EXCEL

Center for Lifelong Learning

GEORGE SELF

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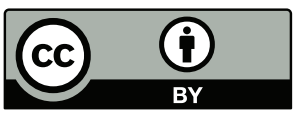
George Self: *Excel,* Center for Lifelong Learning, March 2020



FOREWORD

Microsoft Excel is a spreadsheet program developed by Microsoft for Windows, MacOS, Android and iOS and is part of the Office suite of software. It features calculation, graphing tools, pivot tables, and a macro programming language called *Visual Basic for Applications*. Excel is used widely for many financially-related activities from simple quarterly forecasts to full corporate annual reports. Excel is also used for common information organization like contact lists and inventory tracking. Finally, Excel helps researchers perform statistical analysis tasks like variance analysis, chi-square testing, and charting complex data.

I've used Excel for both business and personal use for more than 20 years. For the Cochise College Center for Lifelong Learning class, I started with an "open source" book since those are available free of charge and I could modify it to meet the objectives of this class. I found two books:

- *Beginning Excel* by Noreen Brown, Barbara Lave, Julie Romey, Mary Schatz, Diane Shingledecker. I found it at *Open Oregon Educational Resources*, https://ecampusontario.pressbooks.pub/beginningexcel/.
- *How to Use Microsoft Excel: The Careers in Practice Series*, adapted by *The Saylor Foundation* without attribution as requested by the work's original creator. It was downloaded from https://resources.saylor.org/wwwresources/archived/site/textbooks/How%20to%20Use%20Microsoft%20Excel.pdf

While the book is useful in its current form, I will continually update it based on emerging trends in research. It is my hope that students can use this book to learn about Excel and other instructors can adapt it for their own classes.

— George Self

BRIEF CONTENTS

CONTENTS

Part I

BASIC SKILLS

Part 1 is a basic introduction to Excel. Topics include using toolbars and worksheets, selecting cells and entering data, creating spreadsheets and formulas, formatting cells, handling and saving files.

Part II

INTERMEDIATE SKILLS

Part 2 builds on your skills from Part 1. It covers worksheet tables, selecting and formatting objects, text boxes, shapes and charts, conditional formatting and printing tips.

Part III

ADVANCED SKILLS

Part 3 moves on to advanced Excel skills. You can learn to create macros, develop multi-sheet and multi-file formulas and discover pivot tables.

1

MULTIPLE SHEETS

Excel workbooks often contain a large amount of data and worksheets can quickly become overwhelming. When one worksheet becomes cumbersome, data can be broken out into smaller subsets and placed in separate worksheets within the same Excel file. Separating out spreadsheet data into smaller pieces can lead to better data organization within a file and increase its ease of use. When a retail company needs to track overall sales along with individual store sales, it makes sense to place each store's sales data in a separate sheet within a file. Adding a summary sheet that sums across all the sheets will total the entire company sales data in the same file. This chapter will show how to set up a workbook to make multi-sheet formulas quick and easy.

Other examples of when multiple sheets make the most sense are when comparing regional data for a company, data for a salesforce where individual salesperson performance is analyzed along with overall sales, and data over a period of time where sheets can be broken out by year or by month. When comparing data across several sheets, it is essential that all the sheets are laid out in the same way. To facilitate this, a template can be used. A template is the basic pattern for each new sheet that can be used repeatedly to make sure each new sheet has the same setup, formatting, formulas, etc. as the existing sheets in a file. In this chapter, both pre-made Excel templates along with ones created from scratch will be used to meet the specific needs of the work required.

1.1 MULTIPLE SHEET BASICS

Learning Objectives

- Navigating through a multiple sheet file.
- Adding, deleting, copying, and moving sheets.
- Grouping and ungrouping sheets.

The Excel workbooks used throughout this textbook have included multiple sheets. This chapter develops a personal budget file that contains income and expenses for an entire year. The file contains a sheet for each month of the year as well as a Summary sheet that totals all twelve monthly sheets of data together. The chapter begins with exercises designed to demonstrate moving through worksheets, organizing them, and making sure that all twelve monthly sheets are

consistent. Figure 1 shows the **January** sheet in the **Personal Budget** file along with all the sheet tabs along the bottom of the window.

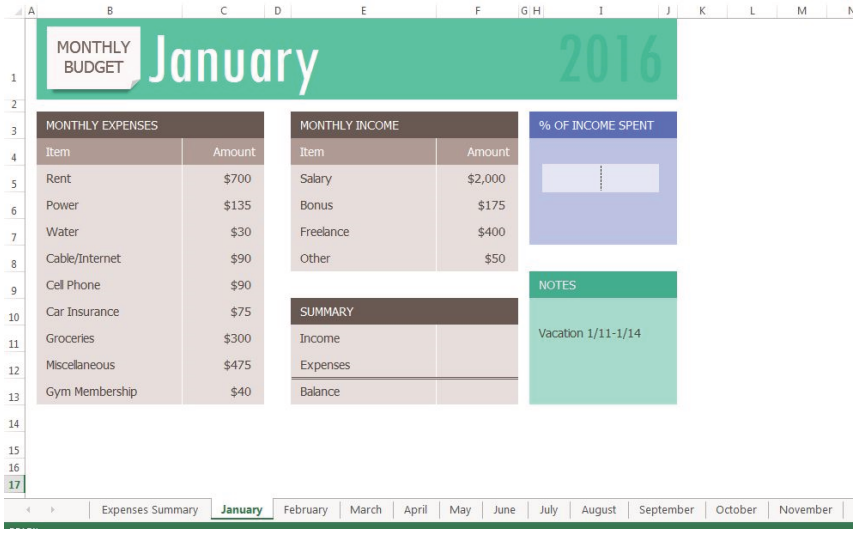


Figure 1: Personal Budget File

1.1.1 *Navigating Through a Multiple Sheet File*

Data file: CH6 Data

1. Open the data file **CH6 Data** and save the file as **CH6 Personal Budget**. Notice that the file has a Expenses Summary sheet tab at the far left followed by monthly sheets.

2. Click on the different sheet tabs at the bottom of the screen to move through the sheets. Notice that the **Expenses Summary** sheet is formatted differently from the monthly sheets. Notice also that all the monthly sheets are identical in layout and format.

3. Take a second look at the months and notice the end of the year data for September through October has not been added and there is no sheet for December.

4. Add the following data in the September, October, and November sheets.

Item	September	October	November
Power	$135	$135	$135
Water	$30	$30	$30
Groceries	$300	$325	$400
Miscellaneous	$100	$50	$100
Bonus			
Freelance	$500		$150
Other		$100	

Table 1: Data for September/October/November

1.1.2 *Copying a Sheet*

To make a December sheet, copy the November sheet.

