angeles	Sales	
Cam	Owens	22404	Los Angeles	Sales	▾

10. Select the **range F6:F11** to create data validation criteria for the hours to be entered.

11. Choose **Data→Data Tools→Data Validation** 📋 and set the criteria to allow only a **Whole Number** between **0** (minimum) and **60** (maximum).

12. Click the **Input Message** tab and enter the following into the Input Message field:

Data Validation	?	✕

Settings | Input Message | Error Alert

☑ Show input message when cell is selected

When cell is selected, show this input message:

Title:

[ ]

Input message:

Hours must be between 0 and 60 with no decimal.

13. Click **OK** to complete the settings and then select **cell F6**.

A ScreenTip appears with the message you entered.

14. To test the data validation rule, type **61** in **cell F6** and tap ⎡Enter⎤. Read the message and then click **Retry**. Test again by typing **40.5** and tapping ⎡Enter⎤; click **Cancel** to stop editing the cell.

If you need someone else to enter the data, you can be confident no data will be entered that doesn't meet your criteria. For example, you won't end up accidentally paying someone for 400 hours instead of 40!

15. Enter these hours for the six employees in Los Angeles, starting with Jasmin in **cell F6**: **34**, **27**, **40**, **36**, **30**, **47**

16. Save the workbook.

Controlling Data Entry with Data Validation   **307**

Printing Options

To print large worksheets in a professional, presentable format, you may need to make some adjustments. For example, you may want to ensure that column headings are visible on all pages, you may want to choose how your data is divided across several pages, or you may want to add additional information that isn't part of the worksheet itself to the top or bottom of each printed page.

PRINTING OPTIONS

Feature	Description
Print Titles	Print the same headings on all pages by repeating the same rows or the same columns on all pages.
Print Area	Print only a specific area of your worksheet rather than the whole thing.
Breaks	Determine where one page ends and the next page begins when printing. Page breaks in Excel are both horizontal and vertical. Existing page breaks can be moved and new ones can be inserted.
Scale to Fit	Force data onto a desired number of pages, using width and height, by scaling or shrinking the size of the worksheet contents.

View the video "Printing a Large Worksheet."

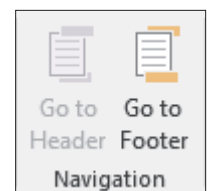≡ Page Layout→Page Setup

Headers and Footers

When you are printing a worksheet, you may want information included on the printout that doesn't need to be shown on the screen. This might include information such as a title, company name, your own name, the page number, or perhaps the current date. There are tools in Excel for automatically entering some of this information, or you can manually type the information you want to appear.

In Excel, both the Header and Footer areas have three distinct sections. These are not part of the worksheet, so they do not have a cell address like the worksheet cells.

Header				
Employee Name	**Department**			
Carol Gregory	Sales			
Natasha Dyas	Admin.			

Tip! *Navigating to the Footer section can be tricky, but there's a button on the Ribbon that makes it much easier than scrolling down: Header & Footer Tools Design→Navigation→Go to Footer.*

Go to Header   Go to Footer

Navigation

≡ Insert→Text→Header & Footer

≡ View→Workbook Views→Page Layout

DEVELOP YOUR SKILLS: E5-D6

In this exercise, you will set up the print area, repeat the column headings on every page, and adjust other print settings.

1. Save your workbook as: **E5-D6-PayrollP17**

2. Choose **File→Print** to see the print preview.

   Notice that the worksheet prints on four pages, and the OT Hours, OT Pay, and Gross Pay columns appear on pages three and four. The first adjustment to be made is to adjust the worksheet width to one page.

