Sub CreateDashboardCards(

Dim ws As Worksheet

Dim card As Shape

Dim topPosition As Double

Dim leftPosition As Double

' Create a new worksheet called "Dashboard"

On Error Resume Next

Set ws = ThisWorkbook.Sheets("Dashboard")

If Not ws Is Nothing Then

Application.DisplayAlerts = False

ws.Delete

Application.DisplayAlerts = True

End If

Set ws = ThisWorkbook.Sheets.Add

ws.Name = "Dashboard"

' Format sheet: Remove gridlines and set background color

With ws

.Cells.Interior.Color = RGB(217, 217, 217) ' Set background color

End With

' Hide gridlines (using ActiveWindow method for Excel 2013)

ActiveWindow.DisplayGridlines = False

' Card 1 to Card 6 (Row 5)

topPosition = 72 ' Start from row 5, which is about 72 pixels

leftPosition = 12 ' Start with 12 pixels from the left for the first card

' Card 1

Set card = ws.Shapes.AddShape(msoShapeRoundedRectangle, leftPosition, topPosition, 1.65 \* 72, 0.75 \* 72)

card.Fill.BackColor.RGB = RGB(255, 255, 255) ' White fill

card.Line.Visible = msoFalse ' No border

card.Adjustments.Item(1) = 0.05 ' Border radius

card.Name = "cfilters"

card.Top = topPosition

card.Left = leftPosition

leftPosition = leftPosition + 1.65 \* 72 + 12 ' Update left position with margin

' Card 2

Set card = ws.Shapes.AddShape(msoShapeRoundedRectangle, leftPosition, topPosition, 2# \* 72, 0.75 \* 72)

card.Fill.BackColor.RGB = RGB(255, 255, 255)

card.Line.Visible = msoFalse

card.Adjustments.Item(1) = 0.05

card.Name = "ctsales"

card.Top = topPosition

card.Left = leftPosition

leftPosition = leftPosition + 2# \* 72 + 12

' Card 3

Set card = ws.Shapes.AddShape(msoShapeRoundedRectangle, leftPosition, topPosition, 2# \* 72, 0.75 \* 72)

card.Fill.BackColor.RGB = RGB(255, 255, 255)

card.Line.Visible = msoFalse

card.Adjustments.Item(1) = 0.05

card.Name = "ctmargin"

card.Top = topPosition

card.Left = leftPosition

leftPosition = leftPosition + 2# \* 72 + 12

' Card 4

Set card = ws.Shapes.AddShape(msoShapeRoundedRectangle, leftPosition, topPosition, 2# \* 72, 0.75 \* 72)

card.Fill.BackColor.RGB = RGB(255, 255, 255)

card.Line.Visible = msoFalse

card.Adjustments.Item(1) = 0.05

card.Name = "cpmargin"

card.Top = topPosition

card.Left = leftPosition

leftPosition = leftPosition + 2# \* 72 + 12

' Card 5

Set card = ws.Shapes.AddShape(msoShapeRoundedRectangle, leftPosition, topPosition, 3.8 \* 72, 0.75 \* 72)

card.Fill.BackColor.RGB = RGB(255, 255, 255)

card.Line.Visible = msoFalse

card.Adjustments.Item(1) = 0.05

card.Name = "ccustcount"

card.Top = topPosition

card.Left = leftPosition

leftPosition = leftPosition + 3.8 \* 72 + 12

' Card 6

Set card = ws.Shapes.AddShape(msoShapeRoundedRectangle, leftPosition, topPosition, 2.5 \* 72, 5.3 \* 72)

card.Fill.BackColor.RGB = RGB(255, 255, 255)

card.Line.Visible = msoFalse

card.Adjustments.Item(1) = 0.05

card.Name = "ctop10"

card.Top = topPosition

card.Left = leftPosition

leftPosition = leftPosition + 2.5 \* 72 + 12

' Card 7 to Card 9 (Row 6)

topPosition = topPosition + 2.1 \* 72 + 12 ' Move to next row

leftPosition = 12 ' Reset left position

' Card 7

Set card = ws.Shapes.AddShape(msoShapeRoundedRectangle, leftPosition, topPosition, 6.6 \* 72, 2.1 \* 72)

card.Fill.BackColor.RGB = RGB(255, 255, 255)

card.Line.Visible = msoFalse

card.Adjustments.Item(1) = 0.03

card.Name = "csalestrend"

