Student Name: Peng WAGN Date: 12 Dec 2020

METRO COLLEGE OF TECHNOLOGY

Excel and VBA Programming
Project Phase 1

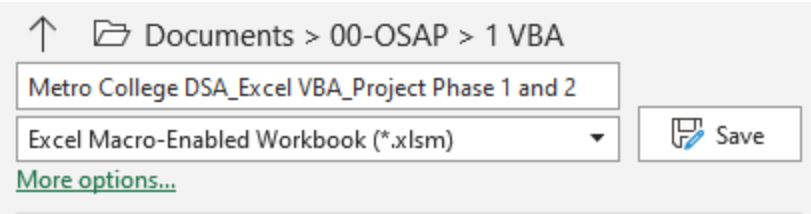
Total # of Questions: [4]

Question/Problem 1

1. Create a bar chart from data of sales in excel file.
2. Create a pivot table and group data based on salesperson.
3. Create a shape object and assign a macro to it that displays in message the current date.
4. Create a procedure that declares variables of type string and integer.

My answers:

Before continue, make sure to save the Excel file as *Macro-Enabled Worksheet (*.xlsm)* with a proper file name.



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P1Q1: Create a bar chart from data of sales in excel file.

CHALLENGE

The table in the Sales file is not consolidated. For example, row 15-18 contains separated sales amount for the same year, month, type, salesperson, and region.

Sales Past Three Years

2013 - 2015

Year	Month	Type	Salesperson	Region	Sales	Units	Order #
2013	January	Tasty Treats	Lee	Central	$8,793.00	5862	010
2013	January	Ice Cream	Parker	North	$4,666.00	5623	011
2013	January	Ice Cream	Parker	North	$7,318.50	4879	012
2013	January	Ice Cream	Parker	North	$5,500.00	5623	013
2013	January	Ice Cream	Parker	North	$7,318.50	4879	014
2013	January	Popsicles	Pullen	South	$3,553.50	2369	015
2013	January	Popsicles	Pullen	South	$3,553.50	2369	016
2013	January	Frozen Yogur	Watson	Central	$14,596.50	9731	017
2013	January	Tasty Treats	Watson	Central	$8,793.00	5862	018
2013	January	Frozen Yogur	Watson	Central	$14,596.50	9731	019
2013	January	Tasty Treats	Watson	Central	$8,793.00	5862	020
2013	February	Ice Cream	Bishop	West	$4,887.00	3258	021
2013	February	Ice Cream	Bishop	West	$4,887.00	3258	022
2013	February	Tasty Treats	Lee	Central	$11,122.50	7415	023
2013	February	Ice Cream	Lee	Central	$13,428.00	8952	024
2013	February	Tasty Treats	Lee	Central	$14,000.00	7415	025
2013	February	Ice Cream	Lee	Central	$13,428.00	8952	026
2013	February	Frozen Yogur	Parker	North	$3,897.00	2598	027
2013	February	Frozen Yogur	Parker	North	$8,832.00	5888	028
2013	February	Frozen Yogur	Parker	North	$3,000.00	2598	029
2013	February	Frozen Yogur	Parker	North	$8,832.00	5888	030

Using a chart to analyze such a table will make less sense, as a chart is a tool to illustrate the summary, but it is not a tool to summarize the data.

I got the below chart using these data when I tried to figure out which region has the highest sale.

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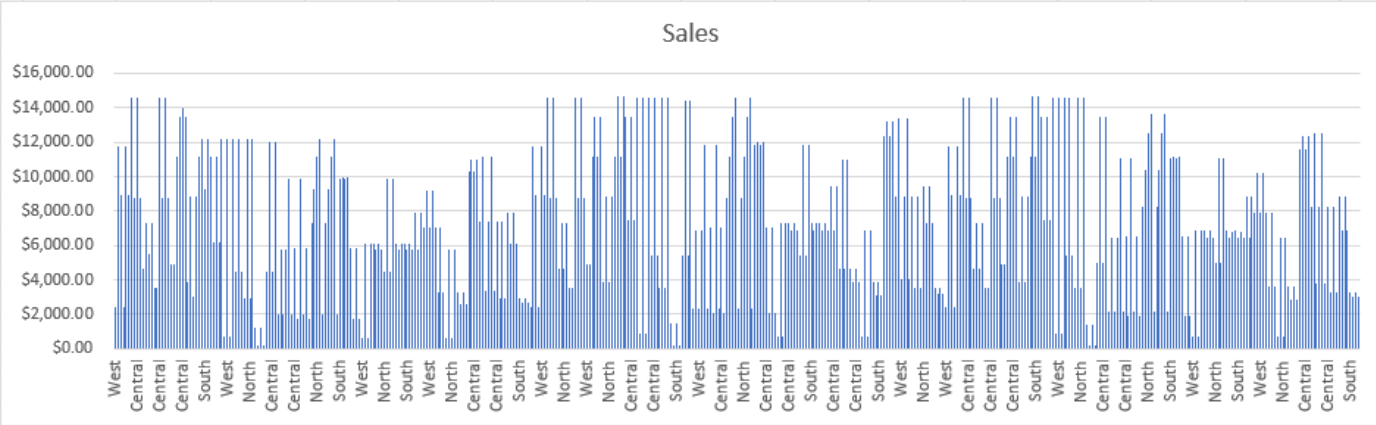

SOLUTION

The ideal table for the chart is the table with consolidated data. See the below example, which is a summary of the above sales data.

Region	2013	2014	2015	Grand Total
Central	435,531.50	483,116.00	472,907.80	1,391,555.30
North	232,944.00	269,723.00	257,455.80	760,122.80
South	153,345.75	180,369.00	172,254.20	505,968.95
West	186,841.50	205,478.00	204,610.40	596,929.90
Grand Total	**1,008,662.75**	**1,138,686.00**	**1,107,228.20**	**3,254,576.95**

The table summarized (consolidated) the sales amount for each region, separated by each year from 2013-2015. The chart displays the same result.

Here's the steps of how to draw a Bar Chart.

1. Select any cell in the table.
2. Click the Insert tab.
3. Click on  icon to expand the Column And Bar Chart drop-down list.
4. Select the 2-D Bar Chart as the question required.

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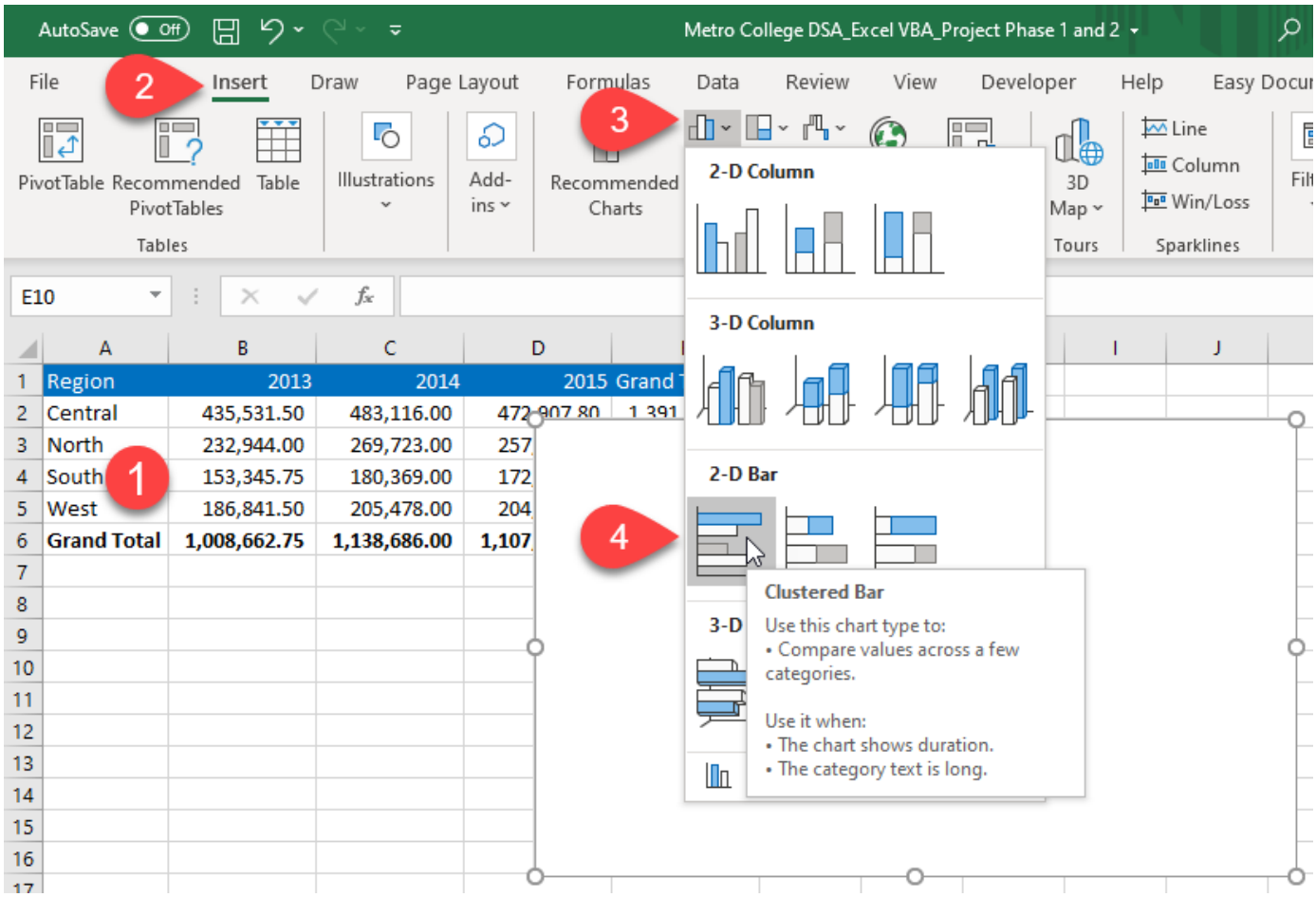
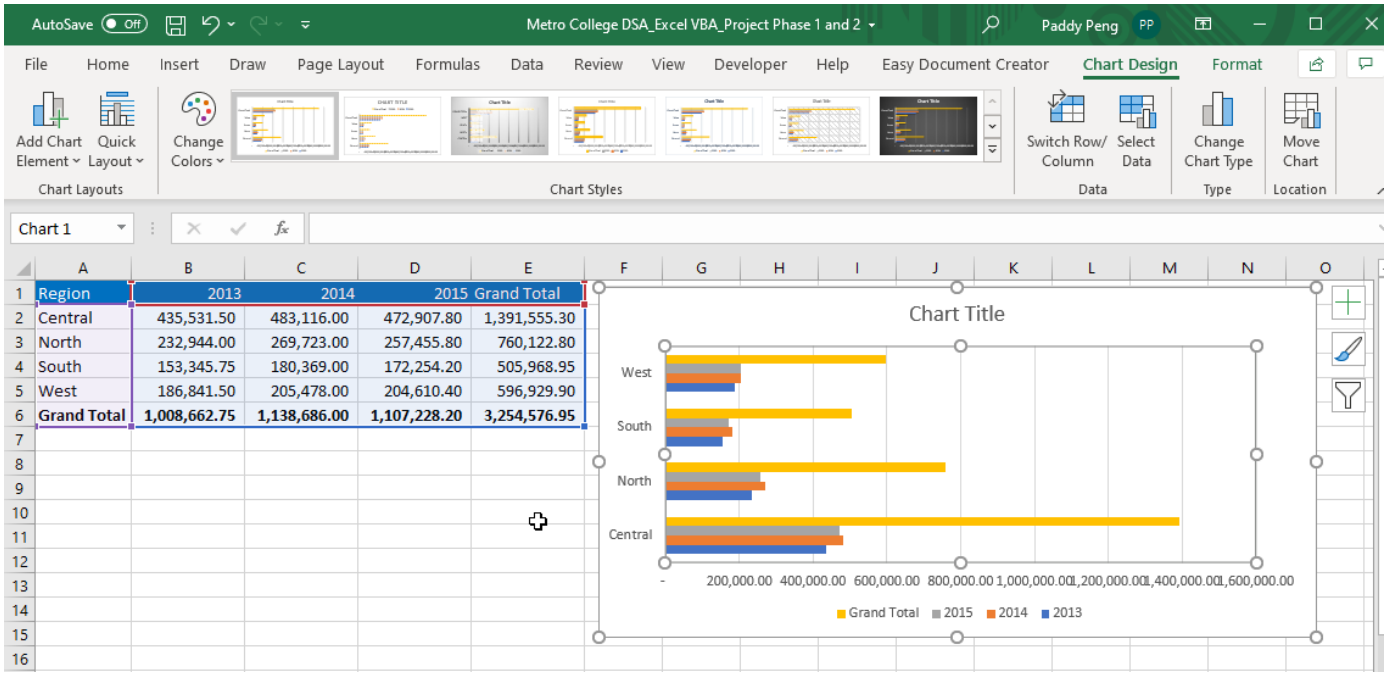


I got below Bar Chart to illustrate the above table.



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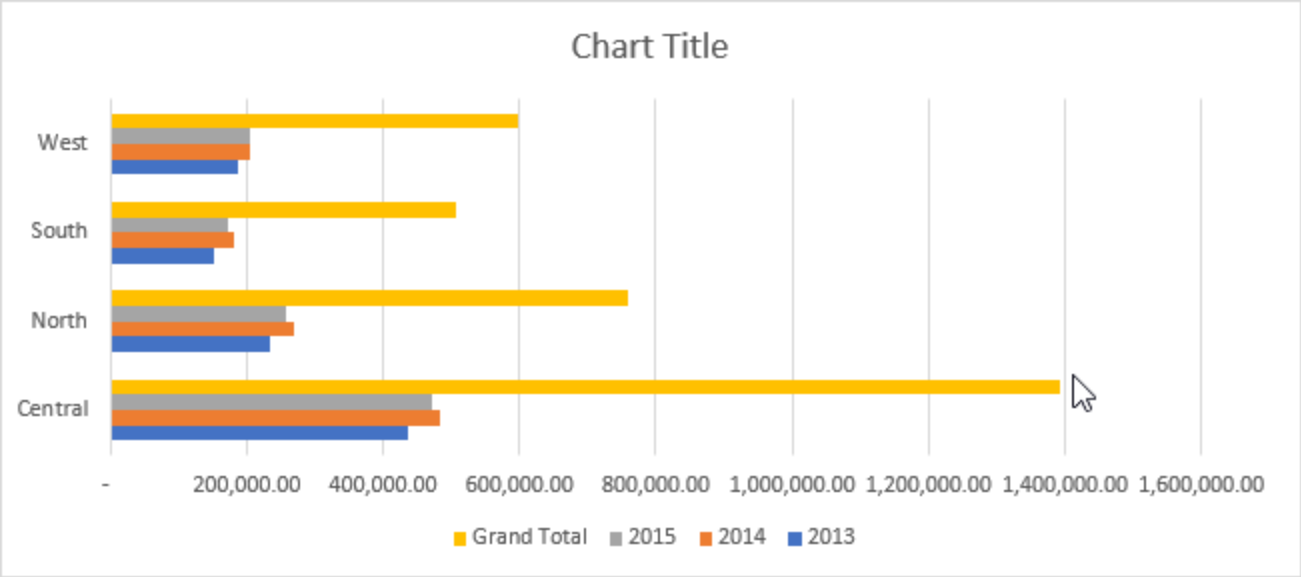
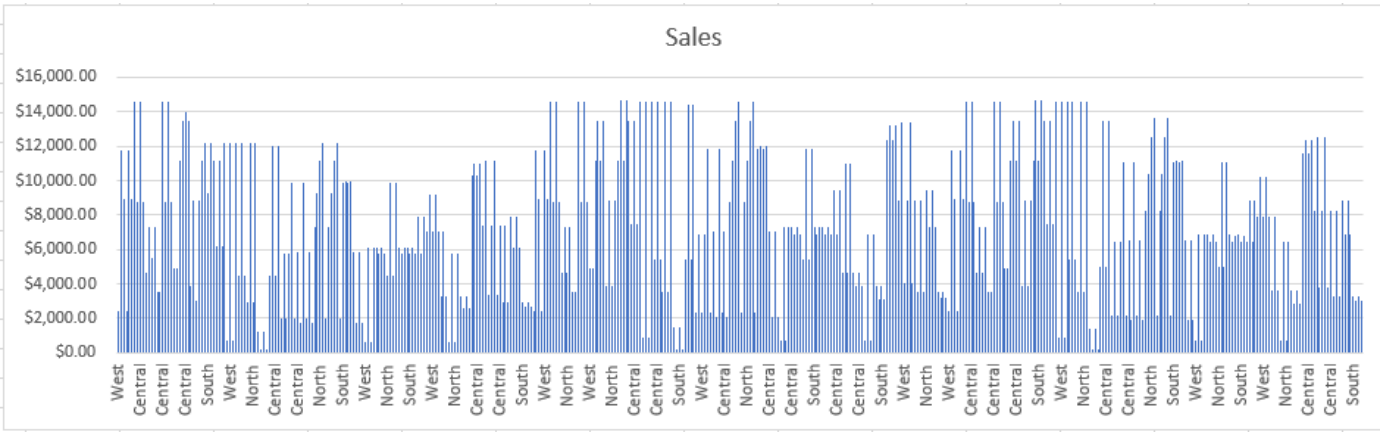
Compare the two Charts from consolidated and unconsolidated data. Which one brings more information?