3. Use the **Back** button to return to your worksheet.

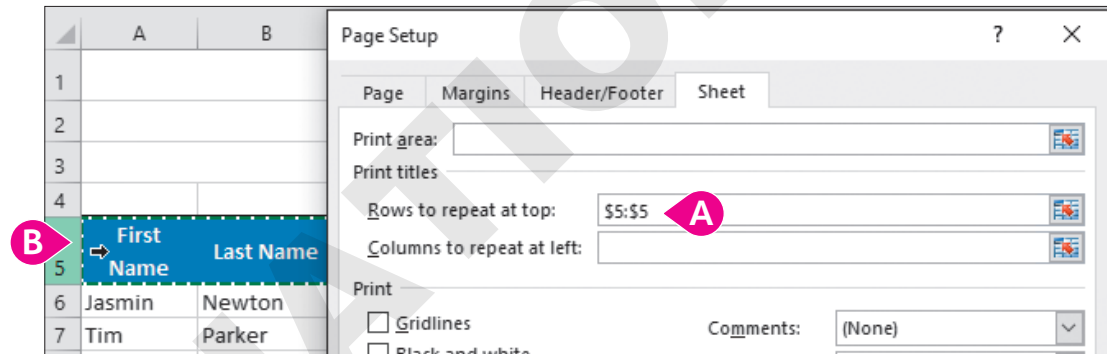4. Choose **Page Layout→Scale to Fit→Width→1 page**.

5. Go back to the preview and see that the worksheet now prints on two pages—one page wide and two pages long.

6. Use the **Back** button to return to your worksheet.

Print Repeating Headings

7. Choose **Page Layout→Page Setup→Print Titles** 📄.

8. Follow these steps to print repeating headings:

Ⓐ Select the box next to **Rows to Repeat at Top**.

Ⓑ Click anywhere in **row 5**.

   When you click to select the row, Excel adds the correct formatting to the row reference.

9. Click **OK**.

   You won't notice anything different in the current view, but you can check the print preview to see the repeating row on page two.

10. Choose **File→Print** and below the preview use the **right-pointing arrow** to advance to page two.
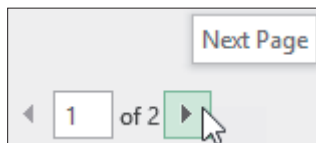
   Now you can see the same headings with the blue background on page two that are printed on page one.

11. Use the **Back** button to return to your worksheet.

Set the Print Area

12. Select the **range A5:M11**.

You must select the desired range before setting the print area.

13. Choose **Page Layout→Page Setup→Print Area** 🖨️→**Set Print Area**.

Only the selected range will print, which means the Los Angeles employees and the headings in row 5.

14. Go to the print preview to view the change and then return to your worksheet.

15. Choose **Page Layout→Page Setup→Print Area** 🖨️→**Clear Print Area**.

Now the whole worksheet will print once again because the specified print area has been cleared.

Set Page Breaks

For editing some of the page layout settings, it is best to be in Page Layout view. However, for adding/ adjusting page breaks, it is best to be in Page Break Preview.

16. Choose **View→Workbook Views→Page Break Preview**.

There are two pages in the print area, and the page break falls between Natasha Dyas *and* Joshua Garcia.

36	Terrence	King
37	Lorraine	Martine
38	Natasha	Dyas
39	Joshua	Garcia
40	Karen	Ablitt
41	Megan	Dorfling

17. Place the mouse pointer over the page break line to display the two-way arrow and then drag the page break up and place it below **row 11**, where the data for Los Angeles employees ends and the data for Miami employees begins.

Because the area below the page break is now too big to fit on one page, Excel automatically adds a new page break, so your worksheet will now print on three pages.

18. Drag the new page break up below **row 28**, where the data for Miami employees ends.

Because the rest of the data does fit on page three, you have to manually insert two more page breaks to print New York, Toronto, and Vancouver on separate pages.

19. Select **cell A38**, below the row where the data for New York employees ends, and choose **Page Layout→Page Setup→Breaks** ▤→**Insert Page Break**.

20. Insert another page break above the Vancouver employees.

21. Change the workbook view back to **Normal** and then go to the print preview.

The data will print on five pages, one for each location, with the column headings repeated at the top of each page.

Insert Header

22. Return to your worksheet and then switch to **Page Layout** view and select the left header section.

You will see the Header & Footer Tools Design tab appear on the Ribbon, which allows you to insert formatted elements like page numbers and the current date.

23. Choose **Header & Footer Tools→Design→Header & Footer Elements→File Name** 🔢.

Notice the code that is inserted; the code will display and print the filename when you click outside of the left header box. Also, if the filename ever changes, the text in the header will update automatically.

24. Select the center header section and insert the **Page Number** 🔢.

25. Insert the **Current Date** 🔢 in the right header section.

26. Deselect the header area, switch back to **Normal** view, and then go to the print preview one last time.

Excel won't let you change the workbook view while you are editing the header, so be sure to click a cell on the worksheet before changing the view.