card.Top = topPosition

card.Left = leftPosition

leftPosition = leftPosition + 6.6 \* 72 + 12

' Card 8

Set card = ws.Shapes.AddShape(msoShapeRoundedRectangle, leftPosition, topPosition, 2.6 \* 72, 2.1 \* 72)

card.Fill.BackColor.RGB = RGB(255, 255, 255)

card.Line.Visible = msoFalse

card.Adjustments.Item(1) = 0.03

card.Name = "ccustsource"

card.Top = topPosition

card.Left = leftPosition

leftPosition = leftPosition + 2.6 \* 72 + 12

' Card 9

Set card = ws.Shapes.AddShape(msoShapeRoundedRectangle, leftPosition, topPosition, 2.6 \* 72, 2.1 \* 72)

card.Fill.BackColor.RGB = RGB(255, 255, 255)

card.Line.Visible = msoFalse

card.Adjustments.Item(1) = 0.03

card.Name = "csalescity"

card.Top = topPosition

card.Left = leftPosition

leftPosition = leftPosition + 2.6 \* 72 + 12

' Card 10 to Card 12 (Row 7)

topPosition = topPosition + 2.1 \* 72 + 12 ' Move to next row

leftPosition = 12 ' Reset left position

' Card 10

Set card = ws.Shapes.AddShape(msoShapeRoundedRectangle, leftPosition, topPosition, 4.1 \* 72, 2.1 \* 72)

card.Fill.BackColor.RGB = RGB(255, 255, 255)

card.Line.Visible = msoFalse

card.Adjustments.Item(1) = 0.03

card.Name = "csalesservice"

card.Top = topPosition

card.Left = leftPosition

leftPosition = leftPosition + 4.1 \* 72 + 12

' Card 11

Set card = ws.Shapes.AddShape(msoShapeRoundedRectangle, leftPosition, topPosition, 2.5 \* 72, 2.1 \* 72)

card.Fill.BackColor.RGB = RGB(255, 255, 255)

card.Line.Visible = msoFalse

card.Adjustments.Item(1) = 0.03

card.Name = "cdeptmargin"

card.Top = topPosition

card.Left = leftPosition

leftPosition = leftPosition + 2.5 \* 72 + 12

' Card 12

Set card = ws.Shapes.AddShape(msoShapeRoundedRectangle, leftPosition, topPosition, 5# \* 72, 2.1 \* 72)

card.Fill.BackColor.RGB = RGB(255, 255, 255)

card.Line.Visible = msoFalse

card.Adjustments.Item(1) = 0.03

card.Name = "cnewrepeat"

card.Top = topPosition

card.Left = leftPosition

End Sub

**Code for Prompt 3**

Sub GeneratePivotTables()

Dim wsData As Worksheet

Dim wsPivot As Worksheet

Dim ptCache As PivotCache

Dim pt As PivotTable

Dim startRow As Long

' Set references to sheets

Set wsData = ThisWorkbook.Sheets("Data")

Set wsPivot = ThisWorkbook.Sheets("Pivot")

' Clear existing pivot tables on the Pivot sheet

wsPivot.Cells.Clear

' Set the starting row for placing pivot tables

startRow = 1

' Create Pivot Table 1: totalsales

Set ptCache = ThisWorkbook.PivotCaches.Create(SourceType:=xlDatabase, sourceData:=wsData.ListObjects("salesdata").Range)

Set pt = ptCache.CreatePivotTable(TableDestination:=wsPivot.Cells(startRow, 1), TableName:="totalsales")

With pt

.AddDataField .PivotFields("Sales Amount"), "Sum of Sales Amount", xlSum

End With

startRow = startRow + pt.TableRange2.Rows.Count + 2

' Create Pivot Table 2: totalmargin

Set ptCache = ThisWorkbook.PivotCaches.Create(SourceType:=xlDatabase, sourceData:=wsData.ListObjects("salesdata").Range)

Set pt = ptCache.CreatePivotTable(TableDestination:=wsPivot.Cells(startRow, 1), TableName:="totalmargin")

With pt

.AddDataField .PivotFields("Margin Amount"), "Sum of Margin Amount", xlSum

End With

startRow = startRow + pt.TableRange2.Rows.Count + 2

' Create Pivot Table 3: customerscount

Set ptCache = ThisWorkbook.PivotCaches.Create(SourceType:=xlDatabase, sourceData:=wsData.ListObjects("salesdata").Range)

Set pt = ptCache.CreatePivotTable(TableDestination:=wsPivot.Cells(startRow, 1), TableName:="customerscount")

