CP212 Assignment 2

Marks: 19

Due: Friday, Feb 12, 11:45pm

The file **count-large.xlsx** has quantities sold for more 1000 products for each of 60 months, for a total of 60,000 values. That's a lot of data!

You'll need to read up to the end of Chapter 7 to complete this assignment.

Tip: When in doubt, format to 2 decimal places. It looks cleaner. Unless otherwise specified.

Skills in this Assignment

- Recording a macro
- Entering values into a cell/range
- Manipulating worksheets
- Writing a new subroutine in VBA
- Adding a Form control button to a worksheet to run a subroutine
- Using the Timer function in VBA to time program execution
- Formatting the value in a cell range
- Turn off worksheet updating so executes more quickly

The assignment is broken down into numbered steps to make writing the program easier. You do not have to use the numbers in your code. **Read all steps completely before starting the questions.**

Data you are supposed to type exactly as shown are usually displayed in **blue bold** text to make the instructions easier to read and understand. You will not bold or colour that text blue in your spreadsheet.

Note: Your code probably takes a few seconds to run and Excel may display a "not responding" message for a few seconds until the subroutine completes. This problem will be fixed later in the assignment.

Assignment Steps

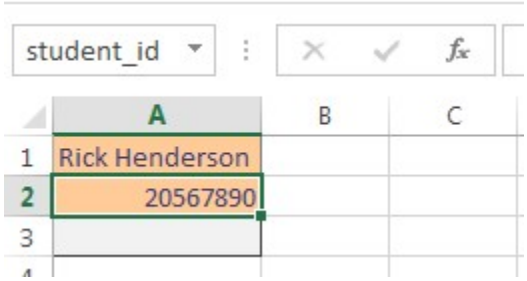
1) Download the **count-large.xlsx** file from MyLearningSpace. Open it and use *Save As* to change the name to include your network username such as **hend4830_a02.xlsm** (make sure to use your username). Save it as a **Macro Enabled Workbook**.
2) Start **recording** a macro called **CreateNewSheet**. It doesn't need a description or shortcut.

a) **Create** a new worksheet.

b) **Rename** the worksheet to **Start** and move the worksheet so it is the first worksheet in the workbook.

c) **Stop** the macro recorder.

- You can move worksheets around in Excel by clicking on the worksheet tab with the left mouse button and dragging it from one place to another.
- Examine the code it generated and see how these actions are done in Excel but there is no need to run the macro now, because you just created the worksheet.

3) On the **Start** worksheet, format cells A1 and A2 using the **Input** Style.
4) On the Start worksheet, format cell A3 using the **Output** style.
5) On the **Start** worksheet, type your name into cell **A1** and your student ID into cell **A2**. You don't need code for this, just do it.
   - Is your name wider than the column? Then make the column wider to make it look nice!
6) Name the cell **A1** as **student_name** and name cell **A2** as **student_id**.
   - A3 does not need a name.
   - 

7) Write a subroutine called **CountLarge** to ask the user for a value between 0 and 240 and use that value in the subroutine. For example, if the user enters **210**, the sub should count the number of values greater than **210**. Re-prompt for a value if it is not within the required range.
   a) Make sure the result message box displays the right value the user entered.
8) Add a button to the **Start** worksheet to run the subroutine called **CountLarge**.
9) Modify the same subroutine so that each data value over the specified large value is coloured red and **bold**. (*Hint: This uses the Font property of the Range object.*)
   a) Your code probably takes a few seconds to run and Excel may display a "not responding" message for a few seconds until the subroutine completes. This will be fixed later.
10) Modify the code to use the **Timer** command to see how long it takes to run the loop code. You can find this in the Chapter 5 lecture notes. **You only need to time the loop, not the input phase.**
11) Modify the code to write the results of the timing into range **A3** on the **Start** worksheet as a full sentence such as "The search for large values took 2.3 second." or however long it took.
    a) Users can manually click on the **Data** worksheet to see all the red, bold values that met the criteria.
12) Turn off *screen updating* before the loop starts to make the code run faster, but make sure to turn screen updating back on after the loop ends so the rest of the subroutine works normally.

a) You can now run the sub again, and you should see a difference in the time it takes to execute because changing the colour and weight of many cells takes a lot of time unless you turn off screen updating.

Notes and Tips

a) Be sure to include basic data validation/error checking to avoid data type mismatches and other errors if this has been covered in class.
b) Have the program ask the user for a value until the user enters a valid value.
c) Save the file with the data and your code as *username*_**a02.xlsm** where *username* is your network login or MyLearningSpace username.
d) Ensure your name and current date are at the top of each code module by using the code template provided in lab or on the assignment info page.
e) Remember to upload the .**xlsm** file to the A2 Dropbox in MyLearningSpace before the due date ends.
f) The original source for this question comes from *VBA for Modelers* by S. Christian Albright.

Assignment Rubric

1) The CreateNewSheet macro is created. [1 mark]
2) The macro shows the new sheet being created. [1 mark]
3) The macro shows the new sheet being renamed. [1 mark]
4) The macro shows the new sheet being moved to the correct position. [1 mark]
5) On the **Start** worksheet, format cells A1 and A2 using the **Input** Style. [1 mark]
6) On the Start worksheet, format cell A3 using the **Output** style. [1 mark]
7) On the **Start** worksheet, type your name into cell **A1** and your student ID into cell **A2**. You don't need code for this, just do it. [1 mark]
    - Is your name wider than the column? Then make the column wider to make it look nice! [1 mark]
8) Name the cell **A1** as **student_name** and name cell **A2** as **student_id**. [1 mark]
    - A3 does not need a name.
9) Write the **CountLarge** subroutine: [5 marks]
10) Start button placed on the worksheet to run the subroutine. [1 mark]
11) Subroutine shades cells in red. [1 mark]
12) Timing code works correctly. [1 mark]
13) Time is output as required. [1 mark]
14) Screenupdating disabled as required. [1 mark]