E5-D6-PayrolIP17 | 1 | 9/9/2019

Airspace Travel Company
Bi-Weekly Payroll
Period:

First Name	Last Name	Employee ID#	Location	Department	Hours	Rate	Commissions	Reg Hours	Reg Pay	OT Hours	OT Pay	Gross Pay
Jasmin	Newton	13651	Los Angeles	Administration	34	17	0	34	578	0	0	$578.00
Tim	Parker	17232	Los Angeles	Administration	27	13	0	27	351	0	0	$351.00
Carol	Gregory	16688	Los Angeles	Management	40	31	0	40	1240	0	0	$1,240.00
Kobe	Curry	20303	Los Angeles	Sales	36	21.5	594	36	774	0	0	$1,368.00
Tracy	Bryant	14917	Los Angeles	Sales	30	15	988	30	450	0	0	$1,438.00
Cam	Owens	22404	Los Angeles	Sales	47	20	1104	40	800	7	210	$2,114.00

27. Save the workbook.

Excel Tables

Tables allow you to more easily organize and analyze related data. Tables simplify the process of performing sorts, filtering your data, calculating totals, and even modifying the format of your data. The process of taking existing data and inserting a table is very simple, and you can convert a table back to a normal range of cells at any time without losing any data.

The header row makes sorting and filtering easy using the menu buttons ▼ in the header cells.

Banded rows (alternating colors) can be added or removed, and you can use Table Styles to modify the colors.

Employee Name	Department	Salary
Carol Gregory	Sales	$40,000
Natasha Dyas	Admin.	$34,500
James Norman	Management	$68,000
Joshua Garcia	Sales	$46,000
Sarah Mckinnon	Sales	$42,750
Shannon Miller	Management	$52,000
Katrina Kormylo	Admin.	$48,000
Susan Colley	Sales	$44,800
William Emerson	Admin.	$41,000
Eugene Fink	Sales	$37,000

Employee Name ▼	Department ▼	Salary ▼
Carol Gregory	Sales	$40,000
Natasha Dyas	Admin.	$34,500
James Norman	Management	$68,000
Joshua Garcia	Sales	$46,000
Sarah Mckinnon	Sales	$42,750
Shannon Miller	Management	$52,000
Katrina Kormylo	Admin.	$48,000
Susan Colley	Sales	$44,800
William Emerson	Admin.	$41,000
Eugene Fink	Sales	$37,000
Total	10	$454,050

Use the Total row to add functions like Count (Department) and Sum (Salary) via the cell menu button ▼.

The same data, before and after a table is inserted

As you add more data to the bottom or right of the table, the table area expands to include the new adjacent rows or columns. Another nice feature is that entering a formula in one table cell will automatically copy the formula to all cells in that table column.

☰ Insert→Tables→Table 📊

☰ Table Tools→Design→Tools→Convert to Range 🖼
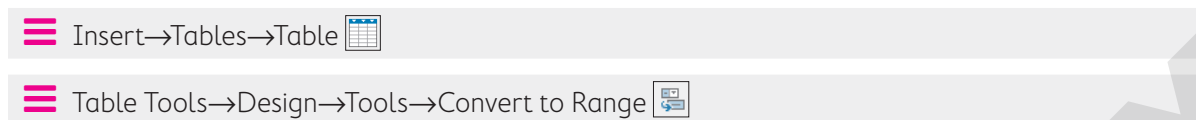
DEVELOP YOUR SKILLS: E5-D7

In this exercise, you will create a table and perform tasks such as filtering, sorting, and calculating totals.

1. Save your file as: **E5-D7-PayrollP17**
2. Select **cell J6** and choose **Insert→Tables→Table** 📊.

   Excel looks for the adjacent range of data and suggests the range A5:M63, which includes the table headers.
3. Click **OK** to accept the suggested table area.

   You may see a warning suggesting there are external data ranges. If so, choose to convert the selection to a table and remove all external connections.
4. Click the **Department menu** button ▾.

   Notice the sort and filtering options available.
5. Uncheck the filter boxes for **Administration** and **Sales** and click **OK**.

   Only employees in the Management department are now visible in the list.
6. Use the **Rate menu** button ▾ to sort the **Management** department employees by rate, from largest to smallest.
7. Choose **Table Tools→Design→Table Style Options→Total Row**.

