PROJECT #4 – COSC1702

<mark>**IMPORTANT RULES:**</mark>

A) <mark>**Please read everything carefully in advance. Complete both questions and upload the individual Excel solution files for each by the due date.**</mark>
B) <mark>**Use the provided Start-Files for your group. Do not use Start-Files from any other group/section.**</mark>
C) <mark>**You MUST complete steps 1 & 2 for each question before doing any other work – skipping will result in zero.**</mark>
D) <mark>**Failure to follow these rules will result in penalties up to and including zero on the question/assignment.**</mark>

Problem 1 [15 marks]: Purpose of this problem is to create a macro which will split the details of the people who work in your company into three columns: **Name**, **City**, and **Year of Birth**. Two support columns will also be created to act as intermediary values for the macro.

Instructions: To complete this assignment, you must start with the file "***Project4-GRP4-Q1StartFile.xlsx***".

Using this file, perform the following tasks:

1.   **BEFORE COMPLETING ANY OTHER STEPS**, change the document properties to include:

   i   your name as Author;

   ii   "Project 4, Q1 – Macro Ver 4" as the Title;

   iii COSC1702X where X is replaced with your actual section letter (A, B, M, N or O) as the Subject;

   iv At least three appropriate keywords.

   v   Your email and student number in the comment section

   Then save the workbook as "yourname-Project4-Q1" where "yourname" is your last name followed by your first name. IMPORTANT: This file contains a macro; the file type must be a macro compatible format.

2.   If the Developer tab is not displayed on the Ribbon, then activate it as explained in the course notes and during the lecture.

3.   The first step is to figure out how to split the data in column A into the parts needed for columns B, C, D, F, G. You need to be comfortable with the formulas before creating the macro. Solve each part in the following order:

a) **Cell F3** needs to contain the character position of the first colon in cell A3. To solve this requirement, use the **FIND()** function. The correct answer for the first entry (Justin Cochran:Abergavenny:2007) will be 15.

b) **Cell G3** needs to contain the character position of the second colon in cell A3. To solve this, you again need to use the **FIND()** function. This time, you need to start the search at the first character after the position of the first colon (the position you found in cell F3 plus one). Recall that the FIND() function has three parameters; the first two are required, and the optional third one is the position to start the search. By starting at the character after the first colon (F3+1), you will find the second colon. For the first entry (Justin Cochran:Abergavenny:2007), this value will be 27.

c) **Cell B3** will contain the name. This will be created using the **LEFT()** function along with the position of the first colon which you already calculated in cell F3 (make sure you subtract 1 from the value in F2 so you do not also take the colon). The answer is the left 12 characters of cell A2, which for the first entry will be the person's name Justin Cochran.

d) **Cell D3** will contain the Year the user was born. There are technically 2 ways to do this, and both are acceptable. Both ways start out the same, and will have you using the **RIGHT()** function. The first way will have you calculate the difference between the length of the string and the position of the second colon. In our first entry (Justin Cochran:Abergavenny:2007). Using the **LEN()** function, you can determine the length to be 23; subtract the position of the second colon (in cell G3) and you will have the number of characters to keep from the right side of the first entry. For this first entry, the value will work out to be 4.

What you will notice is that while all the strings in this example will be of different lengths, the difference between the length of the string and the position of the second colon <u>should</u> always be 4 because it is always a 4-digit year. Using this fact, the second way to do this rather than doing the calculation is to always use 4 as the second parameter of the **RIGHT()** function. The risk in this approach is that a stray space at the end of an entry would result in the wrong answer; <u>this makes the first approach better.</u>

e) The value in **cell C3** needs to be the name of the City the user was born. This calculation is a bit more complicated than the other ones. To isolate the name, you need to first find the text without the user's Name and first colon. This is found using the

RIGHT() function in a similar manner as was used to find the Year – except the position of the first colon is used instead of the second colon. Once you have figured out this function, you can use this as the 'text' parameter of a **LEFT()** function – in other words, the RIGHT() function will be nested inside a LEFT() function. The number of characters you want for the LEFT() function is equal to the difference between the second colon and the first colon (G3 – F3). The result will be one character too long – so subtract one and you will get the City name.

f) You can test that your functions on the next entry (Kareem Webb:Kyshtym:1976) by copying your functions in row 3 into their corresponding cells in row 3 (copy B2:G2 into cells B3:G3). You should have the following results:

> B4 = Kareem Webb
>
> C4 = Kyshtym
>
> D4 = 1976
>
> F4 = 12
>
> G4 = 20

3. Once you comfortable with the formulas from step 2, either print the formulas or copy them down somewhere. You will need these during the creation of the macro. I would also strongly suggest two or three practice runs at entering the formulas again since you will be recording your actions for the macro and you want to get it correct the first time.