1. Point the mouse at the November sheet tab at the bottom of the screen.
2. Hold down the left mouse button and then press and hold down the Ctrl key.
3. At this point, notice a black down-pointing arrow to the left of the November sheet tab and the mouse cursor becomes a small piece of paper with a plus sign on it.
4. Drag the mouse to the right (still holding down the left-mouse button and the Ctrl key) until the black down-pointing arrow is to the right of the November sheet tab.
5. Let go of the mouse button and then the Ctrl key. There should now be a **November (2)** sheet to the right of the November sheet as shown in Figure 2.

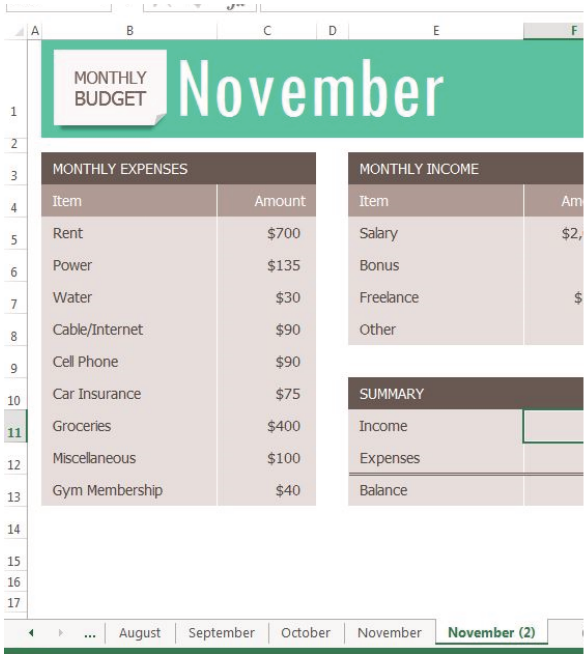


Figure 2: Additional November Sheet

Next, update the **November (2)** sheet to turn it into the December sheet.

1. Right-click on the November (2) sheet name at the bottom of the screen and choose Rename.
2. Type "December" and press Enter.
3. Click on the December sheet.
4. Click on B1 and change "November" to "December."
5. Make the following data changes.
   - Miscellaneous: $300
   - Bonus: $250 (it's the holidays!)
   - Freelance: delete amount
6. Save the workbook.
7. Point the mouse at the **December** sheet tab at the bottom of the screen.
8. Hold down the left mouse button and then press and hold down the Ctrl key.
9. Drag the mouse to the right (still holding down the left-mouse button and the Ctrl key) until the black down-pointing arrow is to the right of the **December** sheet.

10. Let go of the mouse button and then the Ctrl key. There should now be a **December (2)** sheet to the right of the **December** sheet.

11. Rename the **December(2)** sheet **Practice**.

Skill Refresher

Copying a Sheet

- Point the mouse at the sheet to copy at the bottom of the screen.
- Hold down the left mouse button and then press and hold down the Ctrl key.
- Drag the mouse to the right (still holding down the left-mouse button and the Ctrl key) until the black down-pointing arrow is to the right of the existing sheet.
- Let go of the mouse button and then the Ctrl key. There should now be a **Sheetname (2)** to the right of the original sheet.
- Rename the **Sheetname (2)** sheet as desired.

1.1.3 *Moving and Deleting Sheets*

Sometimes worksheets do not end up in the right order, and they need to be moved.

1. Point to the **Practice** sheet and hold down the left mouse button.

2. Notice this time that there is still a black arrow to the left of the **Practice** sheet, but the piece of paper is blank. It does not have a plus sign (+) because the sheet is moving instead of copying.

3. Left-drag the mouse to the right until the black arrow marker is between the **October** and **November** sheets.

4. Release the mouse button.

5. Try moving the **Practice** sheet back to the right of the **December** sheet.

Since the **Practice** sheet is not needed in the **Budget** file, delete it now.

1. Right-click on the Practice sheet tab at the bottom of the screen.

2. Click **Delete**. Figure 3 shows the warning message box that will appear, though it may look slightly different depending on the version of Excel being using. It is important to note that once a sheet is deleted, **Undo** will not bring it back.

3. Click fmtPopupButtonDelete.

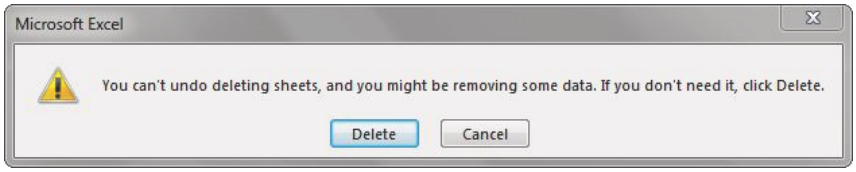


Figure 3: Warning Message Box

1.1.4 *Grouping and Ungrouping Sheets*

Take a look at the monthly sheets again. Notice that there is a place in each of these sheets to calculate three pieces of Summary data: Income, Expenses, and Balance; but there are no formulas in these cells. There is also a place for the % of Income Spent, but a formula is needed in **I6:I7** to calculate this. If these formulas were individually added in each of the 12 month sheets, it would take a long time and since this task is very repetitive it would also be likely that mistakes would be made along the way. By grouping all the month sheets together, the formulas are entered only once but appear in all the sheets.

1. Click on the **January** sheet to make it active.

2. Hold the Shift key down and click on the **December** sheet.

Now all 12 sheets should be selected. This can be verified in two ways: the sheet tabs that have been selected are in bold font at the bottom of the screen and the title bar at the top of the screen adds the word *[Group]* to the end of the title. These are both visible of these in Figure 4.

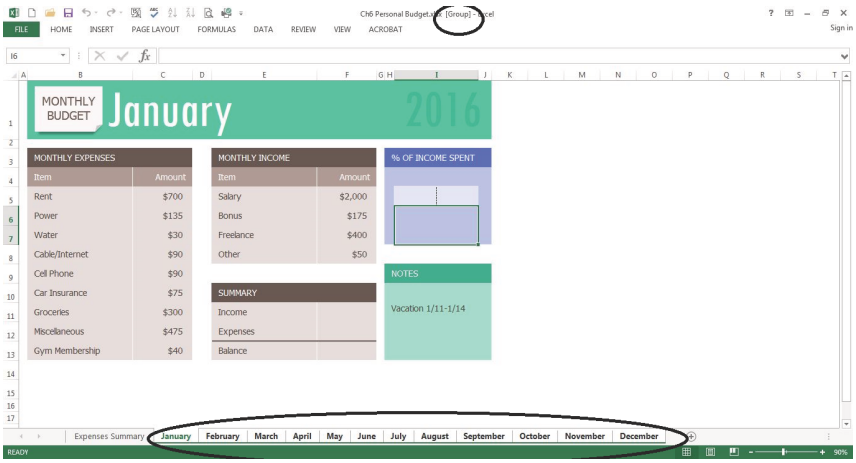


Figure 4: Grouped Sheets

It is important to remember that any changes made to the January sheet will be made to all the sheets. This makes it easy to make changes to all the sheets at once, but they must be ungrouped after making changes or data on linked sheets can be inadvertently destroyed.