   Notice that in column M there is a total automatically calculated for the Management department, which shows the sum of the department's gross pay.
8. Select **cell F64**, click the **menu** button ▾, and select **Sum**.

   The total hours for Management employees are calculated, showing 416 hours.
9. Change the Table Style to **White, Table Style Medium 1**.
10. Use the **Department** filter to hide the Management data and display the Sales department only.
11. Use the **Location menu** button ▾ to re-sort the data by Location from A to Z.

    Locations should be listed in order from A to Z, and the Total row at the bottom of the table should recalculate the total hours and gross pay.

First Name ▾	Hours ▾	Gross Pay ▾
Total	1152	$40,921.50

12. Save the workbook and close Excel.

Self-Assessment

Check your knowledge of this chapter's key concepts and skills using the Self-Assessment in your ebook or online (eLab course or Student Resource Center).

📌 Reinforce Your Skills

REINFORCE YOUR SKILLS: E5-R1

Import and Organize Data for a Donor List

In this exercise, you will open a template and import data related to this year's Kids for Change donors. You'll also organize the data with sorts and filters.

1. Open the **E5-R1-DonorList** template from the **Excel Chapter 5** folder.

   Remember, to create a copy you must open the template from File Explorer. If you do not see a number at the end of the filename after opening the file, you are editing the template itself; close it and reopen through File Explorer.

2. Save the workbook, replacing the number at the end of the filename with the current year.

   The donor information is saved in another file, so you need to open it and copy the data, then paste it into the current workbook.

3. Open **E5-R1-DonorData** from the **Excel Chapter 5** folder and then select all the data and copy it.

4. Paste the data into **cell A4** in the **DonorList** file; close the DonorData file.

5. If necessary, select **cell A4** again and freeze the top three rows.

6. Scroll down to ensure the data was copied correctly. (Hint: *Nicki Hollinger* should be the last donor in the list in row 45.)

7. Scroll to the top of your data and then do a multiple-level sort, first by **Donor Type**, **A to Z**, and then by **First Donation**, **Oldest to Newest**.

8. Filter your data to display only those donors with total annual donations greater than $5,000.

   These are your high-priority donors; you want them to stand out in the list, so you will add a fill color to these rows.

9. With the data filtered, select the **range A4:F40**, which is all donor data including the blank column below *Free Membership*.

10. Click the fill color **Green, Accent 6, Lighter 40%**.

11. Remove the filter from the data.

12. Save the workbook.

REINFORCE YOUR SKILLS: E5-R2

Use the IF Function

In this exercise, you will add information about the Kids for Change donors, using the IF function and data validation, and adjust the sheet for printing.

1. Save your workbook as **E5-R2-DonorList** and include the current year at the end of the filename.

2. Insert a new column, with the heading **Contact OK** in **cell C3**, to the left of the Phone # column.

   It is important to ensure you have permission before calling your donors, so you will list Yes or No for each donor.

3. Select all the blank cells below the Contact OK heading in the **range C4:C45**.

4. Create a List data validation rule that allows users to enter only the text *Yes* or *No*.

   All but two donors have given you permission to contact them, so you can fill in this information for all donors now. (Hint: It will be quicker to use the fill handle to fill in "Yes" for everyone first and then adjust the entry to "No" for the two applicable donors.)

5. Enter **Yes** in the Contact OK column for all donors. (Hint: If you use the fill handle, use the **AutoFill Options** to adjust to **Fill Without Formatting** so all cells do not have a green fill color.)

6. Scroll through the list and change the entry to **No** for Eastjet and Crystal Robinson, in **rows 14** and **23**.

   A local business is offering free memberships to donors with total annual donations greater than $7,500, so you will create a formula to determine which donors qualify for the promotion.

7. In **cell G4**, enter a formula using the **IF** function and these arguments:

Function Arguments			
IF			
Logical_test	F4>7500	=	TRUE
Value_if_true	"Yes"	=	"Yes"
Value_if_false	"No"	=	"No"

8. Copy the formula down the column using **AutoFill** and adjust the option to **Fill Without Formatting**.

9. Center align the text in the **range G4:G45** you just entered.

10. Switch to **Page Break Preview** view.

11. To adjust the list to fit nicely on two pages, adjust the page break to fall between *Business* and *Private* in the Donor Type column.