Vs.



(The End of P1Q1)

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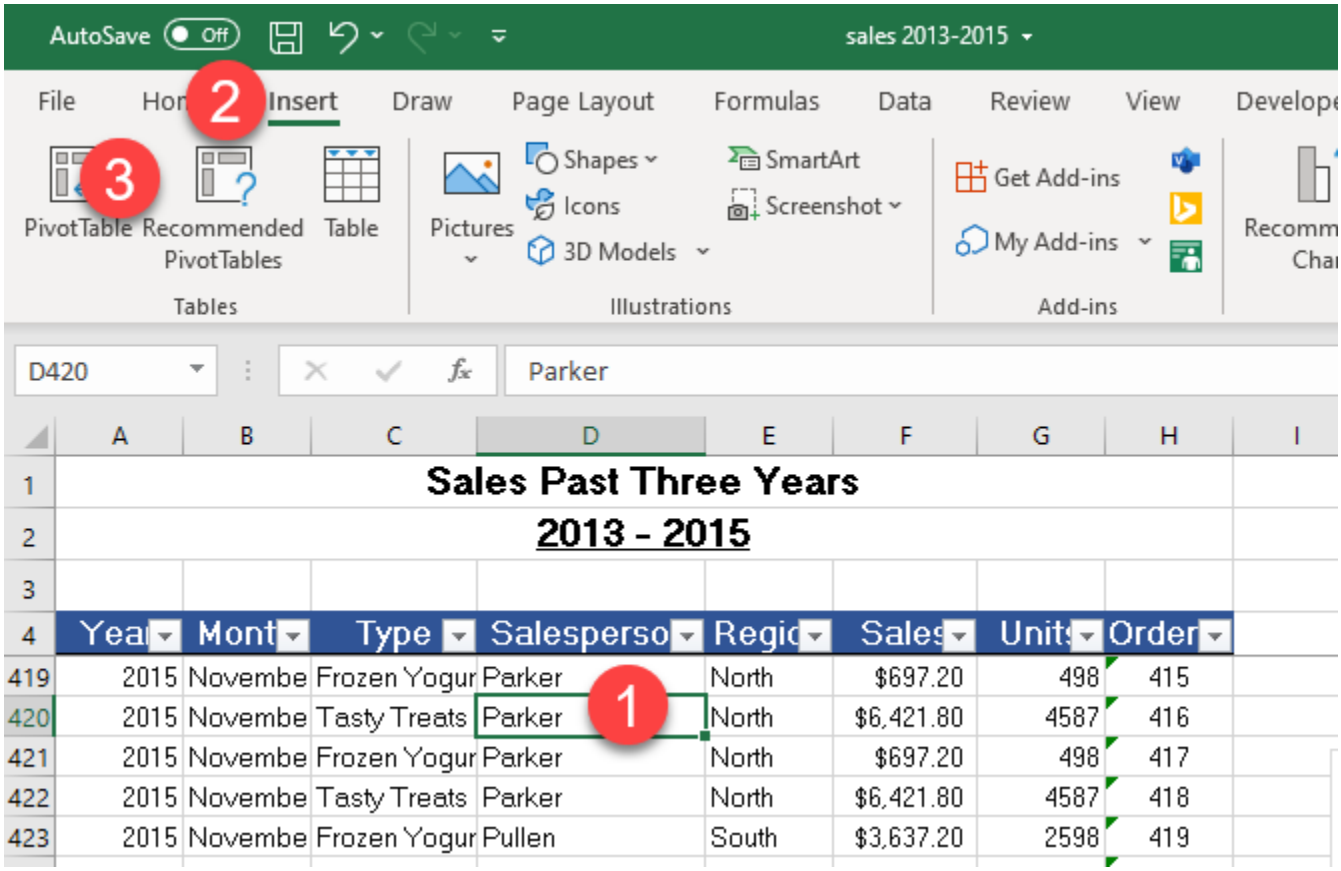
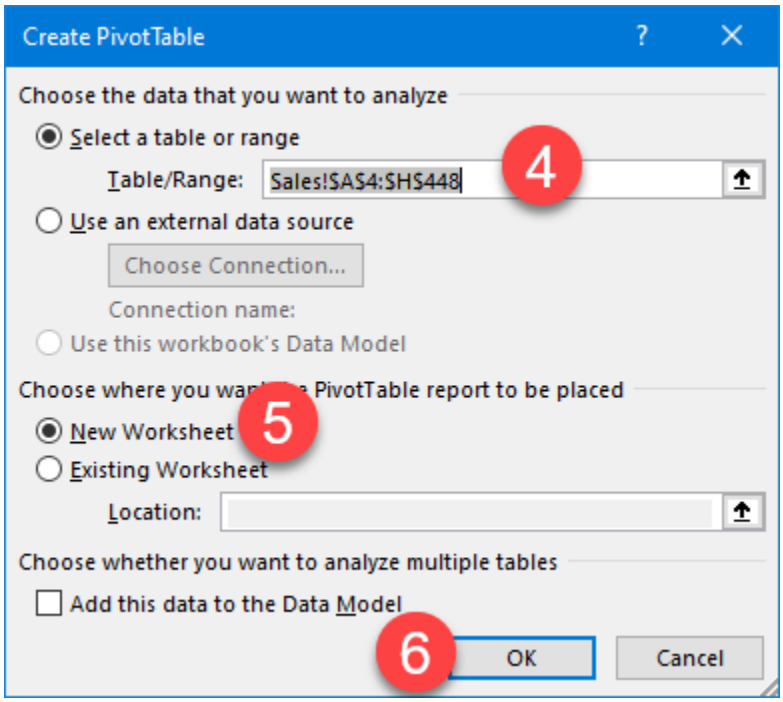
P1Q2: Create a pivot table and group data based on salesperson.

1. Click on any cell inside the Sales table.
2. Click on the Insert tab.
3. Click on the PivotTable icon.



CreatePivotTable dialogue opens.

4. Review or modify the data range, which was selected automatically.
5. Select if you need to pull the pivot table in a new worksheet.
6. Click on OK.



A new worksheet with an empty pivot table structure was created.

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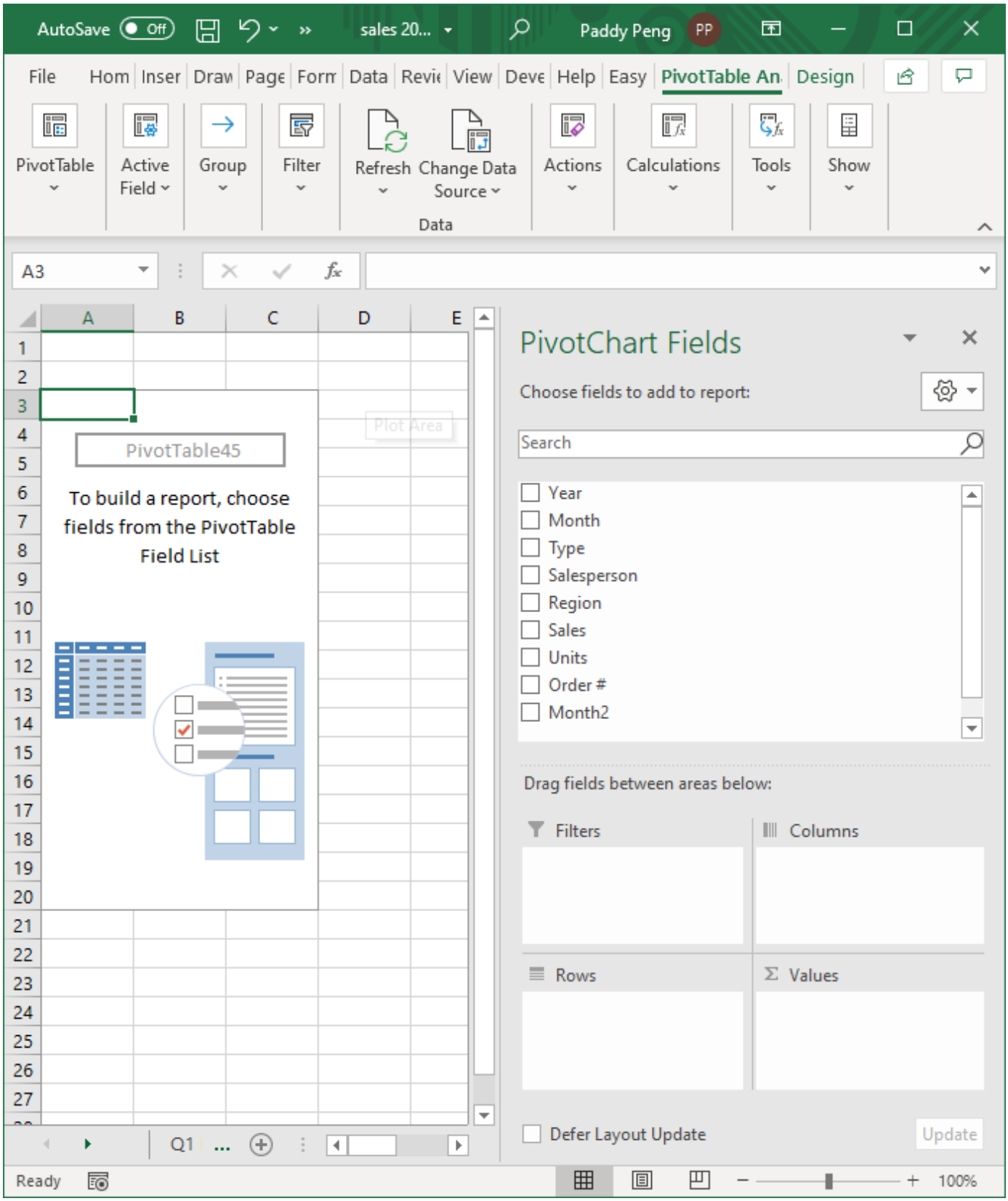

I want it to show the sales amount for each type, grouped by the salesperson.

7. Drag & Drop Salesperson to Rows

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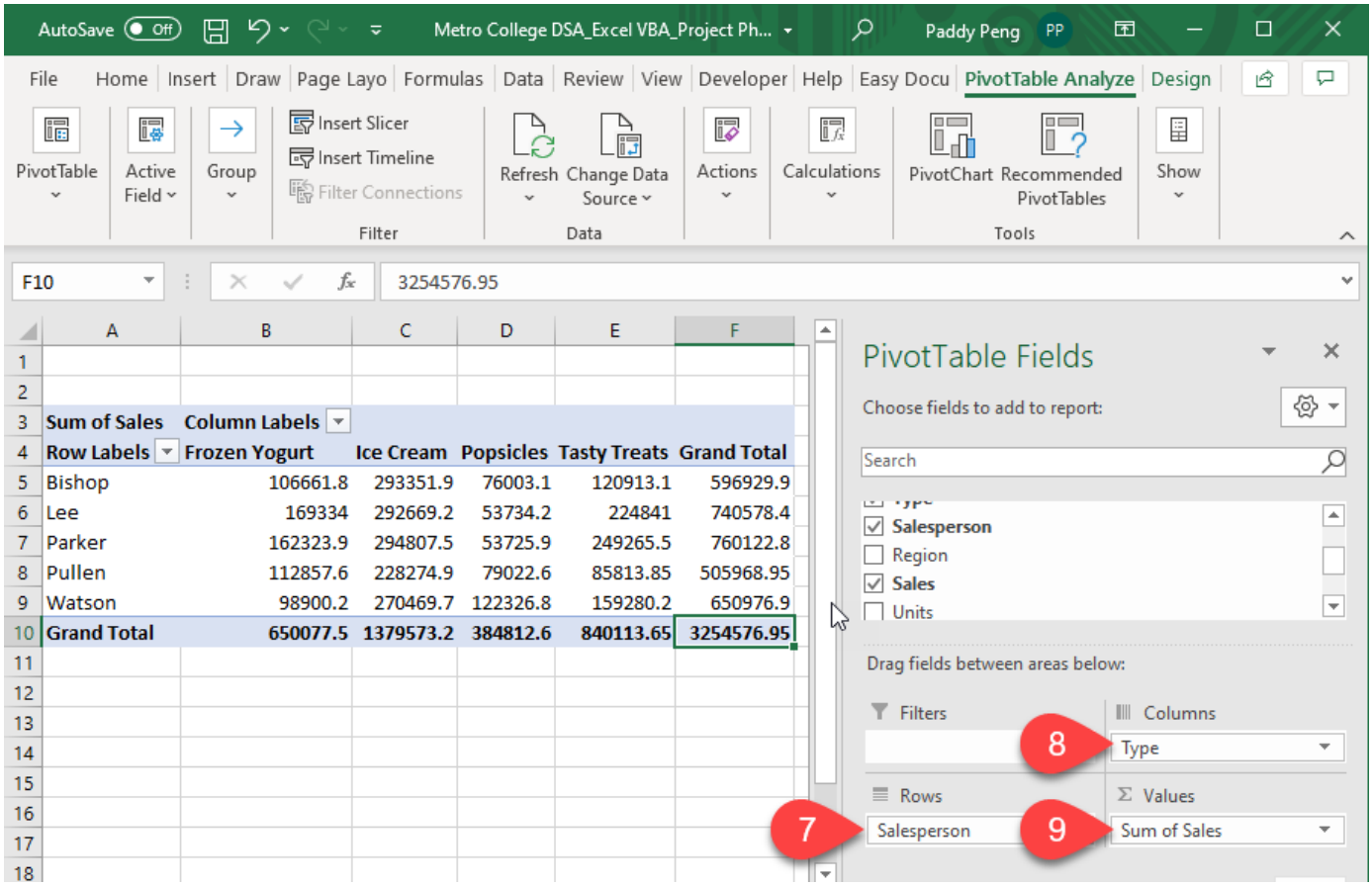
8. Drag & Drop Type to Columns
9. Drag & Drop Sales to Values



Sum of Sales	Column Labels				
Row Labels	Frozen Yogurt	Ice Cream	Popsicles	Tasty Treats	Grand Total
Bishop	106661.8	293351.9	76003.1	120913.1	596929.9
Lee	169334	292669.2	53734.2	224841	740578.4
Parker	162323.9	294807.5	53725.9	249265.5	760122.8
Pullen	112857.6	228274.9	79022.6	85813.85	505968.95
Watson	98900.2	270469.7	122326.8	159280.2	650976.9
Grand Total	**650077.5**	**1379573.2**	**384812.6**	**840113.65**	**3254576.95**

Below table has been created.