1. Click in **F11** in the **January** grouped sheet.
2. Enter the formula =SUM(F5:F8).
3. In **F12**, enter the formula =SUM(C5:C13).
4. In **F13**, subtract Expenses from Income. In the **January** sheet, the balance should be $690. *Hint*: if the answer is negative, then Income was subtracted from Expenses.
5. Click on **I6**. (**I6** and **I7** are formatted and merged together – this is fine.)
6. Enter a formula that divides Expenses (**F12**) by Income (**F11**). The answer will show as a percentage since this cell has already been formatted to do this. *Hint*: If the percentage is greater than 100% the numbers are reversed.

Notice that a data bar was set up in **I5** to visually show the income spent. This skill was covered elsewhere in the course. The **January** sheet should now look like Figure 5.

Figure 5: January Sheet with Formulas

7. Now that the monthly sheets are done, they need to be ungrouped. Right-click on one of the grouped sheets and choose **Ungroup Sheets**. Notice the sheets tabs are no longer bold and the word [Group] is no longer in the title bar.

8. Click on several of the month sheets to see that all the formulas have been added.

9. Click on the **December** sheet. The sheet should now look like Figure 6.

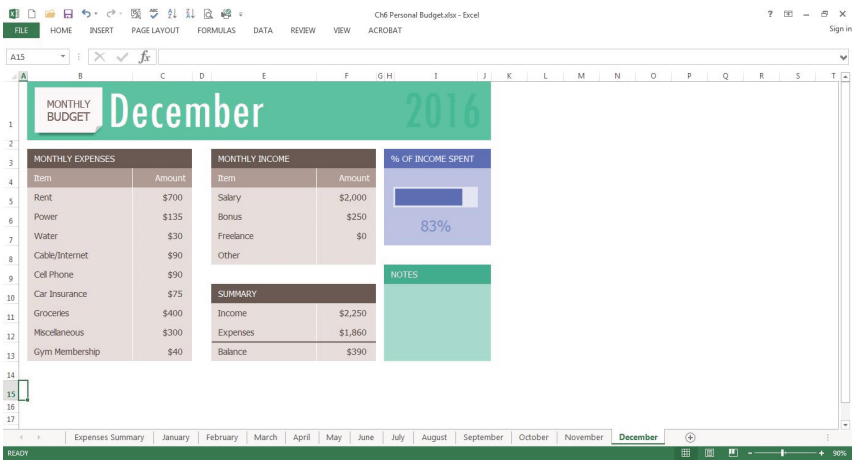


Figure 6: December Sheet with Formulas

1. Take a look at the Notes in the **September** sheet. It says that the rent was raised in September, so the Gym Membership needs to be cancelled and $0 should be entered for the Gym amount in October, November, and December.

2. Group the **October**, **November**, and **December** sheets. If this is done successfully these three sheet names should be bold and the word *[Group]* will appear in the Title bar.
3. Click on **C13** and change the amount to $0. Press Enter.
4. Ungroup the sheets.The balances should be: October $605, November $530, and December $430.

Skill Refresher

To Group Sheets

- Click on the leftmost sheet group; then hold the Shift key down and click on the rightmost sheet to group.

To Ungroup Sheets

- Right-click on one of the grouped sheets and choose **Ungroup Sheets**.

Key Take-Aways

Worksheets

- Sheet can be easily moved, copied, deleted, and renamed.
- When grouped, identically formatted sheets can be changed at the same time.

1.2 FORMULAS WITH 3-D REFERENCES

Learning Objectives

- Entering formulas that reference another sheet.
- Using the SUM function to total values on multiple sheets.

The **Summary** sheet in many multiple sheet workbooks is utilized to present totaled information from the other sheets in the file. This is done to give a quick synopsis of all the other sheets in one convenient location. For this reason, the **Summary** sheet is usually the first sheet in multiple-sheet files. Summary sheets "pull" data from the other sheets using three-dimensional (3-D) cell references. In order to distinguish between **A3** in the **Summary** sheet, **A3** in the **January** sheet, **A3** in the **February** sheet, etc.; a 3-D cell reference includes the sheet

name along with the cell reference. The syntax to reference a cell in a different sheet is =SheetName!CellRange. So, the cell reference for **A15** in the **March** sheet would be =March!A15.

Start working on the **Summary** sheet by trying out some 3-D formula.

1. Click on the **Expenses Summary** sheet tab at the bottom of the screen.
2. Click on **C5** and enter the formula =January!C5. Press Enter. This will get the amount $700 from cell **C5** in the **January** sheet.
3. Delete the formula in **C5** in the **Expenses Summary** sheet.
4. This time, click on **C5** and type =. Then click on the **January** sheet, and then click on **C5**.
5. Press Enter. This will put the same formula, =January!C5, in cell **C5** in the **Expenses Summary** sheet and will return the value $700.
6. In cell **C6** in the **Expenses Summary** sheet, try entering a formula for the Power amount in the **April** sheet. The Power amount should be $135.
7. Delete the formulas in cells **C5** and **C6** in the **Expenses Summary** sheet.

For the Annual Amounts in **C5:C13** in the **Expenses Summary** sheet, the amount from a single month's sheet is not needed; instead, the sum of all the entries in all the monthly sheets should be entered. So, a three-dimensional sum for all twelve month sheets should be entered. Here is a helpful hint on the steps to follow to add through multiple sheets.

Skill Refresher

To SUM across sheets

- Click on the cell where the 3-D SUM should appear.
- Type =SUM(
- Click on the leftmost sheet in the group of sheets to sum.
- Hold the Shift key down and click on the rightmost sheet in the group of sheets to sum.
- Click on the cell in the sheet that should be summed.
- Press Enter.

Follow these steps to sum all of the monthly amounts in the **Expenses Summary** sheet.