12. Return to **Normal** view and set up the page layout to repeat **rows 1—3** at the top of each page.

13. Select **cell A3** and insert a table using your data in the **range A3:G45**; add the checkmark beside **My Table Has Headers**, if necessary.

    Inserting a table affects the column width, so you need to readjust the column width and page layout options.

14. Adjust the widths of **columns F—G** to **13** and use the appropriate Scale to Fit command to ensure the page width is one page.

15. Use the table tools to remove the banded rows.

16. Add a total row to the bottom of the table.

17. In the total row, insert the **Sum** function in the Total Annual Donations column, and remove the Count function from the Free Membership column. (Hint: To remove a function, click the **menu** button ▼ and choose **None**.)

18. Apply Currency number formatting, with no decimals, to the total in **cell F46**.

19. Save and close the workbook.

REINFORCE YOUR SKILLS: E5-R3

Organize a Large Worksheet and Use the IF Function

In this exercise, you will organize the information about students who have volunteered for Kids for Change using the skills learned in this chapter.

1. Open **E5-R3-StudentHours** from your **Excel Chapter 5** folder and save it as: **E5-R3-StudentHoursRevised**

2. Autofit **column B** and adjust the column width for **columns D–F** to: **7**

3. In **column G**, insert the heading **Total** and then use **AutoSum** to calculate the total hours from January to March for each student.

   Students who volunteer 60 hours or more in a quarter are invited to an appreciation dinner at the end of each quarter, so you will use an IF formula to determine who is invited.

4. In **cell H3**, enter **Dinner Invite** for the heading.

5. Create an IF function in **cell H4** that inserts *Yes* for students with 60 or more hours and *No* for those with fewer than 60 hours.

   Inserting text into arguments from the dialog box automatically inserts quotations around the text ("Yes"). If you type the formula directly into the cell, remember to type quotation marks around the text Yes *and* No.

6. Center align and bold the result in **cell H4** and then fill the formula down the column for the other students.

7. Now freeze the panes so the top three rows remain visible at all times.

8. Perform a multiple-level sort on your data so students are listed from A to Z by school and then by total from largest to smallest.

9. Create a table from your data that includes the **range A3:H26**.

10. Filter your table to show only students who have *Yes* in the Dinner Invite column.

11. Adjust the page layout orientation to **Landscape** and then insert a page break below each of the first three schools so each prints on a separate page.

12. Save the workbook and close Excel.

📎 Apply Your Skills

Import and Sort Data

In this exercise, you will create a template to record future expenses for Universal Corporate Events. Then you will organize the company's Q3 data.

1. Start Excel, open **E5-A1-Expenses** from your **Excel Chapter 5** folder, and save it as: **E5-A1-ExpensesQ3**

2. Save the workbook as a template named: **E5-A1-ExpensesQuarterly**

   Remember that after you choose the file type, you have to navigate back to your Chapter 5 folder.

3. Delete all data in **cell A3** and the **range D5:F46** to clear the sheet for future use.

4. Save the file and then close the template.

5. Reopen the **E5-A1-ExpensesQ3** workbook you saved in step 1 to continue working on it now.

6. Freeze all rows above **row 6**.

7. Sort your data by category and then by expense, both A to Z.

   Auto Repairs *should now be the first expense listed, in row 6.*

8. Add a total in **cell G6**, and an appropriate heading in **cell G5**, that calculates the three-month total for each type of expense.

   Be sure not to include the budget amount in the total when using the SUM function.

9. Apply Accounting number formatting with no decimals to the total in **column G**.

10. Copy the formula down the column for all expenses.

11. Save the workbook.

Use Tables and the IF Function

In this exercise, you will determine if Universal Corporate Events went over budget on any of the expense items.

1. Save your workbook as: **E5-A2-ExpensesQ3**

   To identify which expenses were over budget, you will use the IF function in a formula.

2. In **cell H5**, enter the heading: **O/U**

3. In **cell H6**, enter this formula: **=IF(G6>C6,"OVER","Under")**

   This formula compares the total to the budget amount and returns the text Under *or* OVER *(in caps), depending on the result.*

4. Copy the formula down the column for all expenses.

5. Insert a table using all data in the **range A5:H46**.

6. Remove the banded rows formatting.

7. Turn on the Total Row option and then insert the Sum function at the bottom of the data for all five columns with numerical data: Budget, July, August, September, and Total.

