

skill review 3.1

In this project, you will complete a staff billing workbook similar to the one you worked on in Chapter 1. This worksheet is more complicated and uses a variety of formulas to calculate information about each staff member's weekly billing and to generate client bills from the staff hours. As you work on the Marshall Hours worksheet, you can use the Luz Hours or Stevens Hours worksheet as a guide. This is a long project. Be sure to save your work often!

Skills needed to complete this project:

- Naming Ranges of Cells
- Using CONCATENATE to Combine Text
- Creating Formulas Referencing Data from Other Worksheets
- Finding Data Using the VLOOKUP Function
- Working with Named Ranges
- Using the Function Arguments Dialog to Enter Function
- Creating Formulas Using Counting Functions
- Using Formula AutoComplete to Enter Functions
- Calculating Averages
- Finding Minimum and Maximum Values
- Using the Logical Function IF
- Displaying and Printing Formulas
- Using Date and Time Functions
- Checking Formulas for Errors
- Finding Errors Using Trace Precedents and Trace Dependents
- Updating Named Ranges with the Name Manager
- Editing and Deleting Names with the Name Manager
- Calculating Loan Payments Using the PMT Function

Step 1
Download
start file

1. Open the start file **EX2013-SkillReview-3-1**. The file will be renamed automatically to include your name. Change the **project file** name if directed to do so by your instructor, and **save** it.
2. If the workbook opens in Protected View, click the **Enable Editing** button in the Message Bar at the top of the workbook.
3. The *Luz Hours* and *Stevens Hours* worksheets are completed, but they contain errors. You'll need to fix the errors before working on the *Marshall Hours* worksheet.
 - a. Click the **Luz Hours** sheet tab.
 - b. Click cell **C4**.
 - c. Notice the #NAME? error. Move your mouse over the **Smart Tag** icon to display a tool tip describing the possible error—*The formula contains unrecognized text*.
 - d. The formula =VLOOKUP(C3,BillableRates,4,FALSE) references the named range BillableRates. That name has not yet been defined. That's what is causing the error.
4. Billable rates are kept in the *Rates* worksheet. Create the name **BillableRates** to use in formulas throughout the workbook.
 - a. Click the **Rates** sheet tab.
 - b. Select cells **A3:D5**.
 - c. Type **BillableRates** in the *Name* box.
 - d. Press **Enter**.

5. Return to the *Luz Hours* worksheet. Notice all the errors have been fixed. Now you can move on to completing the *Marshall Hours* sheet.
6. Enter a formula in cell **C2** to display Marshall's full name in the format *Bob Smith*. Staff names are kept in the *Rates* worksheet.
 - a. Click the **Marshall Hours** sheet tab, and click cell **C2**.
 - b. On the *Formulas* tab, in the *Function Library* group, click the **Text** button, and select **CONCATENATE**.
 - c. Click the **Rates** sheet tab. If necessary, position the *Function Arguments* dialog so you can click the sheet tabs.
 - d. Click cell **C3** to enter the cell reference in the *Text1* argument box.
 - e. Press TAB to move to the *Text2* argument box.
 - f. Type " " to place a space between the first and last names.
 - g. Press TAB to move to the *Text3* argument box.
 - h. Click the **Rates** tab again.
 - i. Click cell **B3** to enter the text reference in the *Text3* argument box.
 - j. Click **OK**. The completed formula should look like this:
=CONCATENATE(Rates!C3," ",Rates!B3)
7. Enter a formula in cell **C4** to look up Marshall's current billable rate. Use the employee number as the lookup value.
 - a. Click cell **C4**.
 - b. On the *Formulas* tab, in the *Function Library* group, click the **Lookup & Reference** button, and select **VLOOKUP**.
 - c. Click cell **C3** to enter it in the *Lookup_value* argument box.
 - d. Type **BillableRates** in the *Table_array* argument box.
 - e. The rates are located in the fourth column of the lookup table. Type **4** in the *Col_index_num* argument box.
 - f. Ensure that the function will return only an exact match. Type **false** in the *Range_lookup* argument box.
 - g. Click **OK**. The completed formula should look like this:
=VLOOKUP(C3,BillableRates,4,FALSE)
8. Enter formulas in cells **B17:H17** to calculate the number of clients served each day.
 - a. Click cell **B17**.
 - b. Type **=COUNT**
 - c. Double-click **COUNT** in the Formula AutoComplete list.
 - d. Click cell **B9** and drag to cell **B12**.
 - e. Press **Enter**. The completed formula should look like this: **=COUNT(B9:B12)**
 - f. Copy the formula in cell **B17** to cells **C17:H17**. Use any method you want.