Sum of Sales	Column Labels				
Row Labels	Frozen Yogurt	Ice Cream	Popsicles	Tasty Treats	Grand Total
Bishop	106661.8	293351.9	76003.1	120913.1	596929.9
Lee	169334	292669.2	53734.2	224841	740578.4
Parker	162323.9	294807.5	53725.9	249265.5	760122.8
Pullen	112857.6	228274.9	79022.6	85813.85	505968.95
Watson	98900.2	270469.7	122326.8	159280.2	650976.9
Grand Total	**650077.5**	**1379573.2**	**384812.6**	**840113.65**	**3254576.95**

To group salesperson, follow below steps.

1. Select the salespersons that need to be grouped.
2. Click on PivotTable Analyze tab.
3. Click on Group.
4. Click on Group Selection.

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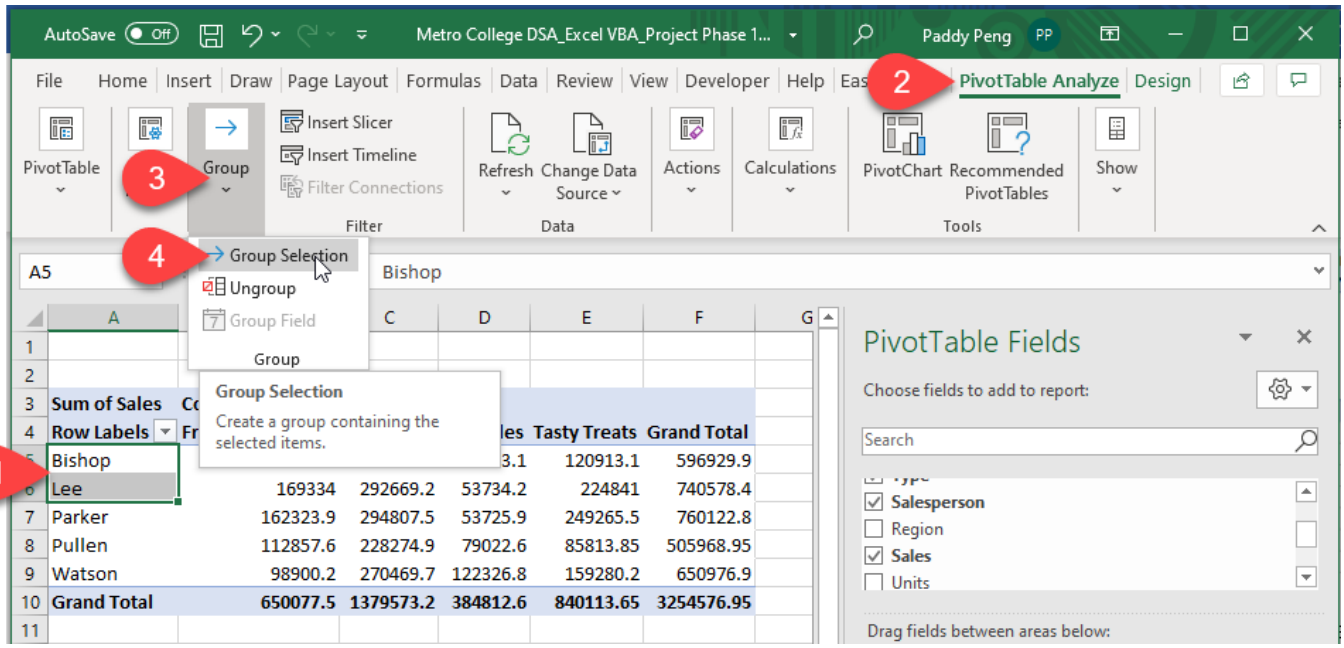

I have below pivot table after Group.

Sum of Sales	Column Labels				
Row Labels	Frozen Yogurt	Ice Cream	Popsicles	Tasty Treats	Grand Total
Group1	**275995.8**	**586021.1**	**129737.3**	**345754.1**	**1337508.3**
Bishop	106661.8	293351.9	76003.1	120913.1	596929.9
Lee	169334	292669.2	53734.2	224841	740578.4
Group2	**374081.7**	**793552.1**	**255075.3**	**494359.55**	**1917068.65**
Parker	162323.9	294807.5	53725.9	249265.5	760122.8
Pullen	112857.6	228274.9	79022.6	85813.85	505968.95
Watson	98900.2	270469.7	122326.8	159280.2	650976.9
Grand Total	**650077.5**	**1379573.2**	**384812.6**	**840113.65**	**3254576.95**

(The End of P1Q2)

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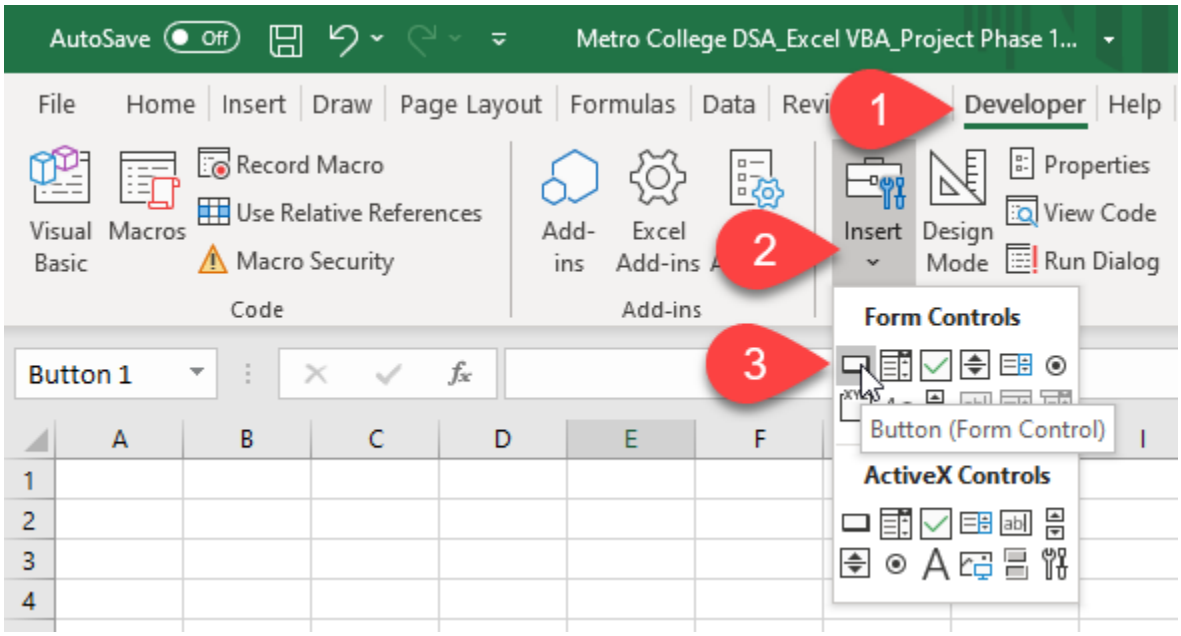
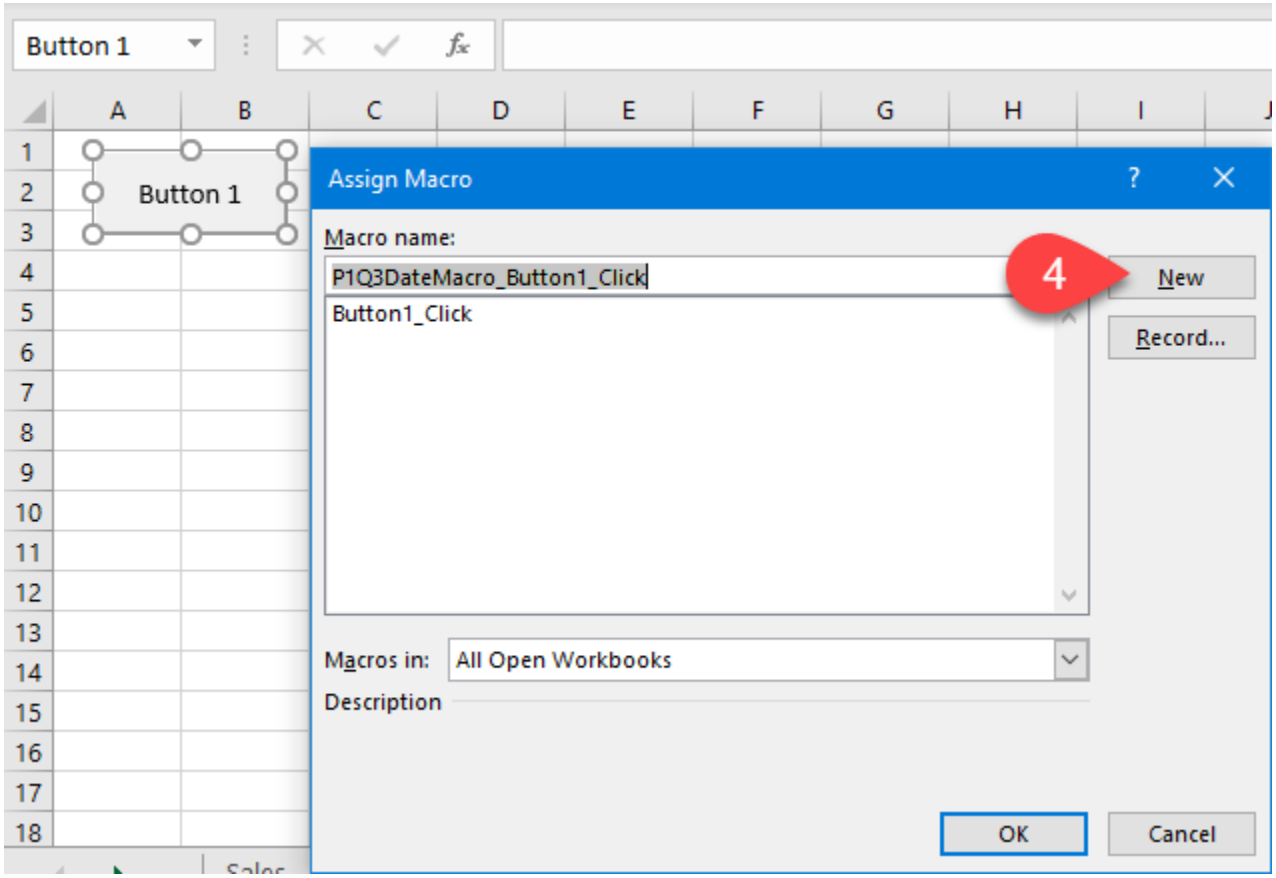
P1Q3: Create a shape object and assign a macro to it that displays in message the current date.

1. Click on Developer tab.
2. Click on Insert, expand the drop-down list.
3. Select Button.



4. Click on New.



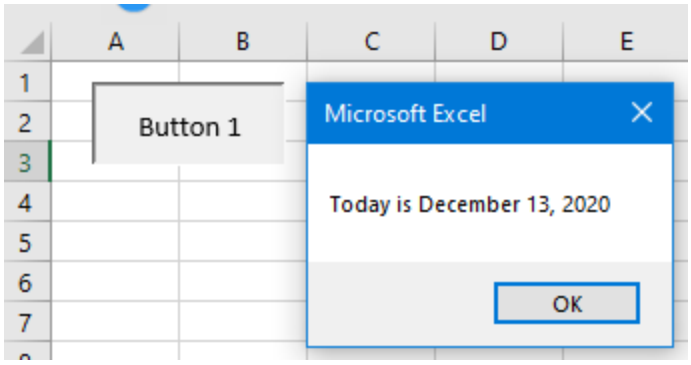
5. VBE window opens. Enter below code in the Sub procedure.

```
Sub P1Q3DateMacro_Button1_Click()

    MsgBox "Today is " & Format(Date, "mmmm d, yyyy")

End Sub
```

6. Click on Run in VBE, or Button 1 in Excel. A message box shows today's date.



(The End of P1Q3)

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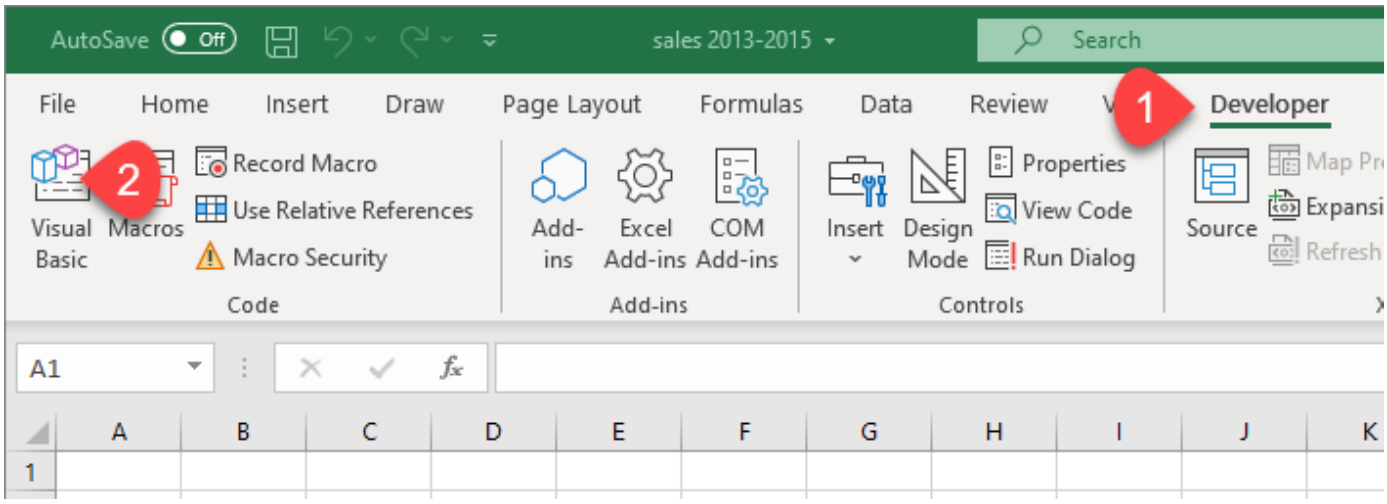
P1Q4: Create a procedure that declares variables of type string and integer.

1. Click on Developer
2. Click on Visual Basic



3. Right-click Project (Excel file) name
4. Click on Insert
5. Click on Module

A new Module (in this case, Module2 added to the Modules list.