1. Click in **C5** in the **Expenses Summary** sheet.
2. Type =SUM(. (Make sure to type the open parentheses.)
3. Click on the **January** sheet.
4. Hold the Shift key down and click on the **December** sheet.
5. Click on **C5** again and press Enter. Cell **C5** should display the sum of $8,400.
6. Click on **C5** in the **Expenses Summary** sheet. The formula bar should show the following: =SUM(January:December!C5). This means Excel should calculate the sum of **C5** in the sheets **January** through **December**.
7. For another 3-D sum, click on **C6**.
8. Type =SUM(. (Make sure to type the open parentheses.)
9. Click on the **January** sheet.
10. Hold the Shift key down and click on the **December** sheet.
11. Click on C6 again and press Enter. Cell **C6** should now display the sum of $1,610.
12. Click on **C6** in the **Expenses Summary** sheet. The formula bar should show the following: =SUM(January:December!C6).

Copy **C6** down through **C13** to fill in the rest of the formulas. The **Expenses Summary** sheet should match Figure 7.

ANNUAL EXPENSES (TO DATE)	
Item	Amount
Rent	$8,400
Power	$1,610
Water	$360
Cable / Internet	$1,080
Cell Phone	$1,080
Car Insurance	$900
Groceries	$4,175
Miscellaneous	$2,535
Gym Membership	$360

Figure 7: Complete Expenses Summary Formulas

While the 3-D formulas are complete in the Expenses Summary sheet, the summary feels like it is lacking something. Add a visual representation of the summary numbers to the sheet.

1. Highlight cells **B5:C13** in the **Expenses Summary** sheet.
2. Click on **Pie Chart** in the **Insert** tab in the ribbon and select the **2-D pie**.
3. Move and resize the pie chart so that it fills cells **D3:J15**.
4. Delete the chart title.
5. Move the legend to the right side of the chart. Resize the legend as needed.
6. Add percentage data labels to the pie slices. Format the data labels to be bold with white font color. The complete **Expenses Summary** sheet should look like Figure 8 below.
7. Save the workbook.
8. If it is necessary to print the assignment, print ONLY the Summary sheet in both regular and formula view.
9. Close the workbook.

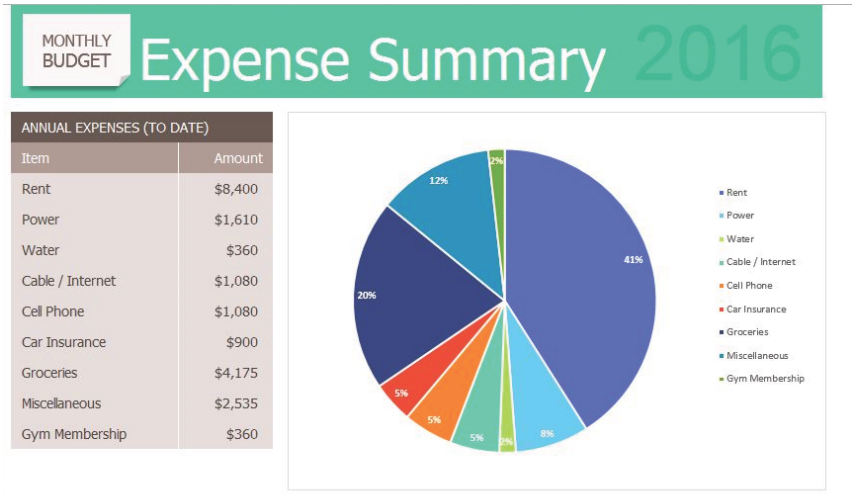


Figure 8: Completed Expenses Summary Sheet

Skill Refresher

3-D References in Formulas

- To reference a cell in another sheet, use the formula syntax =SheetName!CellAddress.
- To enter a 3-D reference:
  1. Click on the cell where the formula should appear and type =.
  2. Click on the sheet with the cell to reference.
  3. Click on the cell in the sheet and press Enter.

Key Take-Aways

3-D References

- 3-D references in formulas allow data from one or more sheets to be used on another sheet.

1.3 TEMPLATES

Learning Objectives

- Use an existing Microsoft Excel template to create a new spreadsheet.
- Create a custom template that can be used to create new spreadsheets.

A template is a predefined pattern for a spreadsheet. Hundreds of templates created by Microsoft are available to use inside Excel. These templates are very helpful to quickly start and complete a new task in Excel. Templates include all the formulas, formatting, etc. needed in a professional Excel spreadsheet. All that is left to do is enter the data. Predefined Microsoft templates include everything from billing statements to blood pressure trackers to business cards. Categories include: Business, Personal, Industry, Financial Management, Logs, Calculators, and Lists.

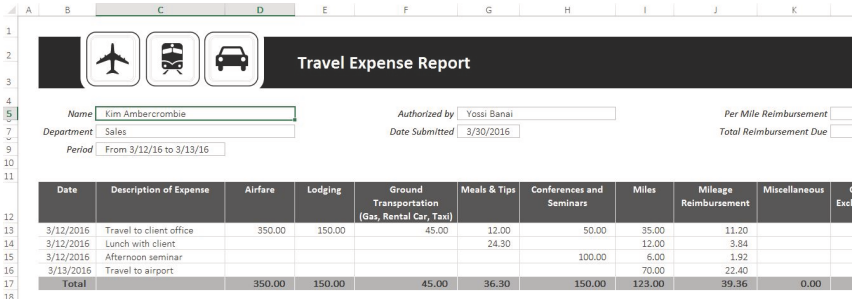
Sometimes a very specific template is needed that has not already been created by Microsoft. Taking the time to create a custom template allows users to create new files from it over and over again. If a new version of some spreadsheet is needed on a regular basis, templates will make this work much easier. This chapter explores both types of templates: predefined and custom.

1.3.1 *Predefined Templates*

Microsoft has made many predefined templates available in Excel. Follow these steps to explore this resource.

1. Click the **File** tab in the ribbon.
2. Click **New** in the Backstage View.
3. Click in the **Search** box for Online template.
4. Type Travel and press Enter.
5. Click on the **Travel Expense Report** and click **Create**. Note: If this template is not available, ask the instructor which template to use.

The screen should look like Figure 9 below. Notice the design, layout, and formulas have already been set up.



Travel Expense Report

Name: Kim Ambercrombie
Department: Sales
Period: From 3/12/16 to 3/13/16
Authorized by: Yossi Banai
Date Submitted: 3/30/2016
Per Mile Reimbursement:
Total Reimbursement Due:

Date	Description of Expense	Airfare	Lodging	Ground Transportation (Gas, Rental Car, Taxi)	Meals & Tips	Conferences and Seminars	Miles	Mileage Reimbursement	Miscellaneous
3/12/2016	Travel to client office	350.00	150.00	45.00	12.00	50.00	35.00	11.20	
3/12/2016	Lunch with client				24.30		12.00	3.84	
3/12/2016	Afternoon seminar					100.00	6.00	1.92	
3/13/2016	Travel to airport						70.00	22.40	
Total		350.00	150.00	45.00	36.30	150.00	123.00	39.36	0.00

Figure 9: Travel Expenses Report Template

Complete the following steps to investigate this template.