With pt

.PivotFields("Sale Type").Orientation = xlRowField

.AddDataField .PivotFields("Customer Name"), "Count of Customer Name", xlCount

End With

startRow = startRow + pt.TableRange2.Rows.Count + 2

' Create Pivot Table 4: totalmargin (again)

Set ptCache = ThisWorkbook.PivotCaches.Create(SourceType:=xlDatabase, sourceData:=wsData.ListObjects("salesdata").Range)

Set pt = ptCache.CreatePivotTable(TableDestination:=wsPivot.Cells(startRow, 1), TableName:="totalmargin2")

With pt

.AddDataField .PivotFields("Margin Amount"), "Sum of Margin Amount", xlSum

End With

startRow = startRow + pt.TableRange2.Rows.Count + 2

' Create Pivot Table 5: salestrend

Set ptCache = ThisWorkbook.PivotCaches.Create(SourceType:=xlDatabase, sourceData:=wsData.ListObjects("salesdata").Range)

Set pt = ptCache.CreatePivotTable(TableDestination:=wsPivot.Cells(startRow, 1), TableName:="salestrend")

With pt

.PivotFields("Year").Orientation = xlRowField

.PivotFields("Month").Orientation = xlRowField

.AddDataField .PivotFields("Sales Amount"), "Sum of Sales Amount", xlSum

End With

startRow = startRow + pt.TableRange2.Rows.Count + 2

' Create Pivot Table 6: customersource

Set ptCache = ThisWorkbook.PivotCaches.Create(SourceType:=xlDatabase, sourceData:=wsData.ListObjects("salesdata").Range)

Set pt = ptCache.CreatePivotTable(TableDestination:=wsPivot.Cells(startRow, 1), TableName:="customersource")

With pt

.PivotFields("Year").Orientation = xlRowField

.PivotFields("Customer Source").Orientation = xlColumnField

.AddDataField .PivotFields("Sales Amount"), "Sum of Sales Amount", xlSum

End With

startRow = startRow + pt.TableRange2.Rows.Count + 2

' Create Pivot Table 7: salesbycity

Set ptCache = ThisWorkbook.PivotCaches.Create(SourceType:=xlDatabase, sourceData:=wsData.ListObjects("salesdata").Range)

Set pt = ptCache.CreatePivotTable(TableDestination:=wsPivot.Cells(startRow, 1), TableName:="salesbycity")

With pt

.PivotFields("City").Orientation = xlRowField

.AddDataField .PivotFields("Sales Amount"), "Sum of Sales Amount", xlSum

End With

startRow = startRow + pt.TableRange2.Rows.Count + 2

' Create Pivot Table 8: top10

Set ptCache = ThisWorkbook.PivotCaches.Create(SourceType:=xlDatabase, sourceData:=wsData.ListObjects("salesdata").Range)

Set pt = ptCache.CreatePivotTable(TableDestination:=wsPivot.Cells(startRow, 1), TableName:="top10")

With pt

.PivotFields("Customer Name").Orientation = xlRowField

.AddDataField .PivotFields("Sales Amount"), "Sum of Sales Amount", xlSum

End With

startRow = startRow + pt.TableRange2.Rows.Count + 2

' Create Pivot Table 9: salesbyservice

Set ptCache = ThisWorkbook.PivotCaches.Create(SourceType:=xlDatabase, sourceData:=wsData.ListObjects("salesdata").Range)

Set pt = ptCache.CreatePivotTable(TableDestination:=wsPivot.Cells(startRow, 1), TableName:="salesbyservice")

With pt

.PivotFields("Service").Orientation = xlRowField

.AddDataField .PivotFields("Sales Amount"), "Sum of Sales Amount", xlSum

End With

startRow = startRow + pt.TableRange2.Rows.Count + 2

' Create Pivot Table 10: departmentmargin

Set ptCache = ThisWorkbook.PivotCaches.Create(SourceType:=xlDatabase, sourceData:=wsData.ListObjects("salesdata").Range)

Set pt = ptCache.CreatePivotTable(TableDestination:=wsPivot.Cells(startRow, 1), TableName:="departmentmargin")

With pt

.PivotFields("Department").Orientation = xlRowField

.AddDataField .PivotFields("Margin Amount"), "Sum of Margin Amount", xlSum

End With

startRow = startRow + pt.TableRange2.Rows.Count + 2

' Create Pivot Table 11: newvsrepeat

Set ptCache = ThisWorkbook.PivotCaches.Create(SourceType:=xlDatabase, sourceData:=wsData.ListObjects("salesdata").Range)