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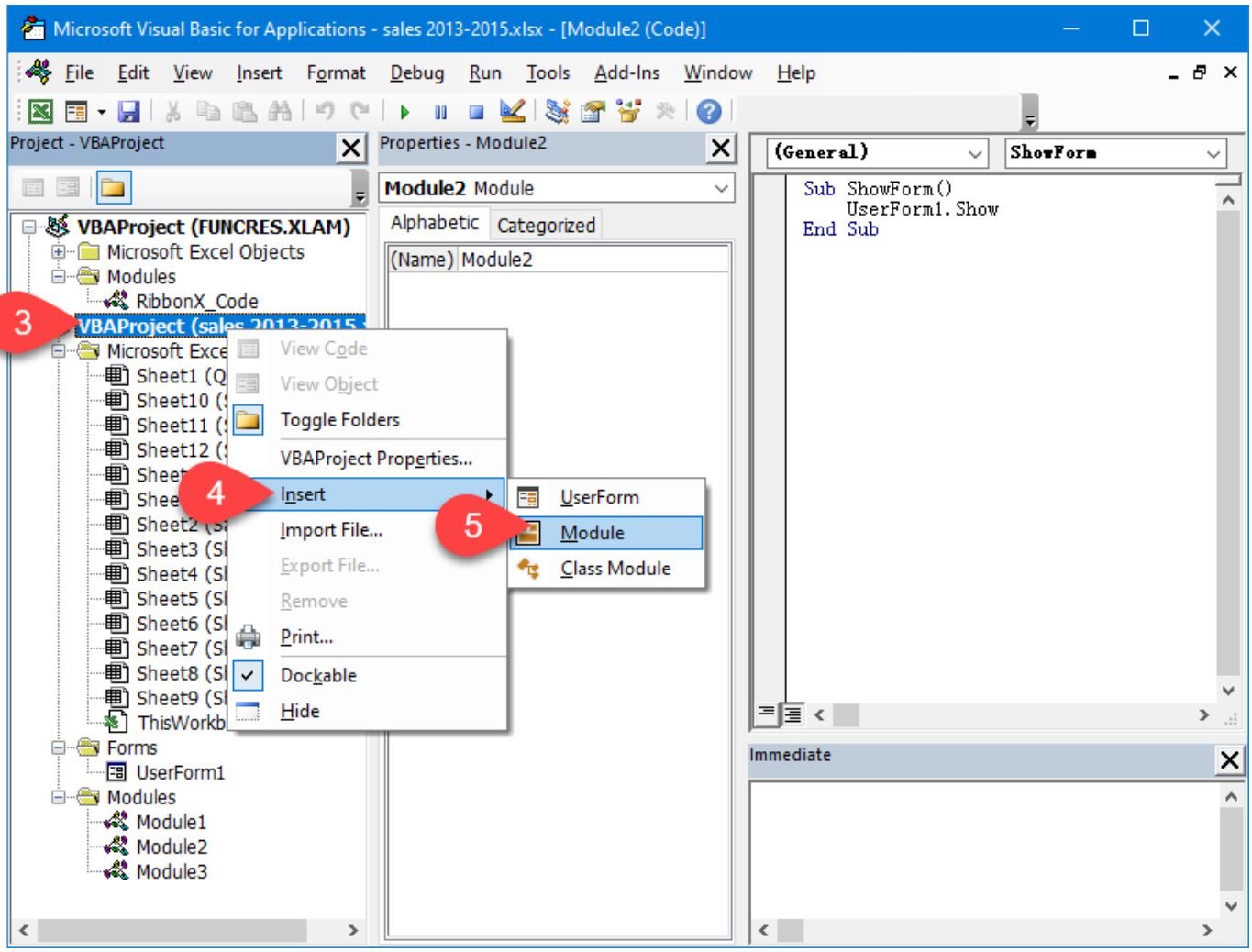

6. Click on the new Module just created.
7. Coding as per project needed.
8. Click on the Play button.

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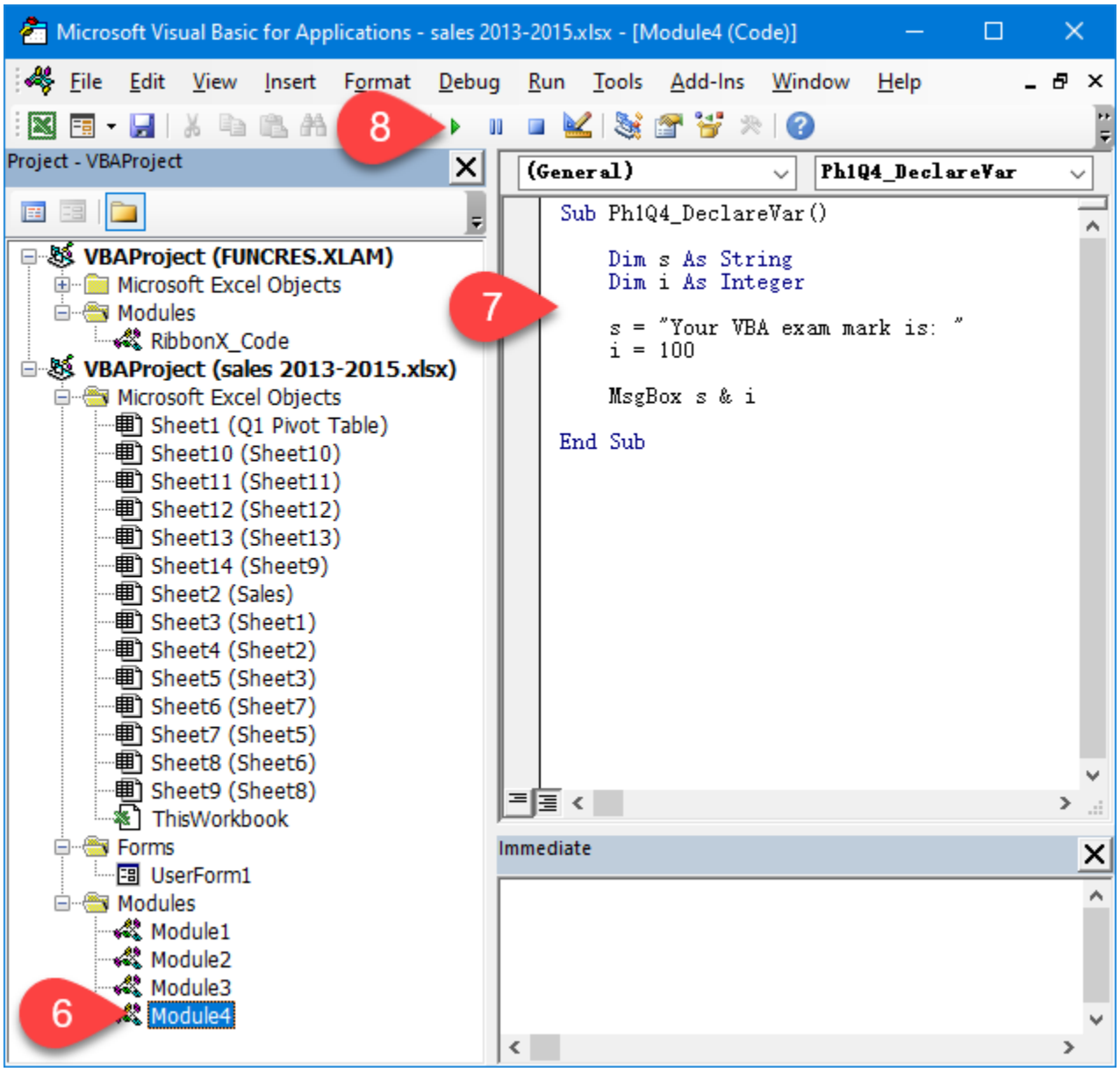
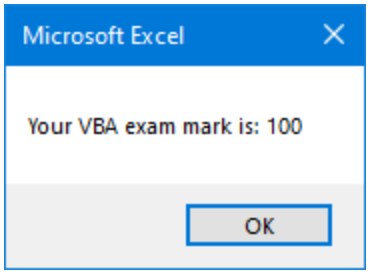


The result shows up in Excel.



(The end of P1Q4)

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METRO COLLEGE OF TECHNOLOGY

Excel and VBA Programming
Project Phase 2

Total # of Questions: [5]

Question/Problem 1

1. Create a VBA procedure that changes the font color of table to bold.
2. Create a VBA procedure that adds a yellow explanation column to right of table.(the header of that column is explanation and fill that column by yellow)
3. Create a VBA procedure that uses loop.
4. Create a message box that displays number of executions of one procedure
5. Create a user Form that has two text boxes and a button to calculate sum and show it in a message box.
6. create a User Form in Excel VBA to get name , date of birth , gender, telephone number, email , and postal code from the user and store the value provided by the user in the worksheet

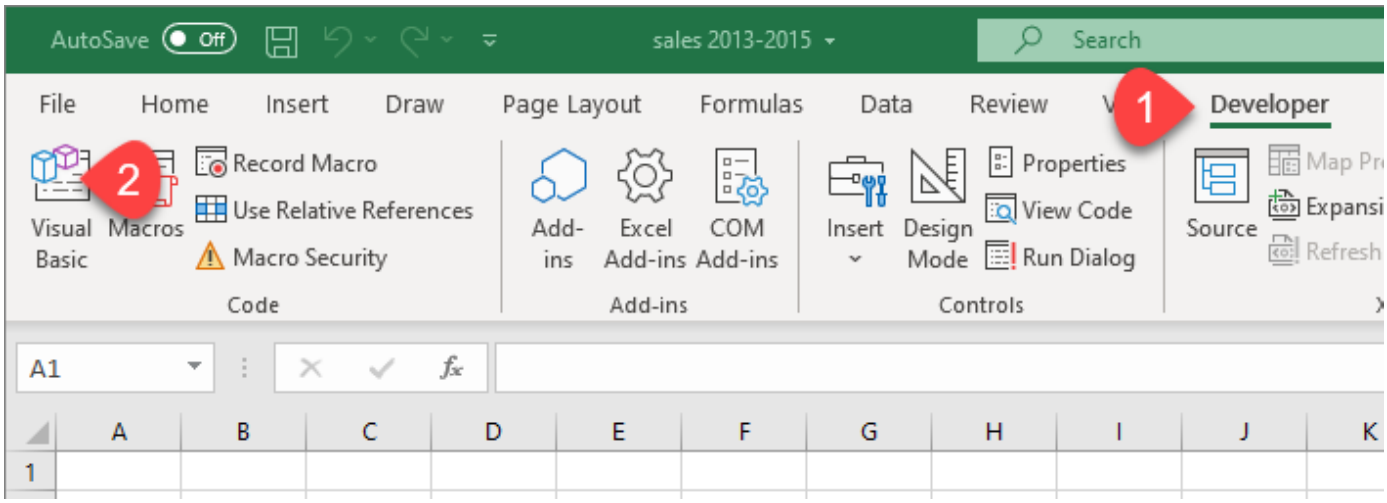
Student Name: Peng WAGN Date: 12 Dec 2020

P2Q1: Create a VBA procedure that changes the font color of table to bold.

I have the below table. I will write a VBA procedure change range B2:D5 font colour to be bold in red.

	A	B	C	D	E
1	Region	2013	2014	2015	Grand Total
2	Central	435,531.50	483,116.00	472,907.80	1,391,555.30
3	North	232,944.00	269,723.00	257,455.80	760,122.80
4	South	153,345.75	180,369.00	172,254.20	505,968.95
5	West	186,841.50	205,478.00	204,610.40	596,929.90
6	**Grand Total**	**1,008,662.75**	**1,138,686.00**	**1,107,228.20**	**3,254,576.95**

1. Click on Developer
2. Click on Visual Basic



3. In VBE, double click on Module1
4. Enter the below code.

```
Sub P2Q1_TableFontColor()

    Sheet4.Activate
    Range("B2:D5").Select
    Selection.Font.Bold = True

    With Selection.Font
        .Color = vbRed
    End With

End Sub
```

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5. Click Run in VBE. The below range's fonts changed to bold in red.

	A	B	C	D	E
1	Region	2013	2014	2015	Grand Total
2	Central	435,531.50	483,116.00	472,907.80	1,391,555.30
3	North	232,944.00	269,723.00	257,455.80	760,122.80
4	South	153,345.75	180,369.00	172,254.20	505,968.95
5	West	186,841.50	205,478.00	204,610.40	596,929.90
6	**Grand Total**	**1,008,662.75**	**1,138,686.00**	**1,107,228.20**	**3,254,576.95**

(The End of P2Q1)

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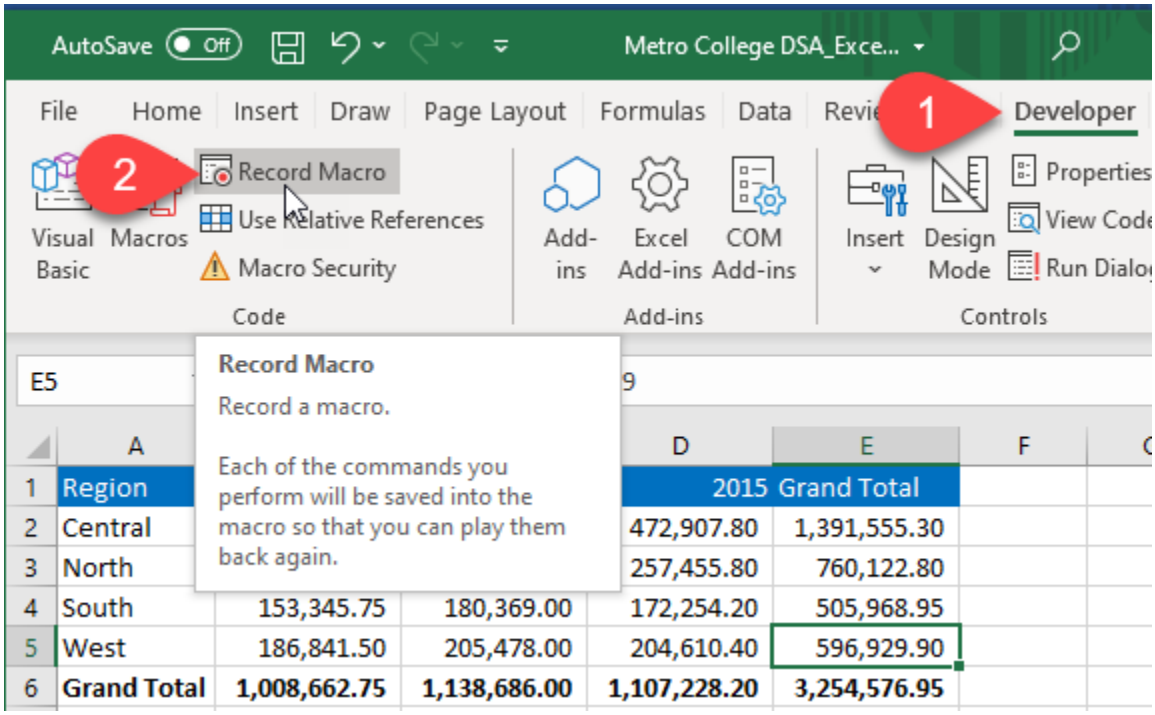
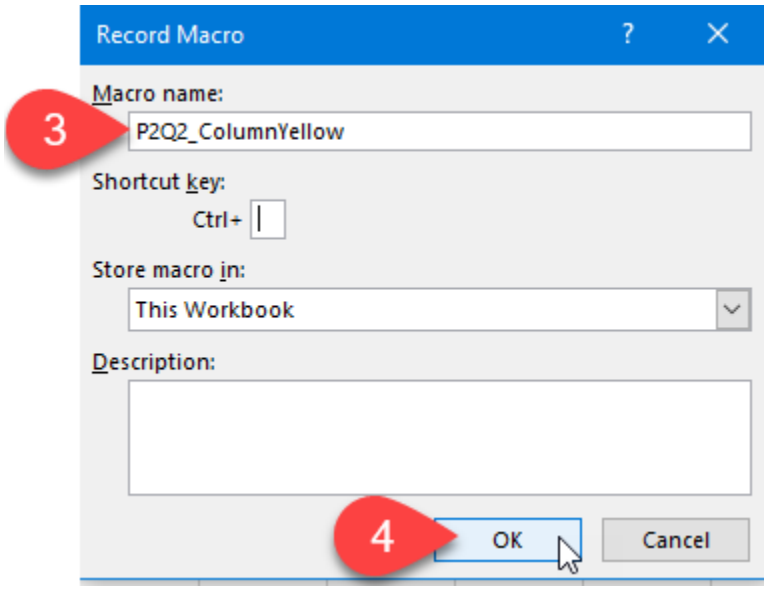
P2Q2: Create a VBA procedure that adds a yellow explanation column to right of table.(the header of that column is explanation and fill that column by yellow)

This time I will create a VBA procedure by recording a Macro.