1. Change the Name to anything appropriate.
2. Change the Department to CAS.
3. Press Ctrl +~ (that is *Ctrl+tilde*) to see where the formulas are in the sheet. Working in the formula view helps find formulas, so they will not be accidentally deleted.
4. In formula view, carefully delete just the data. Do not delete any formulas!
5. Press Ctrl +~ (that is *Ctrl+tilde*) again to return to Normal view.
6. Enter dates and expenses for an imaginary trip in the first three rows under the column headings.
7. Save the completed file as **CH6 Travel Expenses**. Close the file.

Skill Refresher

Predefined Template

- Click on the File tab in the ribbon.
- Click on **New**
- Type the desired template description in the Search box, and press Enter.

1.3.2 *Custom Templates*

To create a custom template a blank template can be created or an existing spreadsheet can be saved as a template. Either way, the templated can be used to create new spreadsheets that have a uniform appearance and set of functions. For this exercise, the existing **CH6 Personal Budget** file will be converted into a template but in the assignments at the end of the chapter a template will be built from scratch.

1. Open the **CH6 Personal Budget.xlsx** file.
2. Group the month sheets (**January** through **December**).
3. Press Ctrl + ~ (that is *Ctrl+tilde*) to switch to Formula view.
4. Delete only the data from these sheets, not labels or formulas. The only data is in **C5:C13**, **F5:F8**, and in the Notes in **H11:J13**.
5. Highlight **C5:C13** (with all the sheets still grouped) and press Delete.
6. Highlight **F5:F8** (with all the sheets still grouped) and press Delete.
7. Highlight **H11:J13** (with all the sheets still grouped) and press Delete.
8. Press Ctrl + ~ (that is *Ctrl+tilde*) to switch back to Normal view.
9. Ungroup the sheets.
10. Look through the sheets to check that only the data has been deleted. Notice the error message *#DIV/O* appears in **I6:I7** since the data for this formula has been deleted. The **January** sheet should look like Figure 10.

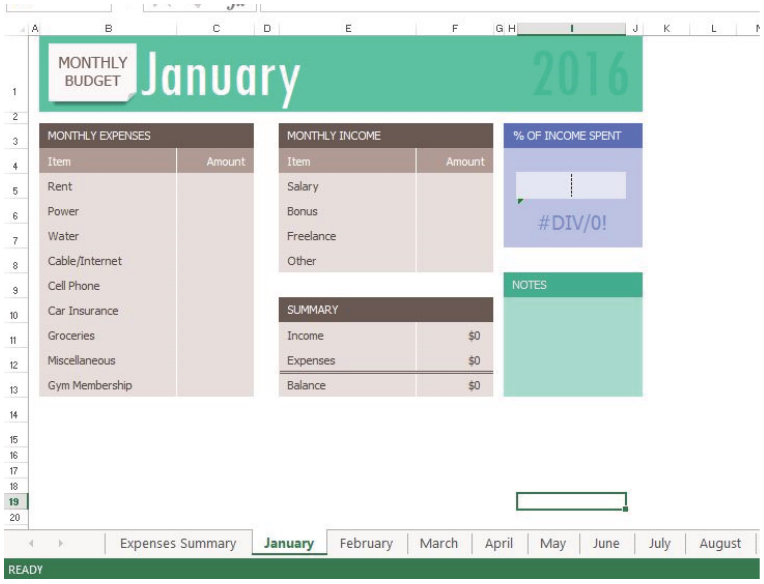


Figure 10: January Template Sheet

Note: There are only formulas and the pie chart in the **Expenses Summary** sheet, so nothing needs to be deleted from this sheet to setup the template.

1. Click the **File** tab in the ribbon and then click **Save As**.

2. Choose the location to save the file.
3. In the **Save as** type pull-down list, select **Excel Template (*.xltx)**.
4. At the top of the screen, double-check that the location selected to save the file has not changed. If it has, use the pull-down list to find the location to save the file. *Be Careful Here!* By default, Excel will try to save this to a default template file location on the local hard drive.
5. Type in the file name **CH6 Personal Budget Template.xltx**. Carefully compare the screen with Figure 11. Keep in mind that the template file may be getting saved to a different place on the computer since Excel will normally save templates to a specific folder on the local hard drive.
6. Click **Save**.

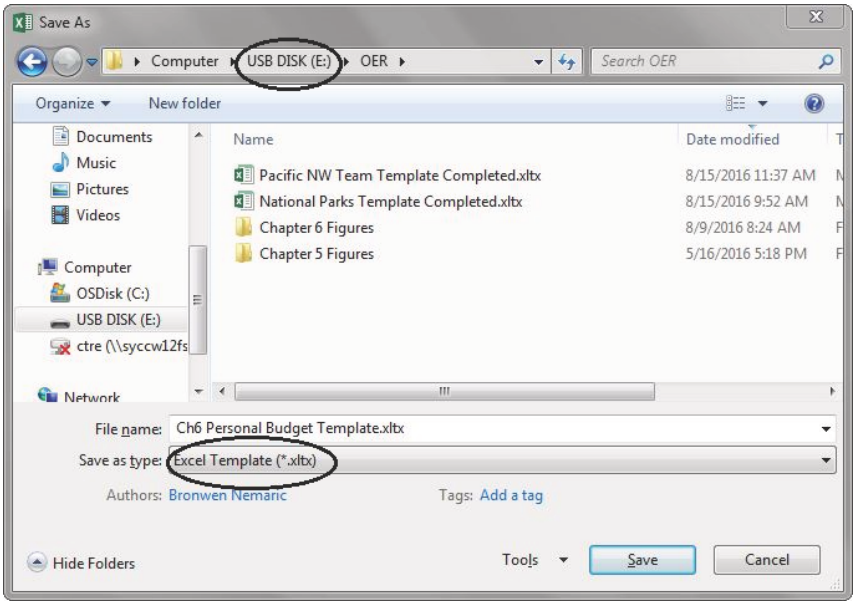


Figure 11: Save As Template

Skill Refresher

Save a Template

- Click the File tab in the ribbon and then click **Save As**.
- Choose the location to save the file.
- In the Save as type pull-down list, select **Excel Template (*.xltx)**.
- At the top of the screen, double-check that the location to save the file to has not changed. If it has, use the pull-down list to find the location to save the file. *Be Careful Here!* By default, Excel will save templates to a default file location on the local hard drive.
- Enter the file name.
- Click **Save**.