4. Create a macro that splits a single row of User information in the active cell by doing the following:

a) Make sure the active cell is the first entry to be split = specifically A3.

b) Click on the "Use Relative References" and ensure that it is shaded grey. Then click the Record Macro button (Developer Tab | Code group).

c) When the Record Macro dialog box appears complete the following:

i. name the macro 'SplitEntry',

ii. assign the shortcut key Ctrl+s,

iii. store the macro in this workbook,

iv. **enter your name in the Description box followed by a colon** and the text "*Splits the User's information in the active cell into three parts: Name, City and*

Year. The three parts are placed in the adjoining cells to the left.". **Make sure your name is added before the macro is created – ESSENTIAL.**

    d)   Click the OK button to start the macro recording process.

5.   Perform the following actions as part of the macro recording:

    a)   Move across the row to column F (you should be in F3) and enter the formula for finding the position of the first colon.

    b)   Then move one column to the right (now in column G3) and enter the formula for the position of the second colon.

    c)   Next enter the function to isolate the Name in cell B3 followed by the function to isolate the Year in cell D3. d Lastly, enter the function to isolate the name of the User in cell C3.

    d)   Next, copy the cells B2:G3 and then paste the values <u>over top of the functions</u>. When done, each of the cells B3, C3, D3, F3 and G3 will contain the results of the functions and not the functions anymore.

    e)   As the final step, make cell A4 the active cell.

    f)   Stop the Macro recording.

HINT: I suggest practicing the process several times before creating the macro. You can delete any macros which does not work from the Macros Dialog box.

6.   Click the Macros button (Developer tab | Code group) to display the Macro dialog box. Run the SplitEntry macro to split the next Name entry (make sure the active cell is A3).

7.   Test the shortcut for the Macro by typing Ctrl+s while the active cell is over the third entry.

8.   Right-click the Quick Access Toolbar and then click Customize Quick Access Toolbar.

    a) When the Excel Options dialog box is displayed, click the 'Choose commands from' box arrow and choose Macros.

    b) Click 'SplitEntry', click the Add button.

    c) Select 'SplitEntry' from the right column and then click the Modify button below the list – from the dialog, pick a new icon for this Quick-Shortcut.

    d) Then click the OK button to close the Excel Options dialog box.

9.   Run the macro as follows: (a) click the 'SplitEntry' button on the Quick Access Toolbar to split the next entry; and (b) press Ctrl+S to split the next entry. Keep executing the macro until all the entries have been split.

10.   Save the file again (make sure it saves with the macro) and then submit your file to CMS.

Problem 2 [10 marks]: You have been provided a file containing a list of APress Programming books by your boss. He collected the information from a web site, but it is not in a very practical form as a reference guide. He wants you to reformat the information into three columns: ***Book Name***, ***Publication Date***, and ***ISBN number***. He did the first couple for you as an example – but he quickly realized it will be a time-consuming job. He showed it to you – and because you know how to create Macros, the job looks very easy to you.

Instructions: To complete this assignment, you must start with the file " ***Project4-GRP4-Q2StartFile.xlsx***.

Using this file, perform the following tasks:

1.   **BEFORE COMPLETING ANY OTHER STEPS**, change the document properties to include:

      i   your name as Author;

      ii "Project 4, Q2 – APress Macro Ver 4" as the Title;

      iii COSC1702X where X is replaced with your actual section letter (A, B, M, N or O) as the Subject;

      iv   At least three appropriate keywords.

      v   Your email and student number in the comment section

Then save the workbook as "yourname-Project4-GRP4-Q2" where "yourname" is your last name followed by your first name. IMPORTANT: This file contains a macro; the file type must be a macro compatible format.

2.   The functions required to extract the publishing date and ISBN number are similar to those used to extract the Name, City and Year of the Users in Q1. Determine what functions you need so that cell C6 contains the date from cell A7, namely "October 28, 2009" and that cell B6 contains the ISBN number from cell A8, namely "978-1-4302-1991-0".

3.   Create a macro to reformat the book list using these steps (less detail than Q1 so you can demonstrate your problem-solving skills):

   a) Given the macro a name, a short-cut and description. **Your name MUST be part of the description before the macro is created.**

   b) Start recording the macros and enter the functions (determined in step 2) into columns B and C beside the name of a book. These functions will extract the required information from the next two rows.

   c) Copy the results of the two formulas and paste the values back over the same cells – making the results permanent values.

   d) Delete the two rows which follow.

   e) Position the active cell to be on the name of the next book to process.

   f) Stop the macro recording.