1. Click on Developer tab.
2. Click on Record Macro.



3. Name Macro.
4. Click on OK. Macro recording starts.



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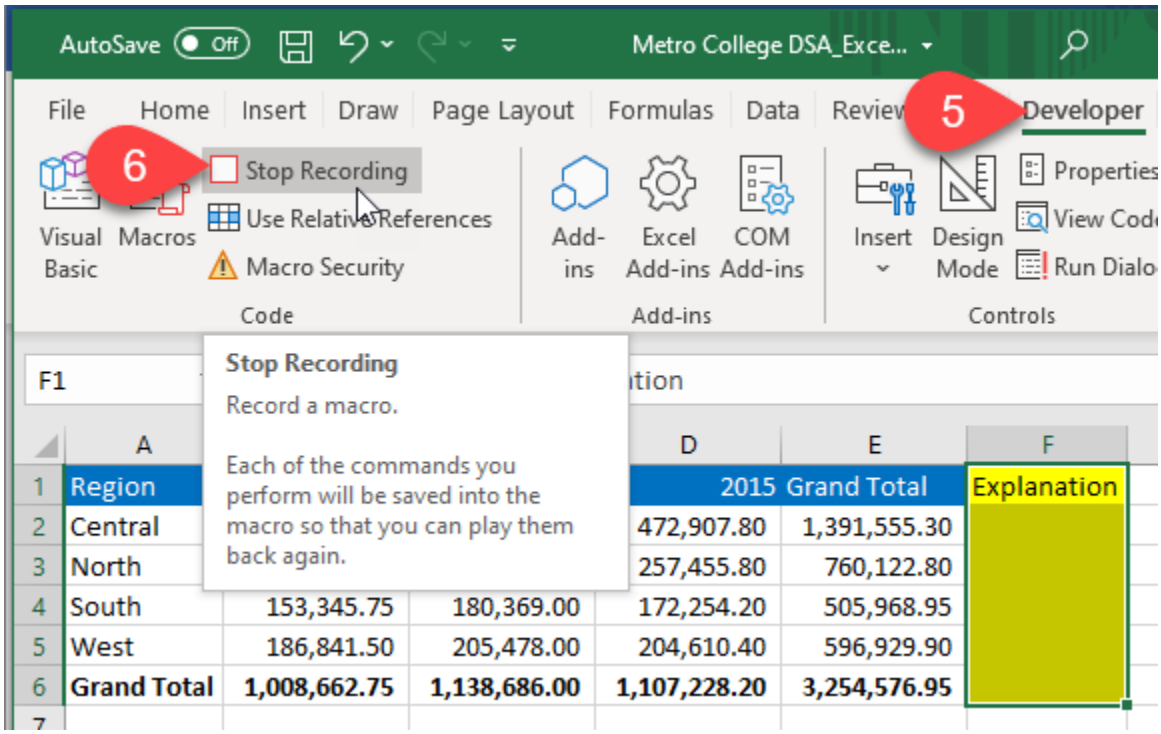
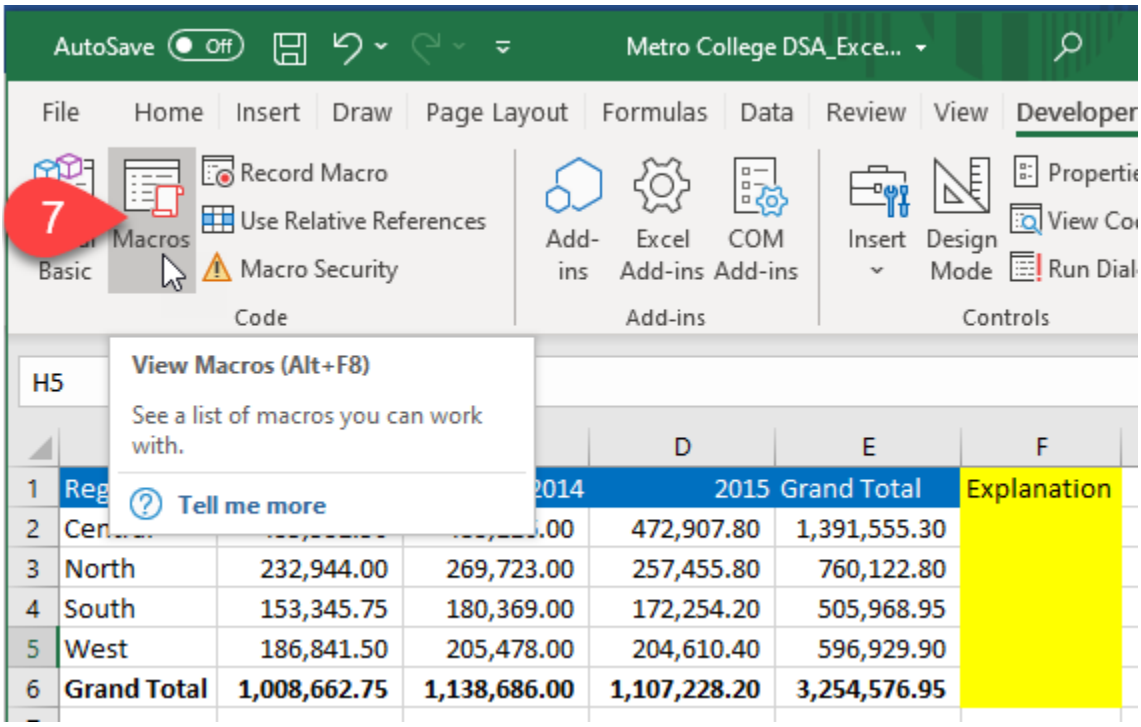
During the recording, I did below changes:

- ✓ Cell F1: Select and enter “Explanation” as hearder.
- ✓ Cell F1-F6: Select the whole column and change colour to yellow.
- ✓ Auto adjust the width of column F.

5. Click on Developer tab.
6. Click on Stop Recording.

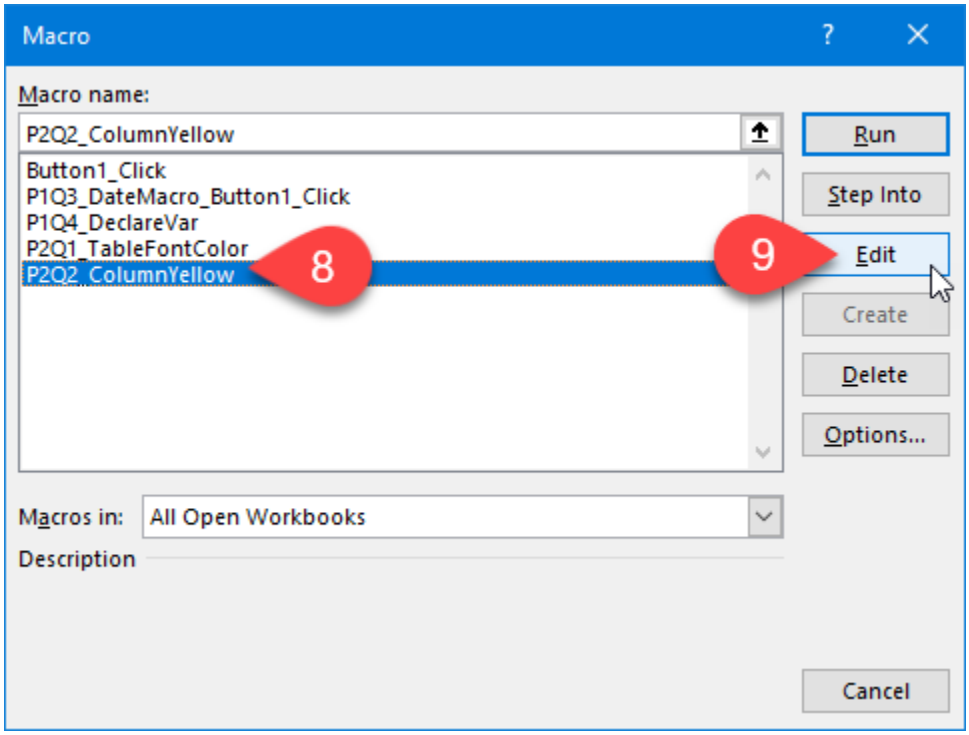


7. Click on Macros.



Macro dialogue opens.

8. Select the Macro name that I just recorded.
9. Click on Edit.



VBE windows opens. A new Module has been created automatically for that recorded Macro. It generated the code in the left box. I clean it up and modify into the final code in the right box.

```
Sub P2Q2_ColumnYellow()
'
' P2Q2_ColumnYellow Macro
'

'
    Range("F1").Select
    ActiveCell.FormulaR1C1 = "Explanation"
    Range("F1:F6").Select
    With Selection.Interior
        .Pattern = xlSolid
        .PatternColorIndex = xlAutomatic
        .Color = 65535
        .TintAndShade = 0
        .PatternTintAndShade = 0
    End With
    Columns("F:F").EntireColumn.AutoFit
End Sub
```

```
Sub P2Q2_ColumnYellow()

    Sheet13.Activate

    Range("F1").Select
    ActiveCell.FormulaR1C1 = "Explanation"

    Range("F1:F6").Select
    With Selection.Interior
        .Color = 65535
    End With

    Columns("F:F").EntireColumn.AutoFit

End Sub
```

10. To test, delete the column F from the original table. Then click on Run in VBE.

(The End of P2Q2)

Student Name: Peng WAGN Date: 12 Dec 2020

P2Q3: Create a VBA procedure that uses loop.

I have the below table. I will change column F to yellow, by a VBA procedure using loop.

	A	B	C	D	E
1	Region	2013	2014	2015	Grand Total
2	Central	435,531.50	483,116.00	472,907.80	1,391,555.30
3	North	232,944.00	269,723.00	257,455.80	760,122.80
4	South	153,345.75	180,369.00	172,254.20	505,968.95
5	West	186,841.50	205,478.00	204,610.40	596,929.90
6	**Grand Total**	**1,008,662.75**	**1,138,686.00**	**1,107,228.20**	**3,254,576.95**

Assumption:

- ✓ Table has no empty cells, especially the last column.

Algorithm：Do Until loop

- ✓ Start checking from the 1st cell in the last column, if it is not empty, then mark the cell to its right to Yellow.
- ✓ Move to the 2nd cell and do the same.
- ✓ Stop until you reach an empty cell.

See below explanation.

	A	B	C	D	E	F
1	Region	2013	2014	2015	Grand Total	E1 isEmpty? No. Fill F1 yellow. Check E2.
2	Central	435,531.50	483,116.00	472,907.80	1,391,555.30	E2 isEmpty? No. Fill F2 yellow. Check E3.
3	North	232,944.00	269,723.00	257,455.80	760,122.80	and so on…
4	South	153,345.75	180,369.00	172,254.20	505,968.95	and so on…
5	West	186,841.50	205,478.00	204,610.40	596,929.90	and so on…
6	**Grand Total**	**1,008,662.75**	**1,138,686.00**	**1,107,228.20**	**3,254,576.95**	E6 isEmpty? No. Fill F6 yellow. Check E7.
7						E7 isEmpty? Yes. Exit the loop.

1. Click on Developer
2. Click on Visual Basic

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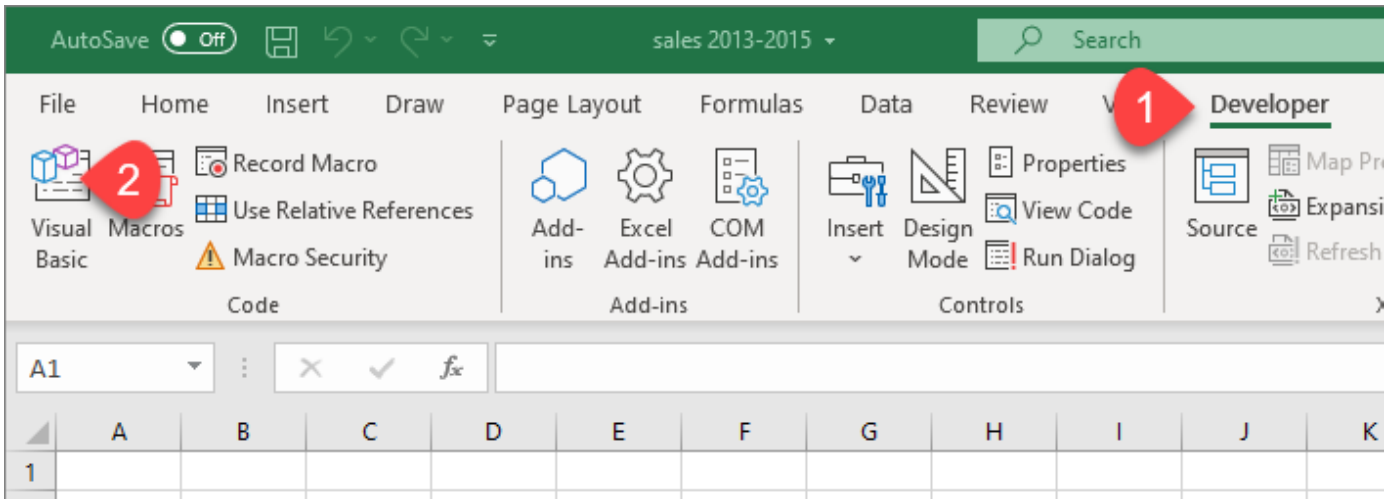


3. In VBE, double click on Module1
4. Enter the below code.

```
Sub P2Q1_YellowColumn_Loop()

   Sheet15.Activate
   Range("E1").Select

   Do Until IsEmpty(ActiveCell.Value) 'Exit loop if Empty is TRUE.
      'Fill one cell to the right
      ActiveCell.Offset(0, 1).Interior.Color = vbYellow
      'Move one cell down
      ActiveCell.Offset(1, 0).Select
   Loop

End Sub
```

(The End of P2Q3)

Student Name: Peng WAGN Date: 12 Dec 2020

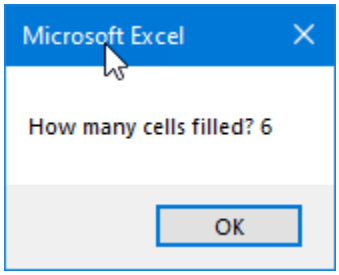
P2Q4: Create a message box that displays number of executions of one procedure

For example, I want to know how many cells in total being filled to yellow...