8. Remove the Count function from the Total row in the O/U column.

9. Filter the table to display only the expenses that were over budget.

10. Apply **Gold, Accent 4, Lighter 40%** fill and bold formatting to the O/U column and then remove the filter.

11. Select the **range A1:H10** and set the print area so only the Auto expenses will print.

12. Change the page orientation to **Landscape** so the auto expense data fits on one page.

13. Save and close the workbook.

APPLY YOUR SKILLS: E5-A3

Organize a Large Worksheet and Use Data Validation

In this exercise, you will sort and analyze the data that Universal Corporate Events collected from its clients over the past two months.

1. Open **E5-A3-Feedback** from the **Excel Chapter 5** folder and save it as:
   E5-A3-FeedbackAnalysis

2. Create a formula in **cell H5** to calculate the average rating from each customer based on the three columns: Staff Rating, Experience Rating, and Facility Rating.

3. Copy the formula down the column for all clients and edit the number format to show only one decimal.

4. Freeze panes so **rows 1—4** are always showing.

5. Sort the data by **event** (A to Z) and then by **average rating** (Largest to Smallest).

6. Identify which clients gave an average rating above 6 by creating an IF function in **cell I5** that inserts **YES** for those above 6 and **NO** for those at or below 6.

7. Copy the formula down the column for all clients and center-align the data.

   You want to offer a coupon to the clients who were equal to or below 6.0 since they found their event unsatisfactory, and you need to enter a data validation rule to prevent the coupon amount from exceeding $200.

8. Select the range below the Coupon Offered column for all clients and create a data validation rule that only allows whole numbers between 0 and 200.

9. Input the coupon amounts by entering **$0** for all clients, and then edit the coupon amount for the two clients NOT above 6:
   - Stormy BBQ: **$100**
   - Wilson Samuels Corp.: **$200**

10. Go to **Page Break Preview** view and insert page breaks between *Staff Party Events* and *Team Building Events*, and between *Team Building Events* and *Training Events*.

11. Use **Print Titles** to repeat **row 4** at the top of each page.

12. Go to **Page Layout** view and insert the current date in the left footer section and the page number in the right footer section.

    Remember, you can use the Go to Footer button to navigate to the footer!

13. Return to **Normal** view.

    If you like, check the print preview to verify that your worksheet will print properly—on three pages, with the titles at the top and the footers at the bottom of each page.

14. Save the workbook and close Excel.

📑 Project Grader

If your class is using eLab (labyrinthelab.com), you may upload your completed Project Grader assignments for automatic grading. You may complete these projects even if your class doesn't use eLab, though you will not be able to upload your work.

PROJECT GRADER: E5-P1

Rewarding Top Distributors with Rebates

Taylor Games relies on an extensive list of distributors to move items into various retail channels. In this exercise, you will develop a financial model to reward top distributors with rebates.

1. Download and open your Project Grader starting file.
   - *Using eLab:* Download **E5_P1_eStart** from the Assignments page. You must start with this file or your work cannot be automatically graded.
   - *Not using eLab:* Open **E5_P1_Start** from your **Excel Chapter 5** folder.
2. Starting with **cell A6**, freeze the panes.
3. In **cell B4**, create a data validation using these settings:

Setting	Value
Allow	**Decimal**
Data	**Less than or equal to**
Maximum	`0.05`
Input Message	**Show input message when cell is selected**
Input Message Title	`Maximum Rebate Percentage`
Input Message	`5%`

4. In **cell B4**, enter the number: 5%
5. In **cell F7**, use an IF function with this logic: If the March Purchases in cell E7 are greater than or equal to 2000 then display **Yes**; otherwise, display **No**.
6. Copy the formula down to the **range F8:F36**.
7. In **cell F6**, turn on filtering and then set the filter so that only rows where the Top Distributor? is **Yes** are displayed.
8. In **cell G7**, use a formula with cell references to multiply the March Purchases (**cell E7**) by the March Rebate % (**cell B4**): (March Purchases * March Rebate %). Use an absolute cell reference to the March Rebate % in **cell B4**.
9. Copy the formula down to the **range G11:G33**.
10. In the Page Setup window, set the scaling to fit to 1 page wide.
11. Save your workbook.
    - *Using eLab:* Save it to your **Excel Chapter 5** folder as **E5_P1_eSubmission** *and* attach the file to your eLab assignment for grading.
    - *Not using eLab:* Save it to your **Excel Chapter 5** folder as: **E5_P1_Submission**

PROJECT GRADER: E5-P2

Classifying Cars and Displaying Their Values

If Classic Cars are maintained well, their values tend to appreciate over time. In this exercise, you will classify the cars that belong to members as either antiques or classics and display their corresponding values.