NOTE: The macro should process only one entry at a time.

4.   Process all the remaining entries (about 300 of them in total) using the macro. **The TA will test your macro on some additional data to make sure it works.**

5.   Re-save the workbook when you are done and upload it to CMS.

 Problem 3 [25 marks]: The purpose is to demonstrate the ability to create and query a table.

You are an employee of the Cookie Company; your boss has asked you to analyze the order data for the Cookie company. You decide it is a great opportunity to show your Excel skills.
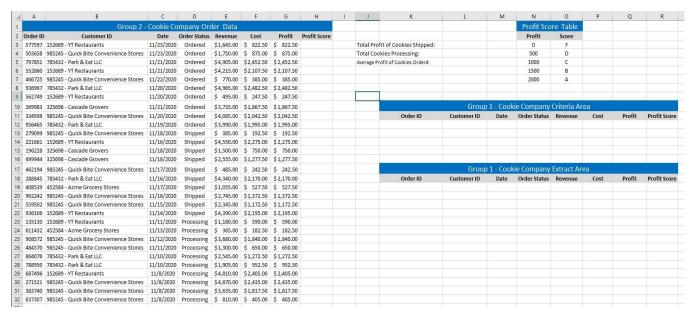
Figure A 1

Instructions: To complete this assignment, you must start with the file "***Project4-GRP4-Q3StartFile.xlsx***".

Using this file, perform the following tasks:

1.   **BEFORE COMPLETING ANY OTHER STEPS**, change the document properties to include:

   i   your name as Author;

   ii   "Project 4, Q3 Ver 4– Cookie Company as the Title;

   iii COSC1702X where X is replaced with your actual section letter (A, B, M, N or O) as the
       subject;

   iv   At least three appropriate keywords.

   v   Your email and student number in the comment section

   Save the workbook using the file name "yourname-Project4-GRP4-Q3" where "yourname" is
   your last name followed by your first name.

2.   Using the Profit Score Table in the range N3:O7, enter a **VLOOKUP** function in **cell H3** to
      determine the letter score that corresponds to the Profit in cell G3. You should use the data
      in column G as the lookup value and return the information in the second column of the Profit
      score table as the result.

Copy the function in cell H3 to the range H4:H32.

3.   Convert the range A2:H32 to a table style "Green, Table Style Medium 7".

4.   Select the Total Row option (Table Style Options Group) on the Table Tools - Design Ribbon to determine the minimum revenue in cell E33, maximum cost in cell F33, and the number of orders (shown in the profit score column). Adjust the appropriate cells in row 23 to include these calculations.

5.   Use the **SUMIF, AVERAGEIF** and **COUNTIF** functions to determine the appropriate values in the range L3:L5. (total profit of cookies shipped, number of cookies shipped, and average profit of cookies shipped).

6.   In the Criteria area as shown in the figure below:

Group 1 - Cookie Company Criteria Area							
Order ID	Customer ID	Date	Order Status	Revenue	Cost	Profit	Profit Score

Extract the records that meet the following three criteria sets saving each of the results in the extract area K18:R30

	K	L	M	N	O	P	Q	R
17	Group 1 - Cookie Company Extract Area							
18	Order ID	Customer ID	Date	Order Status	Revenue	Cost	Profit	Profit Score
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

(Copy the worksheet "order data" after each extract and rename the copied worksheet to Version-A, Version-B, Version-C accordingly).

Criteria Version-A: (Order Status is "Ordered" and Profit is greater than 2200)
            OR (Order Status is "Shipped and Profit is greater than 2200)

Copy the worksheet "order data" after each extract and rename the copied worksheet to Version-A. Go back to the "Order Data" worksheet clear the data in the criteria area and the data in the extract area.

Criteria Version-B: Profit Score is "C" or "F"

Copy the worksheet "order data" after each extract and rename the copied worksheet to Version-B. Go back to the "Order Data" worksheet clear the data in the criteria area and the data in the extract area.

Criteria Version-C: Orders which are dated 11/20/2020 and Profit Score is an "F"

Copy the worksheet "order data" after each extract and rename the copied worksheet to Version-C. Go back to the "Order Data" worksheet clear the data in the criteria area and the data in the extract area.

7. Position the active cell anywhere within the Order Data table. Apply filter to display profit scores B, C and D. Copy the worksheet "order data" after the filter and rename the copied worksheet to FILTER.

8. Go back the Order Data worksheet Undo the filter in step 8 and save the workbook. After this, upload the file to CMS

Submitting your Project:

All your Excel solution files must be uploaded to Brightspace by the due date.