To do this, I declared a variable filled as integer.
Everytime once a cell being filled into yellow, filled increased by 1.
Use MsgBox to display filled.

Please ref previous question for screen shot. Only different here is that I added one more line to count the execution/filling.

```
Sub P2Q4_ExecutionCount()

   Dim filled As Integer

   Sheet16.Activate
   Range("E1").Select

   Do Until IsEmpty(ActiveCell.Value)
      ActiveCell.Offset(0, 1).Interior.Color = vbYellow
      ActiveCell.Offset(1, 0).Select
      filled = filled + 1
   Loop

   MsgBox "How many cells filled? " & filled

End Sub
```



(The End of P2Q4)

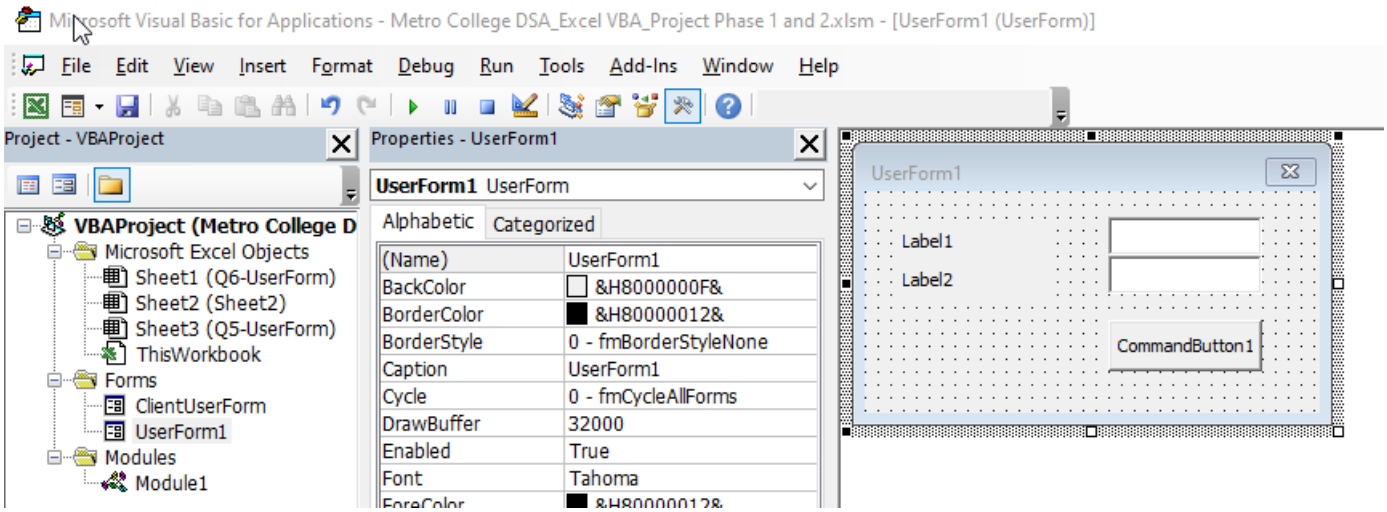
Student Name: Peng WAGN Date: 12 Dec 2020

P2Q5: Create a user Form that has two text boxes and a button to calculate sum and show it in a message box.

DESIGN THE FORM

1. Open the VBE (click *Developer > Visual Basic; or Alt+F11*).

2. Right-click *VBAProject (Excel file name) > Insert > UserForm.* Add the controls as required in the question. I have the below draft.

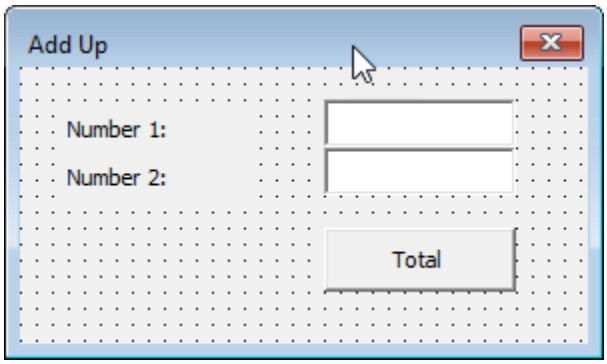


3. Change the *Names* and *Captions* of the controls according to the below table.

Control	Name	Caption
Userform	AddUpUserForm	Add Up
Label	Num1Label	Number 1:
Label	Num2Label	Number 2:
Text Box	Num1TextBox	
Text Box	Num2TextBox	
Command Button	TotalButton	Total

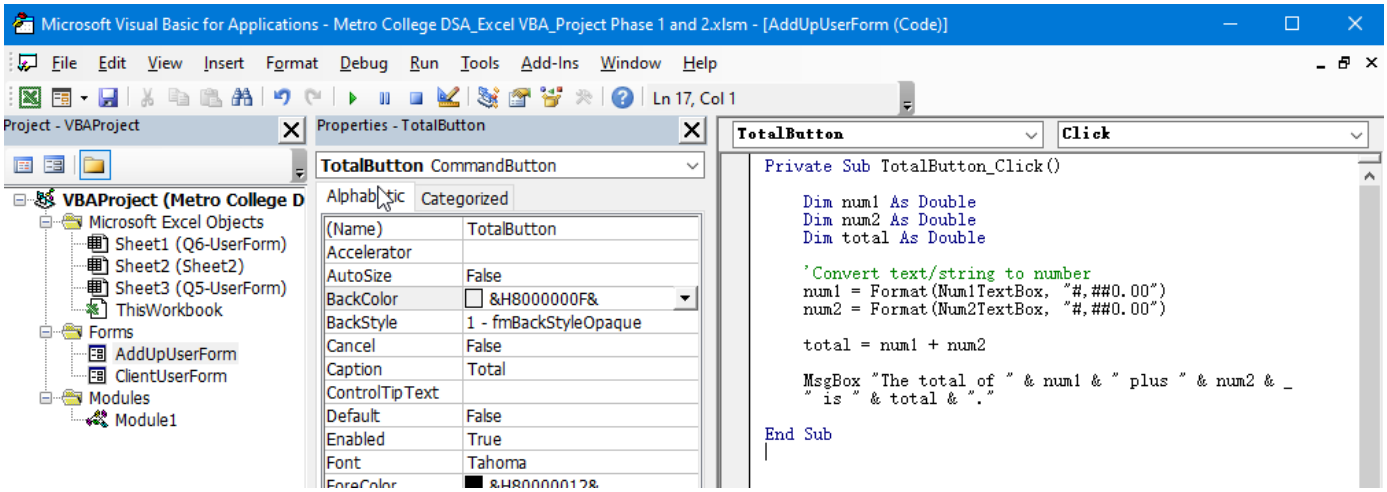
I have the form completed as per below.

Student Name: Peng WAGN Date: 12 Dec 2020



4. Double click on Total button, add below code:

```
Private Sub TotalButton_Click()

    Dim num1 As Double
    Dim num2 As Double
    Dim total As Double

    'Convert text/string to number
    num1 = Format(Num1TextBox, "#,##0.00")
    num2 = Format(Num2TextBox, "#,##0.00")

    total = num1 + num2

    MsgBox "The total of " & num1 & " plus " & num2 & _
    " is " & total & "."

End Sub
```



5. Click on the Run button.

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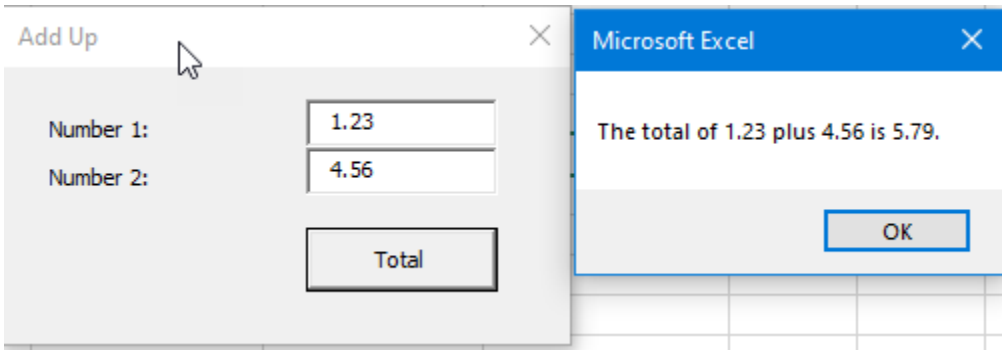
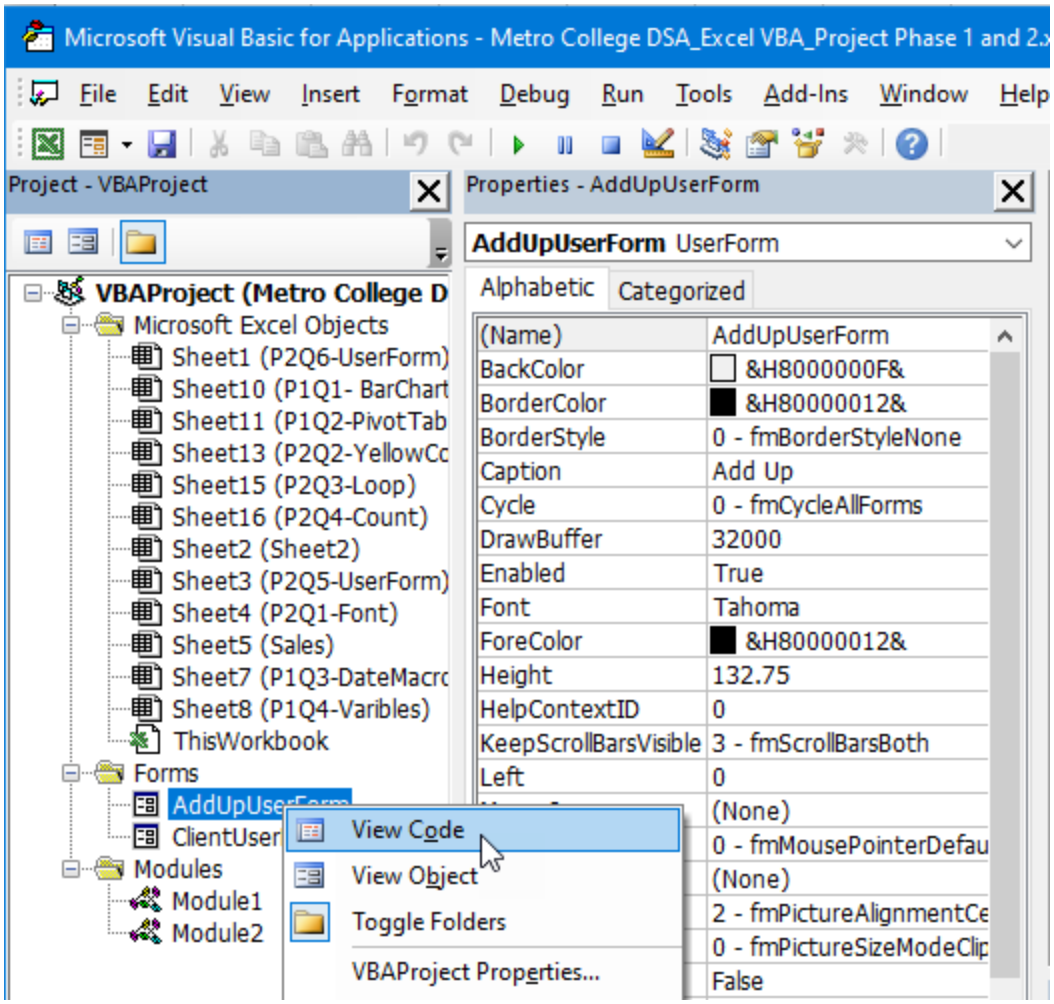


To view VBA code, right-click on the form > View Code.



(The End of Q5)

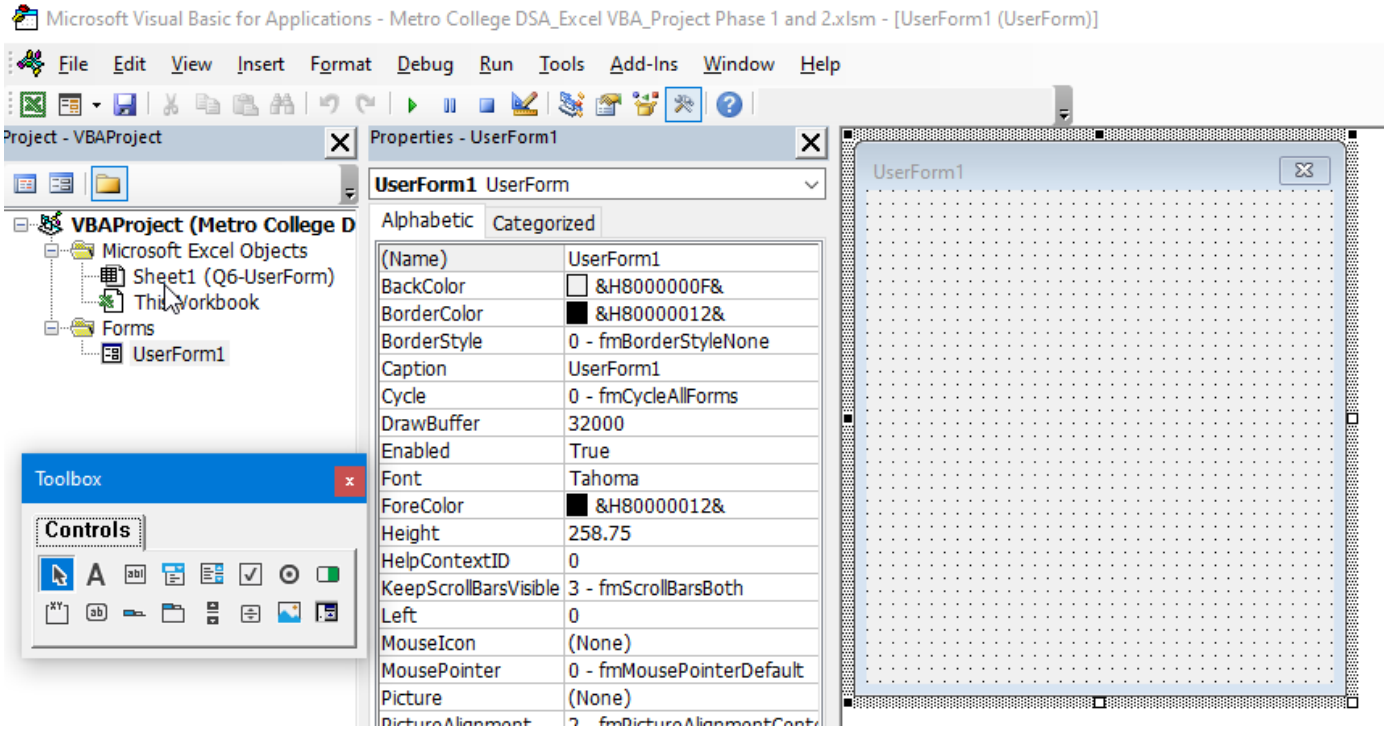
Student Name: Peng WAGN Date: 12 Dec 2020

P2Q6: create a User Form in Excel VBA to get name , date of birth , gender, telephone number, email , and postal code from the user and store the value provided by the user in the worksheet.