Use the new budget template to start a Personal Budget file for 2017. Use the **Ch6 Personal Budget Template** to create the new file, but do not overwrite the template since it will be used to create budget files in future years. To do this, save the file to the new 2017 file name before filling in any data.

1. With the **CH6 Personal Budget Template** open, click the File tab in the ribbon.
2. Choose **Save As** and choose the location to save the 2017 version of the file.
3. Change the Save as Type back to **Excel Workbook (*.xlsx)**.
4. Enter the File name **CH6 2017 Personal Budget**. Compare the screen to Figure 12.

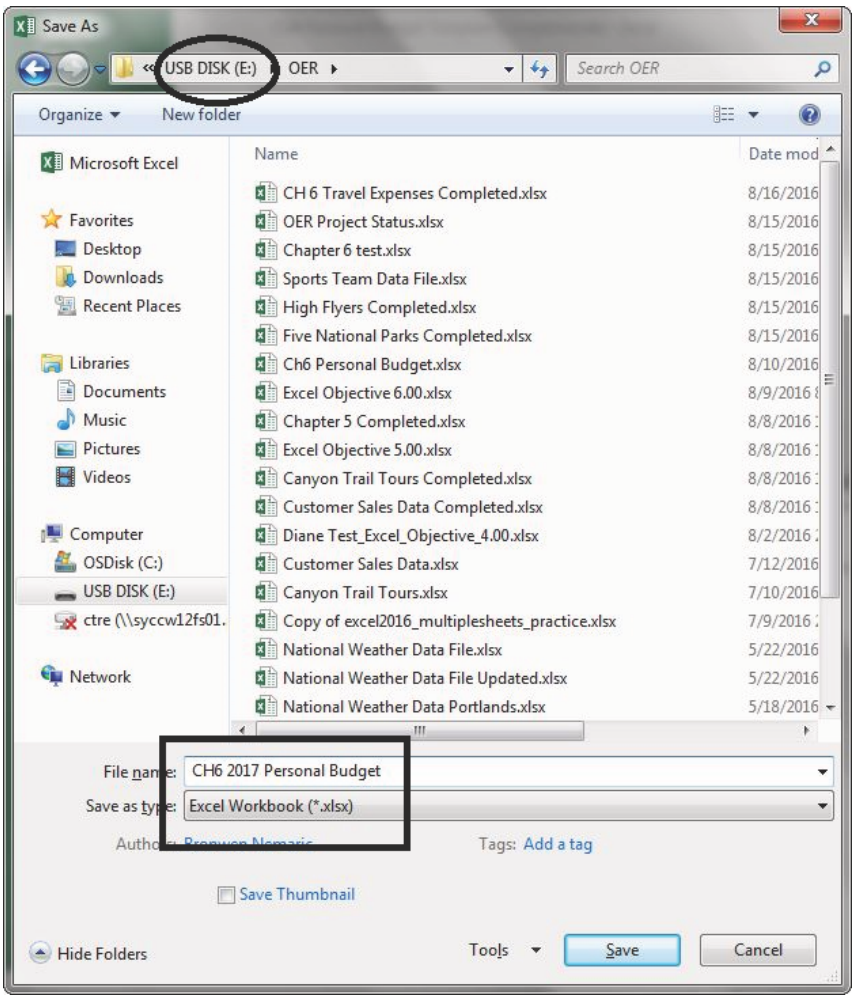


Figure 12: Save As 2017 Budget File

5. Click **Save**.
6. Group all the sheets together including the **Expenses Summary** sheet.
7. Click on **H1**. Type 2017 and press Enter.
8. Ungroup the sheets.
9. Click on the **January** sheet. Enter the data found in Figure 13.

MONTHLY EXPENSES	
Item	Amount
Rent	$700
Power	$135
Water	$30
Cable/Internet	$90
Cell Phone	$90
Car Insurance	$75
Groceries	$275
Miscellaneous	$0
Gym Membership	$0

MONTHLY INCOME	
Item	Amount
Salary	$2,000
Bonus	
Freelance	$150
Other	

SUMMARY	
Income	$2,150
Expenses	$1,395
Balance	$755

Figure 13: January 2017 Data

10. Click on the **Expenses Summary** sheet. The data and the pie chart should show the January data since that is the only data in the twelve month sheets for now. The sheet should look like Figure 14.

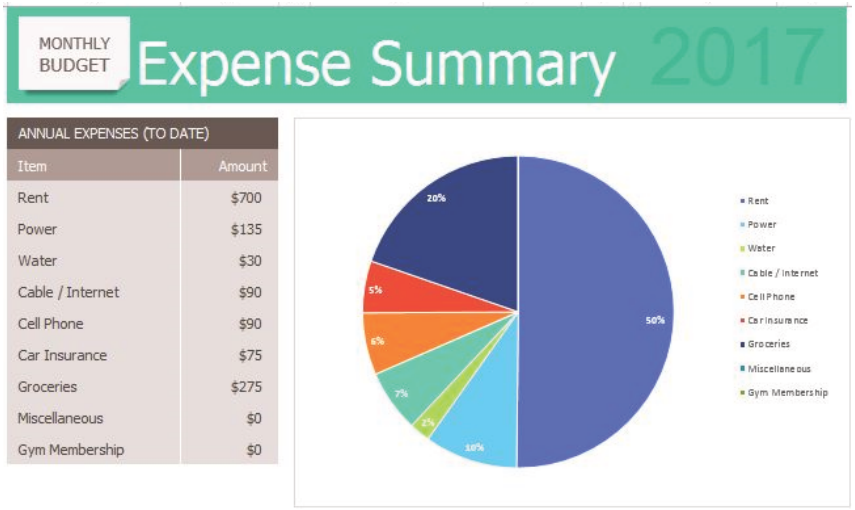


Figure 14: Expense Summary Sheet

11. Save the file.

Key Take-Aways

Templates

- Templates save time and effort when compared to designing and creating spreadsheets files from scratch.
- There are many pre-designed templates in Excel.
- Custom templates can be created for special purposes.

1.4 PREPARING TO PRINT

Learning Objectives

- Printing all of the worksheets in a workbook at one time.
- Preparing multiple worksheets for printing using grouping.

Just like consistency in formatting is important when working with workbooks containing multiple worksheets with the same type of data, so is consistency in page setup. Now that the **Personal Budget 2017** workbook is complete, prepare it for printing by changing the page orientation and adding a header. All 13 worksheets will also be printed at one time.

1.4.1 *Applying Page Setup Options to Grouped Worksheets*

Data file: CH6 2017 Personal Budget.