9. Enter a formula in cell **H19** to calculate the average daily billable hours (B13:H13).
 - a. Click cell **H19**.
 - b. Type **=AV** and then double-click **AVERAGE** in the Formula AutoComplete list.
 - c. Click cell **B13** and drag to cell **H13**.
 - d. Press Enter. The completed formula should look like this: **=AVERAGE(B13:H13)**
10. Enter a formula in cell **H20** to calculate the total billable hours for the week (B13:H13).
 - a. Click cell **H20**.
 - b. Type **=SU** and then double-click **SUM** in the Formula AutoComplete list.
 - c. Click cell **B13** and drag to cell **H13**.
 - d. Press Enter. The completed formula should look like this: **=SUM(B13:H13)**
11. Enter a formula in cell **H22** to calculate the lowest daily bill for the week (B15:H15).
 - a. Click cell **H22**.
 - b. Type **=MIN(** and then click cell **B15** and drag to cell **H15**.
 - c. Press [Enter]. The completed formula should look like this: **=MIN(B15:H15)**
12. Enter a formula in cell **H23** to calculate the highest daily bill for the week.
 - a. Click cell **H23**.
 - b. Type **=MAX(** and then click cell **B15** and drag to cell **H15**.
 - c. Press Enter. The completed formula should look like this: **=MAX(B15:H15)**
13. Each staff member is required to log a minimum number of billable hours per week. Enter a formula in cell **H3** using an IF statement to display “yes” if the total billable hours for the week (cell H20) is greater than or equal to the required hours (cell H2) and “no” if they are not.
 - a. Click cell **H3**.
 - b. On the *Formulas* tab, in the *Function Library* group, click **Logical**.
 - c. Click **IF**.
 - d. If necessary, move the *Function Arguments* dialog to the side so you can see the worksheet data.
 - e. In the *Logical_test* argument box, type: **H20>=H2**
 - f. In the *Value_if_true* argument box, type: **yes**
 - g. In the *Value_if_false* argument box, type: **no**
 - h. Click **OK**. The completed formula should look like this: **=IF(H20>=H2,"yes","no")**
14. Display your formulas temporarily to check for accuracy.
 - a. On the *Formulas* tab, in the *Formula Auditing* group, click the **Show Formulas** button.
 - b. When you are ready to continue, hide the formulas and display formula values by clicking the **Show Formulas** button again.
15. Now that the worksheet for Marshall is complete, you can generate a bill for the Smith client for the week. Click the **Smith Bill** sheet tab.

16. All bills are due thirty days from the date the bill was created. Enter a formula in cell C2 to calculate the due date using the TODAY function.
 - a. Double-click cell **C2**.
 - b. Type the formula: **=TODAY()+30**
 - c. Press Enter.
17. Enter formulas to reference the number of hours each staff member billed for Smith.
 - a. Click cell **B6** and type **=** to begin the formula.
 - b. Click the **Marshall Hours** sheet, and click cell **J12**.
 - c. Press Enter. The completed formula should look like this: **='Marshall Hours'!J12**
 - d. Type **=** to begin the next formula in cell B7.
 - e. Click the **Stevens Hours** sheet, and click cell **J12**.
 - f. Press Enter. The completed formula should look like this: **='Stevens Hours'!J12**
 - g. Type **=** to begin the next formula in cell B8.
 - h. Click the **Luz Hours** sheet, and click cell **J12**.
 - i. Press Enter. The completed formula should look like this: **='Luz Hours'!J12**
18. There are errors in the Rate and Bill Amount columns. Use your error checking skills to track down the cause of the error.
 - a. On the *Formulas* tab, in the *Formula Auditing* group, click the **Error Checking** button to open the *Error Checking* dialog.
 - b. After you've reviewed the first error, click the **Next** button to go to the next error. Continue reviewing each error and clicking **Next** until you receive the message that the error check is complete for the entire sheet. Click **OK**.
19. Did you notice that every error in the worksheet is a "value not available" error? You probably need to dig deeper to find the root cause of the problem.
 - a. Click cell **D6** and look at the formula in the formula bar: **=B6*C6**
 - b. Display the Trace Precedent and Trace Dependent arrows for this cell. On the *Formulas* tab, in the *Formula Auditing* group, click both the **Trace Precedents** button and the **Trace Dependents** button.
 - c. You can see that the problem appears to start in the precedent cell C6. Hide the arrows for cell **D6** by clicking the **Remove Arrows** button, and then click cell **C6** and click the **Trace Precedents** button.
 - d. Notice that one of the precedent arrows for cell C6 refers to another worksheet. Double-click the dashed precedent arrow line.
 - e. In the *Go To* dialog, click the worksheet reference and then click the **OK** button.

20. The link takes you to the *Rates* sheet where cells A2:D5 are selected. Notice that the *Name* box displays the name *ClientRates*. (Depending on your screen resolution, the name may be slightly cut-off.) The formula in cell C6 is a lookup formula that uses the named range *ClientRates* as the *Table_array* argument. There are two problems with the definition of the named range: It includes the label row (A2:D2), and it includes the employee number data (A2:A5).
- On the *Formulas* tab, in the *Defined Names* group, click the **Name Manager** button.
 - Click the **ClientRates** name and review the cell range in the *Refers to* box. The range is incorrect. The *ClientRates* name should refer to cells **B2:D5** on the *Rates* sheet.
 - Edit the range listed in the *Refers to* box to: **=Rates!\$B\$2:\$D\$5**
 - Click the **Close** button to close the Name Manager.
 - When Excel asks if you want to save the changes to the name reference, click **Yes**.
21. Now that the total bill amount is computing correctly, you can enter a formula in cell D14 to give the client the option of a monthly payment plan. You are authorized to offer a 6-month payment plan at a 2% annual percentage rate. Use cell references in the formula.
- If necessary, click the **Smith Bill** sheet.
 - Click cell **D14**.
 - On the *Formulas* tab, in the *Function Library* group, click the **Financial** button.
 - Scroll down the list, and click **PMT**.
 - In the Function Arguments dialog, enter the Rate argument: **D13/12**
 - Click in the **Nper** argument box, and then click cell **D12** (the number of payments).
 - Click in the **Pv** argument box, and then click cell **D9** (the present value of the loan).
 - In the *Function Arguments* dialog, click **OK**. The completed formula should look like this:
=PMT(D13/12,D12,D9)
 - The monthly payment amount appears as a negative number. That might be confusing to the client. Modify the formula so the result appears as a positive number.
 - Double-click cell **D14** and type **-** between **=** and **PMT**.
 - Press Enter. The final formula should look like this: **=-PMT(D13/12,D12,D9)**
22. Save and close the workbook.
23. Upload and save your **project file**.
24. Submit project for grading.

Step 2
Upload &
Save

Step 3
Grade my
Project