DESIGN THE FORM

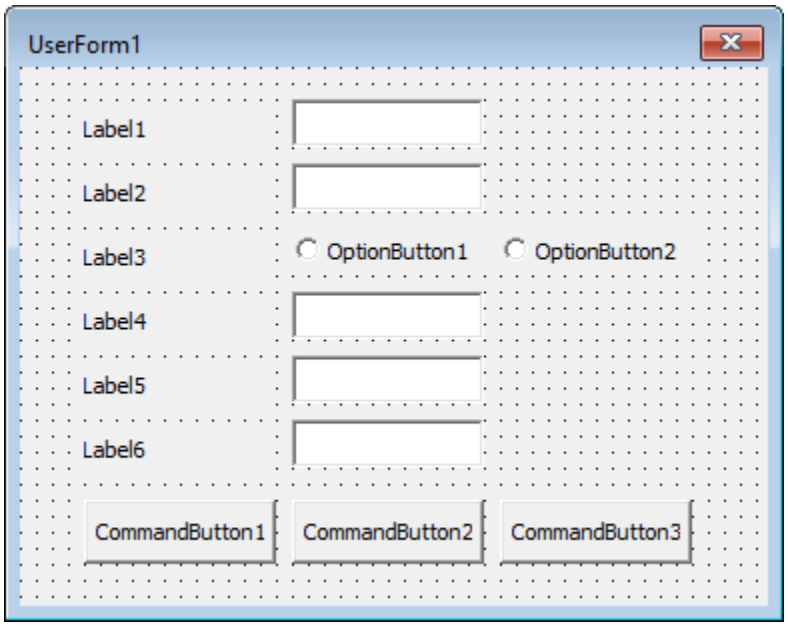
1. Open the VBE (click *Developer > Visual Basic; or Alt+F11*).

2. Right-click *VBAProject (Excel file name) > Insert > UserForm.* My screen has the below setup.



3. Add the controls as required in the question. I have the below draft.

Student Name: Peng WAGN Date: 12 Dec 2020

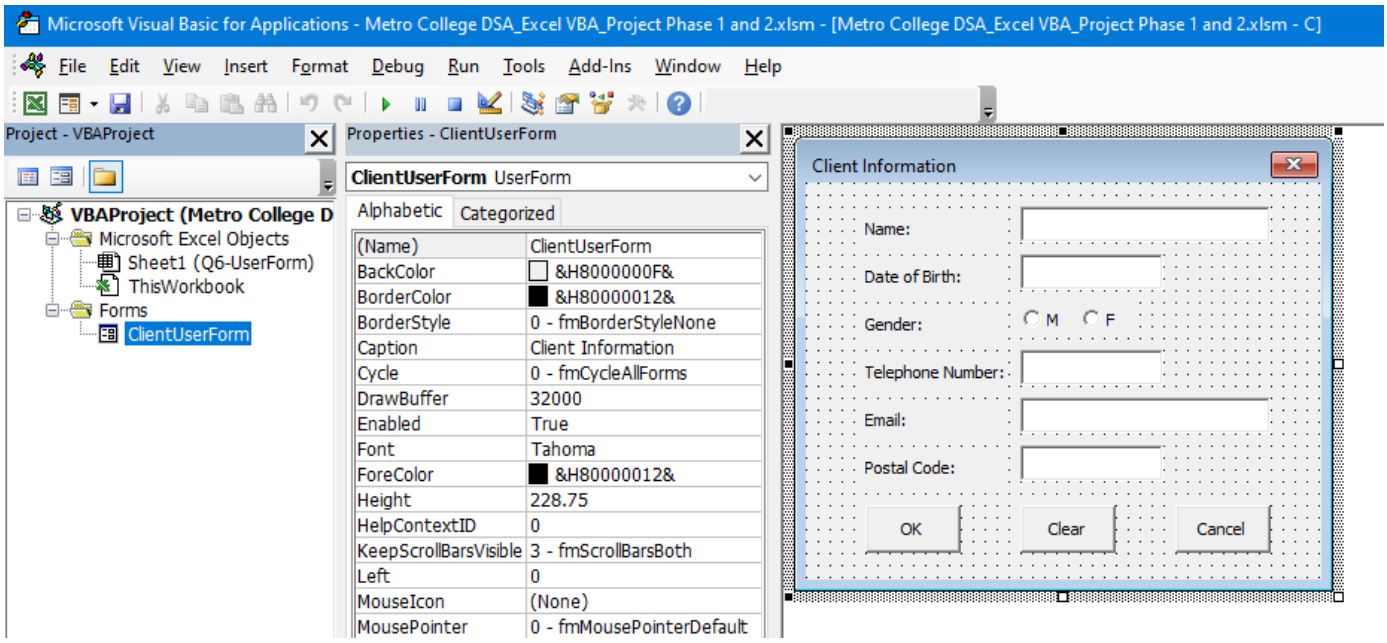


4. Change the *Names* and *Captions* of the controls according to the below table.

Control	Name	Caption
Userform	ClientUserForm	Client Information
Label	NameLabel	Name:
Label	DOBLabel	Date of Birth:
Label	GenderLabel	Gender:
Label	PhoneNumLabel	Phone Number:
Label	EmailLabel	Email:
Label	PostalLabel	Postal Code:
Text Box	NameTextBox	
Text Box	DOBTextBox	
Text Box	PhoneNumTextBox	
Text Box	EmailTextBox	
Text Box	PostalTextBox	
Option Button	MaleOption	M
Option Button	FamaleOption	F
Command Button	OKButton	OK
Command Button	ClearButton	Clear
Command Button	CancelButton	Cancel

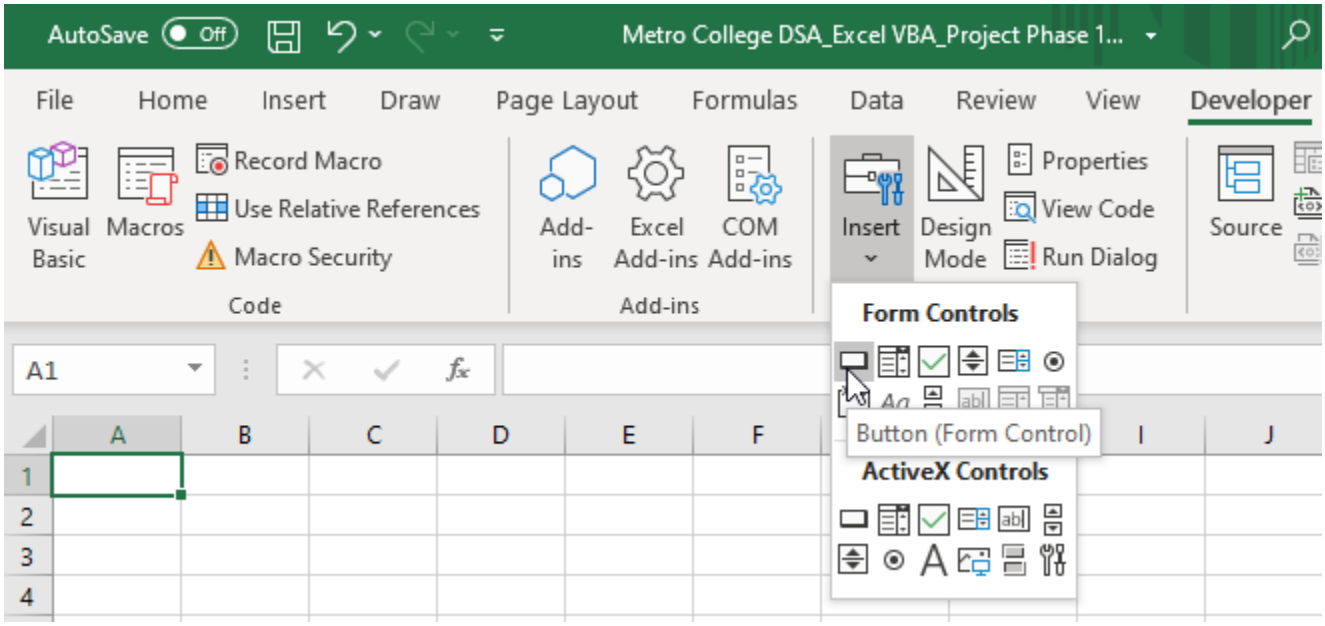
I have the form completed as per below.

Student Name: Peng WAGN Date: 12 Dec 2020

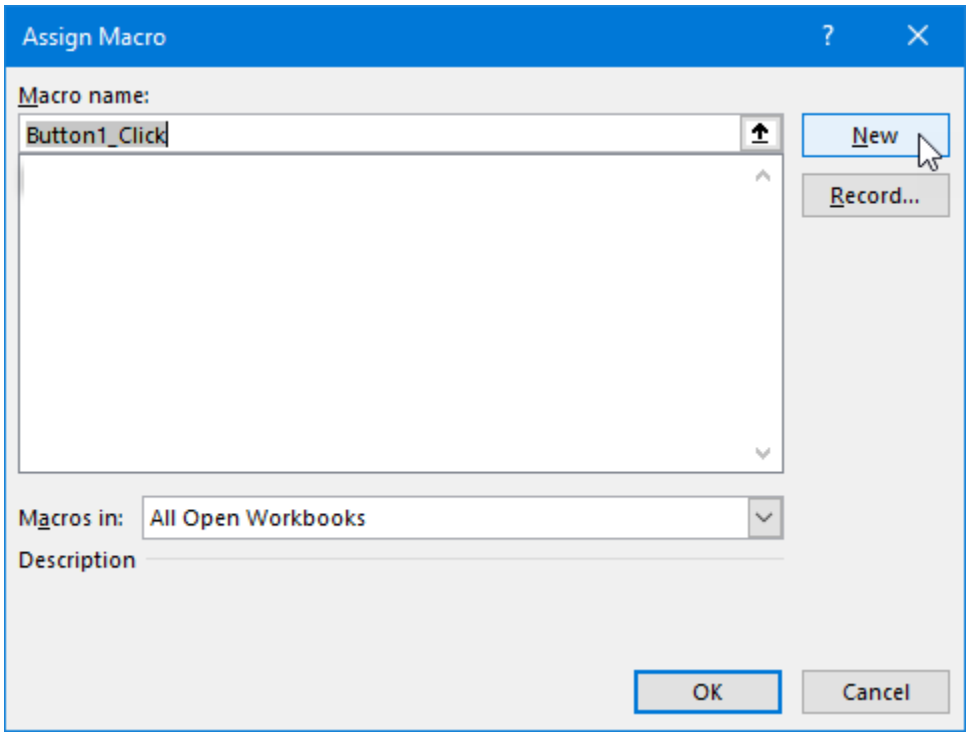


SHOW THE FORM

1. In Excel, click *Developer* > *Insert* > *Button.*

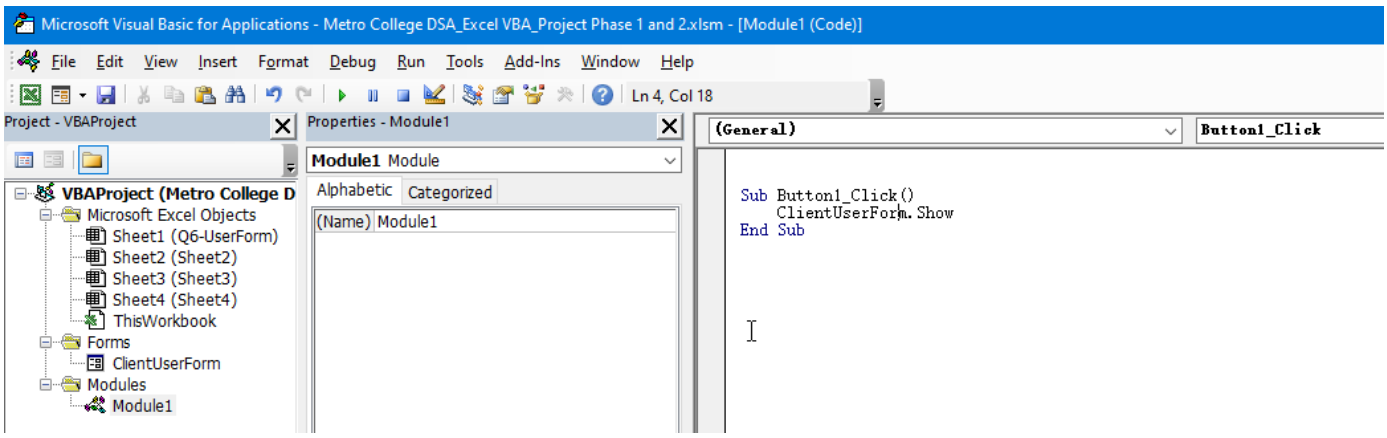


2. Drag and draw a *Button* on Excel. A dialogue names Assign Macro opens. Click on New.

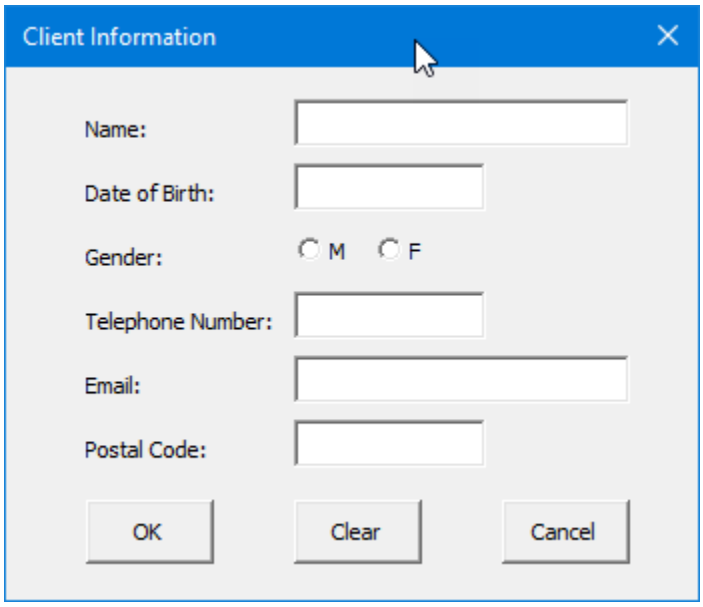


3. In VBE, enter the below code.

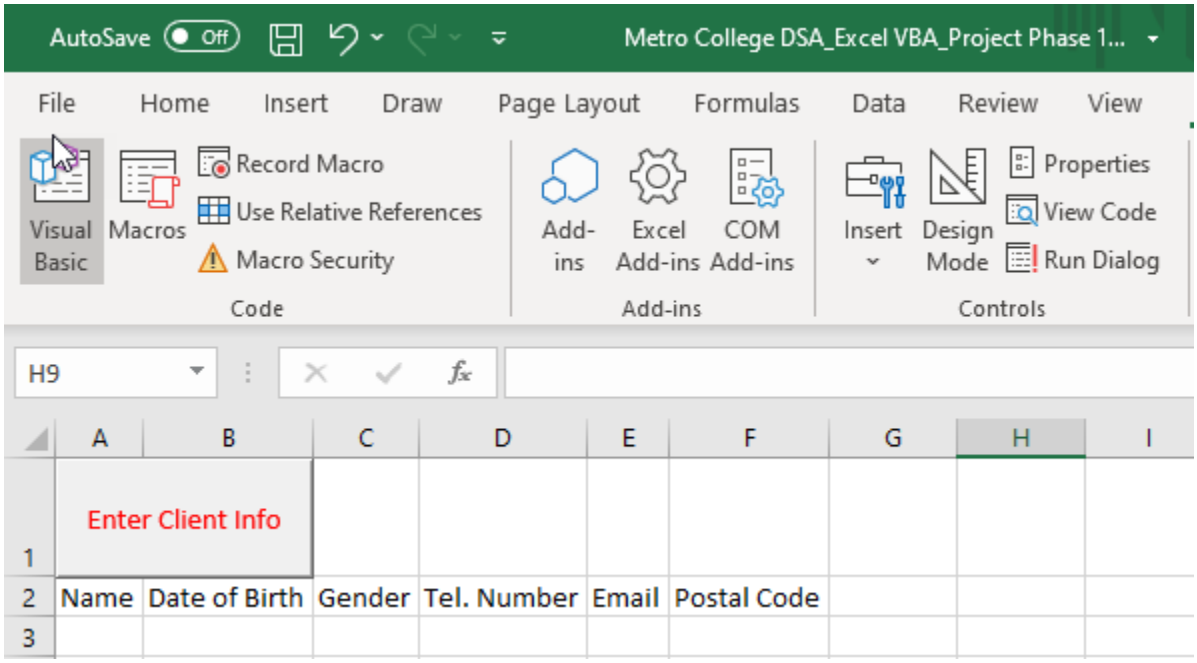
```
Sub Button1_Click()
   ClientUserForm.Show
End Sub
```