As always, review the workbook in Print Preview before considering it complete. When checking this workbook, notice that the worksheets are each printing on two pages. Switch all the worksheets to Landscape orientation to see if that helps. Also add a footer with the worksheet name to each of the worksheets.

1. Go to **Print Preview**. To view all of the worksheets at one time, select **Print Entire Workbook** in the first box in the Settings section. There should be 26 pages to scroll through in Print Preview. At this point, clicking the **Print** button would print all of the worksheets rather than just the active sheet.

2. Exit Backstage View. The page orientation of all the sheets can be changed at one time, but not in Print Preview.

3. Group all of the worksheets together, including the **Expenses Summary** sheet through the **December** sheet.

4. Click on the Page Layout tab on the ribbon, then select **Landscape** using the Orientation button in the **Page Setup** group.
5. Click the **Page Setup** dialog box launcher arrow in the **Page Setup** group then click the **Header/Footer** tab.
6. Click the **Custom Footer** button. In the center section, insert the worksheet name using the **Insert Sheet Name** button. The Footer dialog box should look like Figure 15.
7. Click **OK** to close the Footer dialog box. Click **OK** again to close the Page Setup dialog box.
8. Return to Print Preview to confirm that each worksheet is printing on one page, in landscape orientation, with the correct worksheet name appearing in the footer.

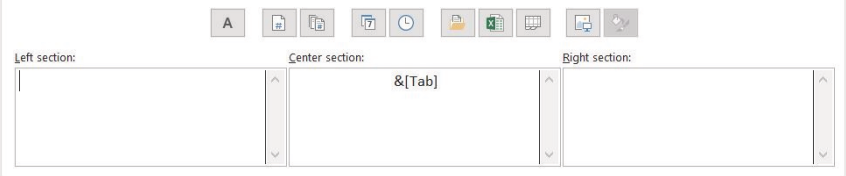


Figure 15: Insert Worksheet Name

Print Preview makes it clear that the **Expenses Summary** sheet is not set to print correctly. Part of the chart is appearing on a second page. This can be easily fixed by changing the Scaling, but to change the scaling of only the **Expenses Summary** sheet, not the entire workbook, the worksheets need to be ungrouped.

1. Exit Backstage View.
2. Ungroup the worksheets by right-clicking on any of the worksheet tabs and selecting **Ungroup Sheets**.
3. If needed, click on the **Expenses Summary** worksheet tab to make it the active worksheet.
4. Click on the Page Layout tab on the ribbon and locate the **Scale to Fit** group of commands. (See Figure 16)

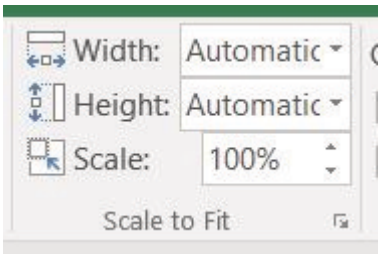


Figure 16: Scale to Fit

1. Click the drop-down arrow for **Width:** and select 1 page. This has the same result as selecting Fit All Columns on One Page in the Scaling setting in Print Preview.
2. Return to Print Preview to confirm that the **Expenses Summary** worksheet is now printing on one page only.
3. Exit Backstage View.
4. Save the **CH6 2017 Personal Budget** workbook.
5. Compare the workbook with the self-check answer keys (found in the Course Files) and then submit the following files as directed by the instructor.
   - **CH6 Personal Budget**
   - **CH6 Personal Budget Template**
   - **CH6 Travel Expenses**
   - **CH6 2017 Personal Budget**

Key Take-Aways

Printing

- To print all of the worksheets in a workbook at one time select **Print Entire Workbook** in the **Print Settings**.
- Page setup options, such as scaling, orientation, and headers/footers, can be applied to multiple worksheets at one time by grouping them.

1.5 CHAPTER PRACTICE

1.5.1 *A Multiple Sheet Template for a Sports Team*

Data file: PR6 Data

The coaches of the *Pacific Northwest Soccer Club* want a consistent way to keep track of their team statistics. To help with this, create a template for season stats for each team. The *High Flyers* team coach will use the template to enter that team's statistics into a spreadsheet.

1. Open the data file **PR6 Data** and save the file as **PR6 Pacific NW Sports Team**.
2. Copy the range **B11:G22** in the **Season Stats** sheet to the same range in the **Player Stats** sheet.
3. Group the sheets and add the following formulas to both sheets.

- In C22 and D22, count the *Xs* in rows 12 through 21. To do this, use a COUNTA formula.
- In E22 and F22, sum rows 12 through 21.
- In G12, calculate Goal Percentage by dividing the number of Shots by the number of Goals. This will display an error message because there are zeros in column F. An IF statement that tests the value of column F will keep error messages from appearing. Change the formula in G12 with the following three pieces.
  - Test: is F12 greater than zero
  - If the Test is True: divide the number of Goals by the number of Shots
  - If the Test is False: enter a zero
- Copy G12 down the column through G22. Format these cells as percentages.
- For an extra challenge, put the "banded row" format back in G12:G22.

4. Ungroup the sheets.
5. Save the file as a template called **PR6 Pacific NW Team Template.xltx**. Make sure to save the template to a USB drive and not the default folder for templates on the local hard drive.
6. Make a new file using the **PR6 Pacific NW Team Template** and save it as **PR6 High Flyers.xlsx**.
7. In the **Season Stats** sheet, enter the following data:
   - D3 – High Flyers
   - D4 – Fall and the current year (i. e.– Fall 2020)
   - D5 – Pacific Northwest Soccer
8. Enter the coach's name, phone number, and email address in row 8.
9. Make four copies of the **Player Statistics** sheet. Rename the player sheets **Player 1**, **Player 2**, **Player 3**, **Player 4**, and **Player 5**.
10. Group the Player sheets. Enter the following formulas:
    - A formula in D4 that points to cell D3 in the **Season Stats** sheet. *Note*: the formula will be ='Season Stats'!D3:G3 instead of ='Season Stats'!D3 because D3:G3 are merged together.
    - A formula in D5 that points to cell D4 in the **Season Stats** sheet.

- A formula in **D6** that points to cell **D5** in the **Season Stats** sheet.