1. Download and open your Project Grader starting file.
   - *Using eLab:* Download **E5_P2_eStart** from the Assignments page. You *must* start with this file or your work cannot be automatically graded.
   - *Not using eLab:* Open **E5_P2_Start** from your **Excel Chapter 5** folder.

2. Starting with **cell A8**, freeze the panes.

3. In **cell F8**, use an IF function with this logic: If the car year in cell E8 is less than 1950, display **Antique**; otherwise, display **Classic**.

4. Copy the formula down to the **range F9:F55**.

5. Sort the worksheet as follows:
   - Sort first in ascending order (A to Z) on the **Status** field.
   - Then in descending order (Largest to Smallest) on the **Car Value** field.

6. Starting in **cell A7**, insert a table with the **data range $A$7:$G$55** and indicate that the table has headers.

7. Add a Total row to the table.

8. Apply a different table style. You can choose any table style as long as it's different from the current style.

9. Set **row 7** to repeat at the top of each printed page.

10. Set the footer to include the page numbering format **page 1 of ?**.

11. In the Page Setup window, set the scaling to fit to 1 page wide.

12. Save your workbook.
    - *Using eLab:* Save it to your **Excel Chapter 5** folder as **E5_P2_eSubmission** and attach the file to your eLab assignment for grading.
    - *Not using eLab:* Save it to your **Excel Chapter 5** folder as: **E5_P2_Submission**

⏩ Extend Your Skills

These exercises challenge you to think critically and apply your new skills in a real-world setting. You will be evaluated on your ability to follow directions, completeness, creativity, and the use of proper grammar and mechanics. Save files to your chapter folder. Submit assignments as directed.

E5-E1   That's the Way I See It

A friend of yours is teaching a course at Learn Fast College for the first time. She knows you are an Excel expert and has asked for your help setting up her workbook to track student performance. Open the **E5-E1-GradesData** file and save it as: **E5-E1-Grades**

Format the headings appropriately and adjust column width as needed. Create a data validation rule so the participation grades must be a whole number between 0 and 10; your friend will enter the data later. Then, use a formula to specify which students qualify for the attendance award; to qualify, their attendance must be perfect (0 days absent). Last, sort the data by the Status and Absent columns and make any other adjustments that will allow your friend to easily print the worksheet, if desired.

E5-E2   Be Your Own Boss

At the end of the year, you always add up all the hours your clients at Blue Jean Landscaping put into their own landscaping work. You track the data in the file **E5-E2-ClientHours**. Open the file and save it as **E5-E2-ClientTotals** and insert the current year at the end of the filename. To begin, find the total for each client and sort the data by customer type and then by total. To calculate the customers' discounts for their labor, use the IF function in a new column. Add the heading *Discount Per Hour* and create a formula so customers with more than 100 hours get a discount of $17/hour and customers with fewer than 100 hours get $15/hour. Ensure the maximum number of hours that can be entered per month is 40; create a data validation rule to allow decimal numbers between 0 and 40 and then use the Data Validation menu button and click the option to circle invalid data. Find any numbers entered that are greater than 40 and change them to 40. (Hint: You will change five numbers.) Create a table for your data so you can insert a total row at the bottom for all months. Make any other adjustments necessary so the worksheet is ready to be printed.

E5-E3   Demonstrate Proficiency

Stormy BBQ keeps an inventory of ingredients in its kitchen, complete with the current stock as well as the required minimum for each item in the **E5-E3-Inventory** file. You are organizing the information and determining which items need to be reordered. Save the file as **E5-E3-InventoryOrders** and begin by reviewing the data. Insert titles and apply formatting as you see fit. Then in the Order column, use a formula to determine how much of each item needs to be ordered. (Hint: Use the IF function to determine if the In Stock number is less than the Required Amt number; if it is, enter the difference between the two in the Order column.) Organize your list by sorting in an appropriate manner and then prepare the file for printing, if necessary.