4. Click the Run button in VBE, or click Enter Client Info button in Excel. Client Information form shows.



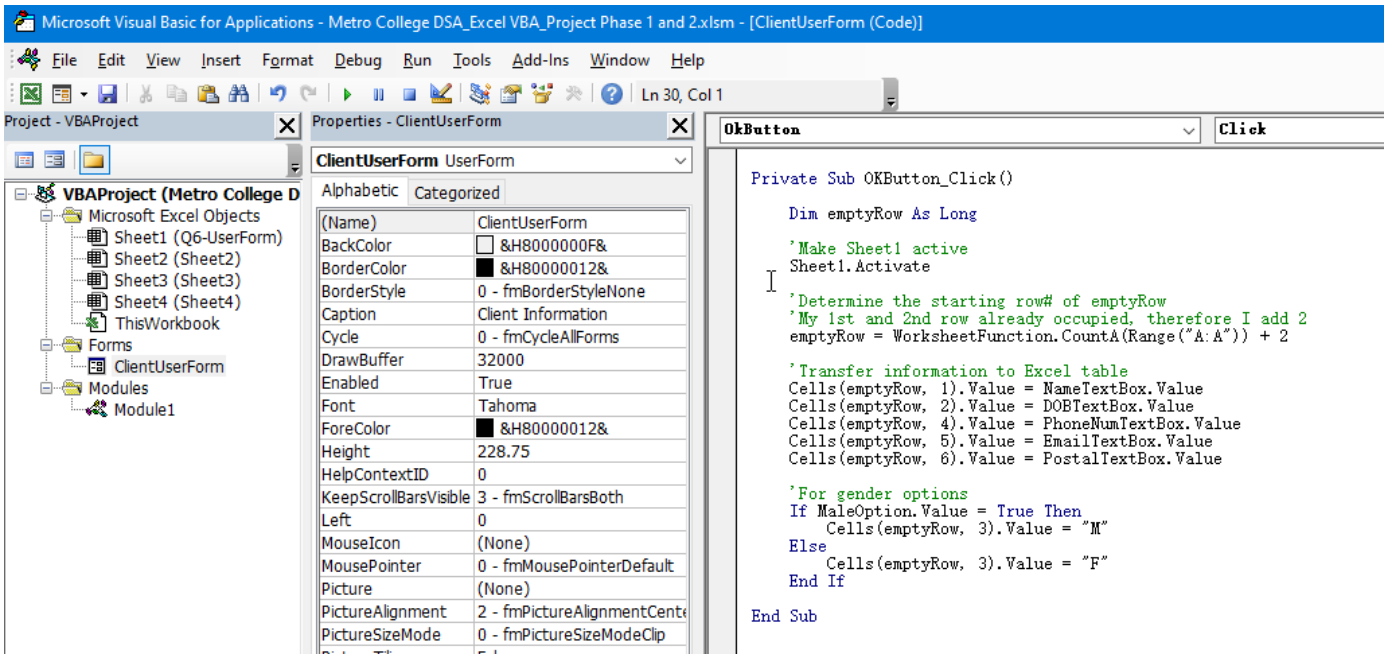
5. In Excel, change the button's text from Button 1 to *Enter Client Info.* Enter the name for each column, according to the question.



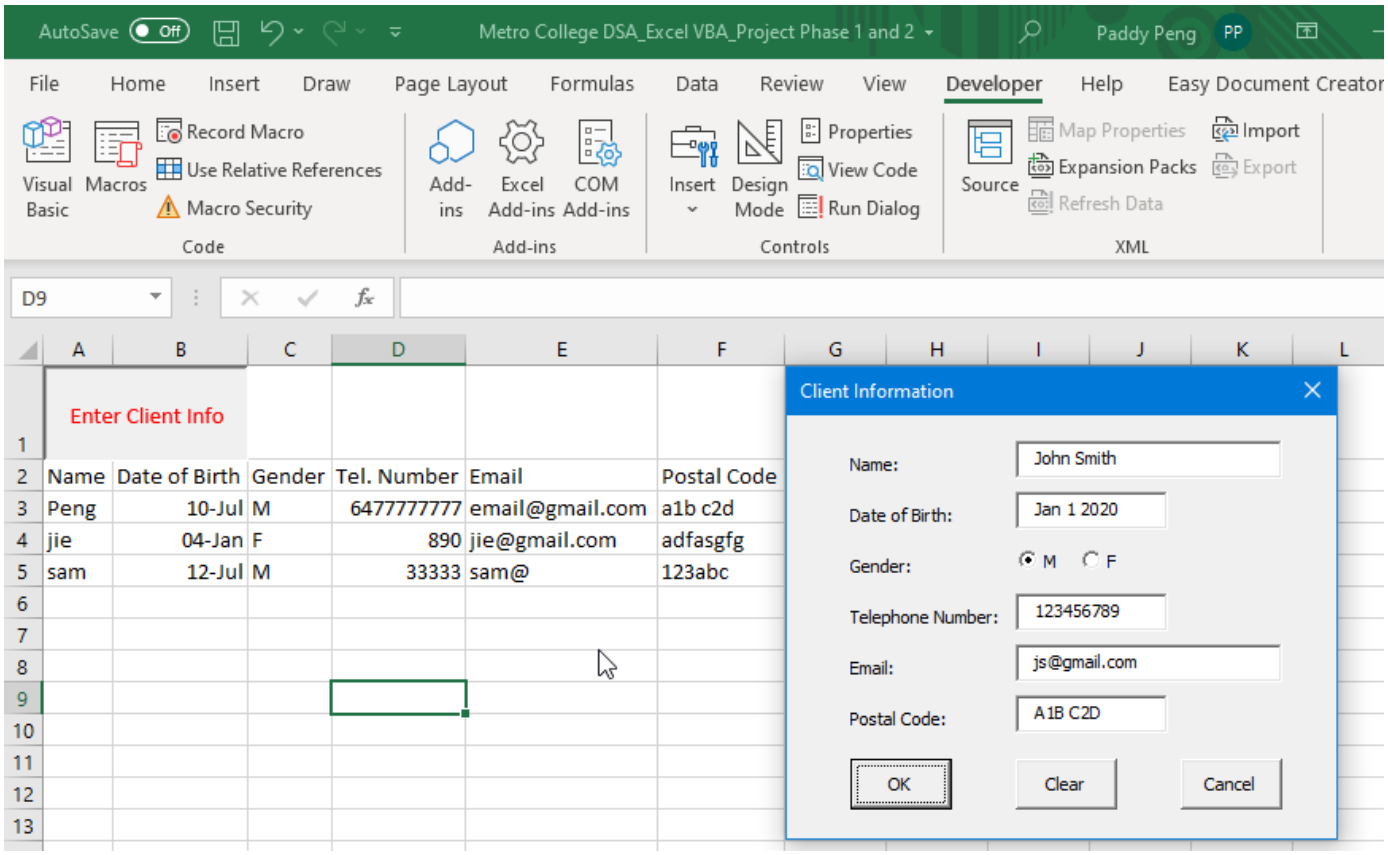
ASSIGN THE MACROS TO CONTROLS

1. Open VBE. Double click on the OK button. Add the below code:

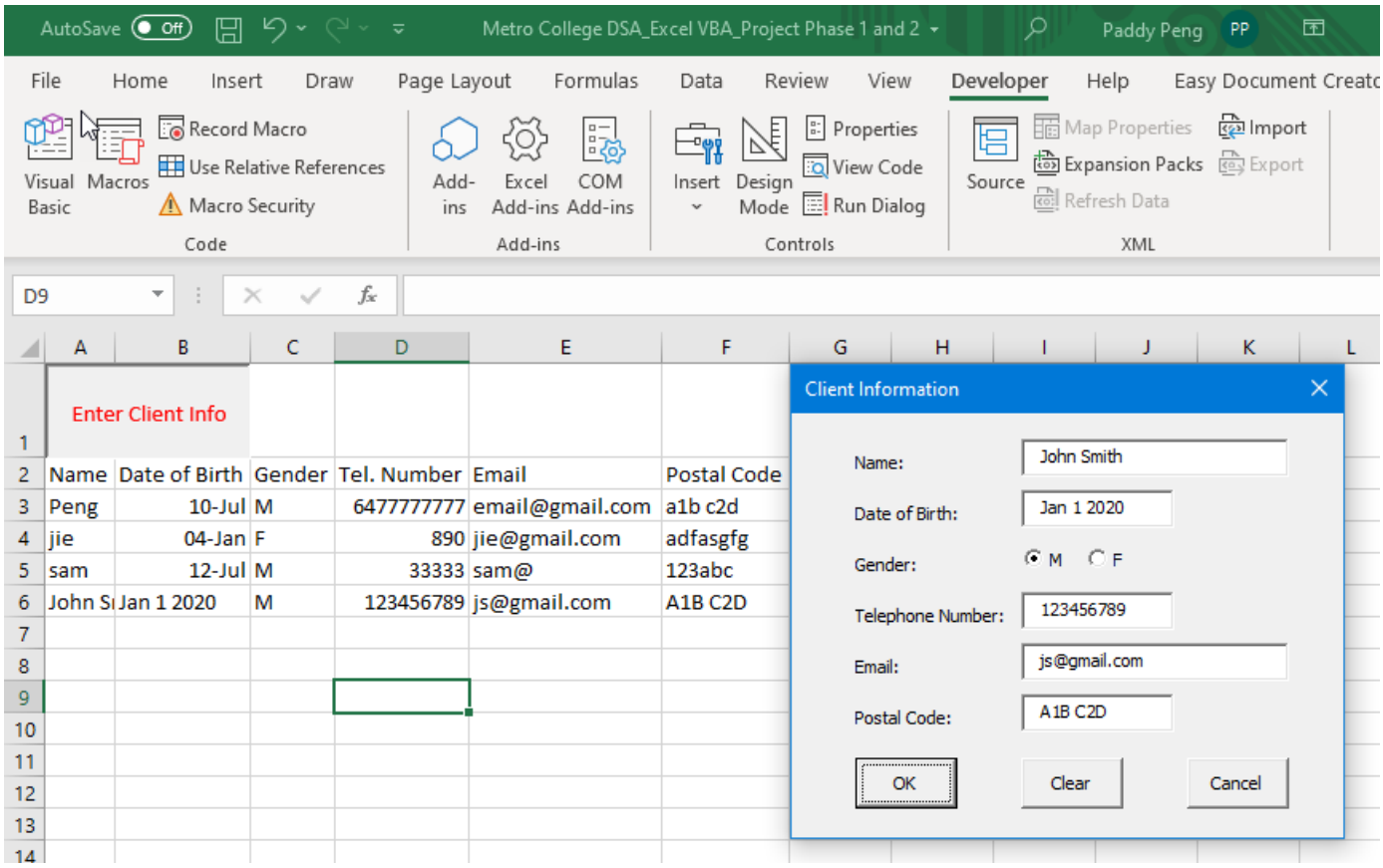
Student Name: Peng WAGN Date: 12 Dec 2020



2. Click Run in VBE or click Enter Client Info button in Excel. Client Information form opens. Enter the required information. The data entered will be transferred/recorded into Excel.

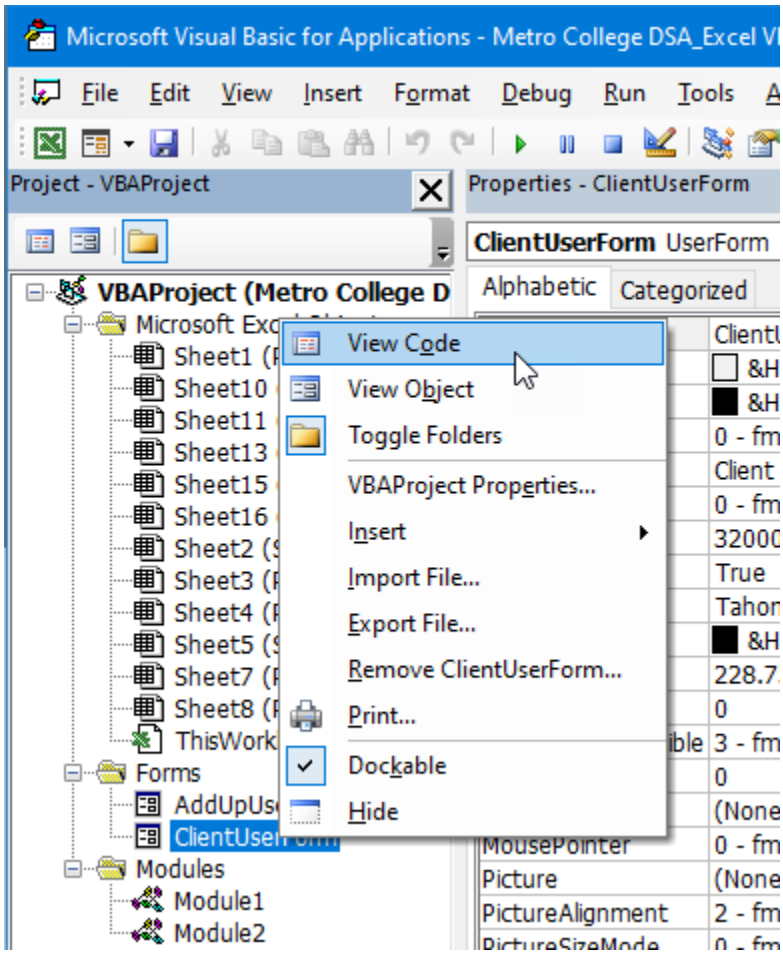


Student Name: Peng WAGN Date: 12 Dec 2020



To view VBA code, right-click on the form > View Code.

Student Name: Peng WAGN Date: 12 Dec 2020



(The End of Q6)