Set pt = ptCache.CreatePivotTable(TableDestination:=wsPivot.Cells(startRow, 1), TableName:="newvsrepeat")

With pt

.PivotFields("Year").Orientation = xlRowField

.PivotFields("Month").Orientation = xlRowField

.PivotFields("Sale Type").Orientation = xlColumnField

.AddDataField .PivotFields("Sales Amount"), "Sum of Sales Amount", xlSum

End With

MsgBox "Pivot tables created successfully!", vbInformation

End Sub

**Code for Prompt 4**

Public Sub CreateDashboardCharts()

On Error Resume Next

Dim wsP As Worksheet

Dim wsD As Worksheet

Dim pt As PivotTable

Dim shp As Shape

Dim cht As ChartObject

Set wsP = ThisWorkbook.Sheets("Pivot")

Set wsD = ThisWorkbook.Sheets("Dashboard")

' Delete existing charts on Dashboard sheet

For Each cht In wsD.ChartObjects

cht.Delete

Next cht

' 1. Sales Trend Chart

Set pt = wsP.PivotTables("salestrend")

Set cht = wsD.ChartObjects.Add( \_

Left:=wsD.Shapes("csalestrend").Left + (wsD.Shapes("csalestrend").width \* 0.05), \_

Top:=wsD.Shapes("csalestrend").Top + (wsD.Shapes("csalestrend").height \* 0.1), \_

width:=wsD.Shapes("csalestrend").width \* 0.9, \_

height:=wsD.Shapes("csalestrend").height \* 0.8)

With cht.Chart

.ChartType = xlLineMarkers

.SetSourceData pt.TableRange1

.ChartTitle.Delete

With .SeriesCollection(1)

.Format.Line.Weight = 1.75

.Format.Line.ForeColor.RGB = RGB(0, 32, 96)

.MarkerBackgroundColor = RGB(255, 255, 255)

.MarkerForegroundColor = RGB(0, 32, 96)

.MarkerSize = 5

.HasDropLines = True

.MarkerStyle = xlMarkerStyleCircle

End With

Call FormatChartGeneral(cht.Chart)

End With

' 2. Customer Source Chart

Set pt = wsP.PivotTables("customersource")

Set cht = wsD.ChartObjects.Add( \_

Left:=wsD.Shapes("ccustsource").Left + (wsD.Shapes("ccustsource").width \* 0.05), \_

Top:=wsD.Shapes("ccustsource").Top + (wsD.Shapes("ccustsource").height \* 0.1), \_

width:=wsD.Shapes("ccustsource").width \* 0.9, \_

height:=wsD.Shapes("ccustsource").height \* 0.8)

With cht.Chart

.ChartType = xlBarStacked100

.SetSourceData pt.TableRange1

Dim i As Long

For i = 1 To .SeriesCollection.Count

.SeriesCollection(i).Format.Fill.ForeColor.RGB = RGB(0, 32 + (i \* 32), 96 + (i \* 32))

Next i

Call FormatChartGeneral(cht.Chart)

End With

' 3. Sales by City Chart

Set pt = wsP.PivotTables("salesbycity")

Set cht = wsD.ChartObjects.Add( \_

Left:=wsD.Shapes("csalescity").Left + (wsD.Shapes("csalescity").width \* 0.05), \_

Top:=wsD.Shapes("csalescity").Top + (wsD.Shapes("csalescity").height \* 0.1), \_

width:=wsD.Shapes("csalescity").width \* 0.9, \_

height:=wsD.Shapes("csalescity").height \* 0.8)

With cht.Chart

.ChartType = xlDoughnut

.SetSourceData pt.TableRange1

.ChartTitle.Delete

For i = 1 To .SeriesCollection(1).Points.Count

.SeriesCollection(1).Points(i).ExplosionOffset = 3

.SeriesCollection(1).Points(i).Format.Fill.ForeColor.RGB = RGB(0, 32 + (i \* 16), 96 + (i \* 16))

Next i

Call FormatChartGeneral(cht.Chart)

End With

' 4. Top 10 Chart

Set pt = wsP.PivotTables("top10")

Set cht = wsD.ChartObjects.Add( \_

Left:=wsD.Shapes("ctop10").Left + (wsD.Shapes("ctop10").width \* 0.05), \_

Top:=wsD.Shapes("ctop10").Top + (wsD.Shapes("ctop10").height \* 0.1), \_

width:=wsD.Shapes("ctop10").width \* 0.9, \_

height:=wsD.Shapes("ctop10").height \* 0.8)