11. Ungroup the sheets.

12. Click on the **Player 1** sheet. Enter the Player Name: Juan Ramirez. Enter the data from Table 2:

Game	Played	Started	Shots	Goals
Game 1	x	x	2	1
Game 2	x	x	3	1
Game 3				
Game 4	x			
Game 5	x	x	2	0
Game 6	x			
Game 7				
Game 8	x	x	1	1
Game 9	x	x	4	2
Game 10	x	x	3	3

Table 2: Player 1 Sheet

13. Click on the **Player 2** sheet. Enter the Player Name: Zach Johnson. Enter the data from Table 3.

Game	Played	Started	Shots	Goals
Game 1	x	x	1	1
Game 2	x	x	2	1
Game 3	x	x	1	1
Game 4	x	x	1	1
Game 5	x	x	2	0
Game 6	x	x	5	2
Game 7	x	x	4	2
Game 8	x	x	1	1
Game 9	x	x	4	1
Game 10	x	x	3	2

Table 3: Player 2 Sheet

14. Click on the **Player 3** sheet. Enter the Player Name: Vito Lawrenz. Enter the data from Table 4.

Game	Played	Started	Shots	Goals
Game 1	x	x	0	0
Game 2	x	x	1	1
Game 3	x	x	2	0
Game 4	x		1	1
Game 5	x	x	2	0
Game 6	x	x	3	1
Game 7	x	x	2	1
Game 8	x	x	1	1
Game 9	x	x	1	1
Game 10	x	x	1	1

Table 4: Player 3 Sheet

1. Make up information for the names and data in the **Player 4** and **Player 5** sheets.

2. Go to the **Season Stats** sheet and click on cell **C12**. Enter a 3-D formula to COUNTA ("count text") in **C12** through sheets **Player 1** through **Player 5**. Copy the formula in **C12** through **D22**.

3. Change the formulas in **C22** and **D22** to SUM.

4. Click on **E12**. Enter a 3-D formula to SUM E12 in sheets **Player 1** through **Player 5**. Copy the formulas through **F22**.

5. Preview the worksheets in Print Preview. Notice that only part of the data is printing for each worksheet. This is because a Print Area was incorrectly set when the file was first created. This print area needs to be cleared for each worksheet individually (modifying print areas cannot be done on grouped sheets). Exit Backstage View and for each worksheet click the **Print Area** button on the Page Layout tab and select **Clear Print Area**.

6. Save the **PR6 High Flyers** workbook.

7. Compare the work with the self-check answer key (found in the Course Files) and then submit the **PR6 High Flyers** workbook and **PR6 Pacific NW Team Template**.

1.6 SCORED ASSESSMENT

1.6.1 *A Multiple Sheet Template for National Parks Data*

Data file: none

A template for National Parks usage data along with a Summary of the parks visitation data will be developed. To do this, create a

template with summary and individual park sheets and then use that template to enter park data for five national parks.

1. Open a blank spreadsheet.

2. Design a professional quality sheet to display individual park data. Include areas to enter the name of a park and the park statistics as found in Tables 5, 6, and 7 below. Name the sheet **Park Data**. (*Note*: do not copy the physical layout of the tables.) Figure 17 is an example of how this could be set up.

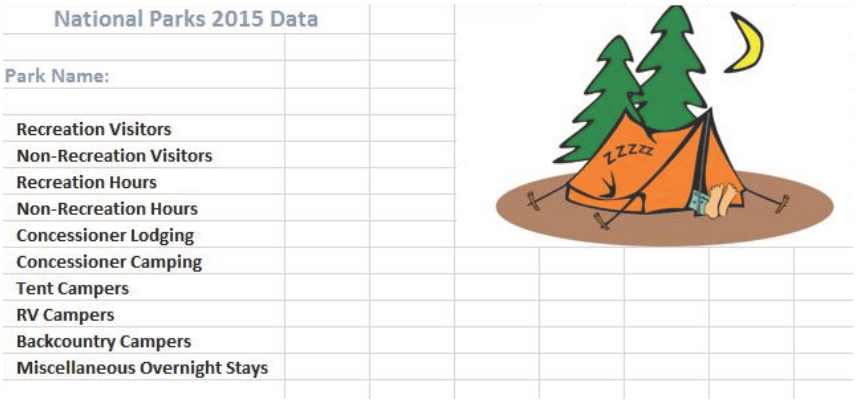


Figure 17: Sample setup

1. Make a copy of the **Park Data** sheet and rename it **Summary Park Data**. Change any text needed for the Summary sheet. Make sure both sheets are laid out exactly the same.

2. Save the file as a template called **SC6 National Parks Template.xltx**. Make sure this gets saved to a USB drive and not the default folder on the hard drive. Close the template once it has been saved.

3. Make a new file using the template and save it as **SC6 Five National Parks.xlsx**.

4. Make four copies of the **Park Data** sheet. Rename the five Park Data sheets after the five parks listed in Table 5.

Name	Recreation Visitors	Non-recreation Visitors	Recreation Hours	Non-recreation Hours
Acadia NP	2,811,184	47,100	14,452,151	47,100
Blue Ridge PKWY	15,054,603	1,942,260	93,977,122	971,136
Crater Lake NP	614,712	49,600	4,033,484	24,800
Yellowstone NP	4,097,710	1,156,118	82,016,845	711,795
Yosemite NP	4,150,217	155,081	78,505,877	3,993,223

Table 5: National Park Data, Pt 1

Name	Concessioner Lodging	Concessioner Camping	Tent Campers	RV Campers
Acadia NP	0	0	135,000	32,094
Blue Ridge PKWY	53,688	0	61,481	33,499
Crater Lake NP	34,629	55,596	7,548	0
Yellowstone NP	552,940	584,979	104,149	69,830
Yosemite NP	938,418	0	588,701	284,372

Table 6: National Park Data, Pt 2

Name	Backcountry Campers	Misc Overnight Stays
Acadia NP	1,233	8,343
Blue Ridge PKWY	2,101	1,294
Crater Lake NP	3,253	0
Yellowstone NP	44,898	11,715
Yosemite NP	211,966	39,214

Table 7: National Park Data, Pt 3

5. Enter the park data for each of the parks in each of the five sheets.

6. In the **Summary Park Data** sheet, create formulas for all the fields that add up the five park sheets.

7. Preview the entire workbook in Print Preview to ensure that it is printing professionally. Make any changes needed.

8. Save the **SC6 Five National Parks** workbook.

9. Submit both the **SC6 Five National Parks** and **SC6 National Parks Template** files as directed by the instructor.

Note: The National Park 2015 Data is from: https://irma.nps.gov/Stats/SSRSReports.

COLOPHON

This document was typeset using the typographical look-and-feel classicthesis developed by André Miede. The style was inspired by Robert Bringhurst's seminal book on typography "*The Elements of Typographic Style*". classicthesis is available for both LaTeX and LyX:

https://bitbucket.org/amiede/classicthesis/

Happy users of classicthesis usually send a real postcard to the author, a collection of postcards received so far is featured here:

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