With cht.Chart

.ChartType = xlBarClustered

.SetSourceData pt.TableRange1

.SeriesCollection(1).Format.Fill.ForeColor.RGB = RGB(0, 32, 96)

.ChartTitle.Delete

Call FormatChartGeneral(cht.Chart)

End With

' 5. Sales by Service Chart

Set pt = wsP.PivotTables("salesbyservice")

Set cht = wsD.ChartObjects.Add( \_

Left:=wsD.Shapes("csalesservice").Left + (wsD.Shapes("csalesservice").width \* 0.05), \_

Top:=wsD.Shapes("csalesservice").Top + (wsD.Shapes("csalesservice").height \* 0.1), \_

width:=wsD.Shapes("csalesservice").width \* 0.9, \_

height:=wsD.Shapes("csalesservice").height \* 0.8)

With cht.Chart

.ChartType = xl3DColumn

.SetSourceData pt.TableRange1

.SeriesCollection(1).Format.Fill.ForeColor.RGB = RGB(0, 32, 96)

.RightAngleAxes = True

Call FormatChartGeneral(cht.Chart)

.ChartTitle.Delete

End With

' 6. Department Margin Chart

Set pt = wsP.PivotTables("departmentmargin")

Set cht = wsD.ChartObjects.Add( \_

Left:=wsD.Shapes("cdeptmargin").Left + (wsD.Shapes("cdeptmargin").width \* 0.05), \_

Top:=wsD.Shapes("cdeptmargin").Top + (wsD.Shapes("cdeptmargin").height \* 0.1), \_

width:=wsD.Shapes("cdeptmargin").width \* 0.9, \_

height:=wsD.Shapes("cdeptmargin").height \* 0.8)

With cht.Chart

.ChartType = xlPie

.SetSourceData pt.TableRange1

.ChartTitle.Delete

For i = 1 To .SeriesCollection(1).Points.Count

.SeriesCollection(1).Points(i).ExplosionOffset = 3

.SeriesCollection(1).Points(i).Format.Fill.ForeColor.RGB = RGB(0, 32 + (i \* 16), 96 + (i \* 16))

Next i

Call FormatChartGeneral(cht.Chart)

End With

' 7. New vs Repeat Chart

Set pt = wsP.PivotTables("newvsrepeat")

Set cht = wsD.ChartObjects.Add( \_

Left:=wsD.Shapes("cnewrepeat").Left + (wsD.Shapes("cnewrepeat").width \* 0.05), \_

Top:=wsD.Shapes("cnewrepeat").Top + (wsD.Shapes("cnewrepeat").height \* 0.1), \_

width:=wsD.Shapes("cnewrepeat").width \* 0.9, \_

height:=wsD.Shapes("cnewrepeat").height \* 0.8)

With cht.Chart

.ChartType = xlLineMarkersStacked

.SetSourceData pt.TableRange1

.ChartTitle.Delete

For i = 1 To .SeriesCollection.Count

With .SeriesCollection(i)

.Format.Line.ForeColor.RGB = RGB(0, 32 + (i \* 32), 96 + (i \* 32))

.Format.Line.Weight = 1.5

.MarkerBackgroundColor = RGB(255, 255, 255)

.MarkerForegroundColor = RGB(0, 32 + (i \* 32), 96 + (i \* 32))

.MarkerSize = 4

.MarkerStyle = xlMarkerStyleCircle

.Border.Weight = 2

End With

Next i

Call FormatChartGeneral(cht.Chart)

End With

MsgBox "Charts have been created successfully!", vbInformation

End Sub

Private Sub FormatChartGeneral(cht As Chart)

With cht

.HasTitle = False

.HasLegend = False

' Format chart area

With .ChartArea

.Format.Fill.Visible = False

.Format.Line.Visible = False

End With

' Format plot area

.PlotArea.Format.Line.Visible = False

' Format axes if they exist

On Error Resume Next

With .Axes(xlCategory)

.Format.Line.Visible = False

.TickLabels.Font.Name = "Calibri"

.TickLabels.Font.Size = 7

.TickLabels.Font.Bold = True

.TickLabels.Font.Color = RGB(0, 32, 96)

End With

With .Axes(xlValue)

.TickLabels.Format.Line.Visible = False

.TickLabels.Font.Name = "Calibri"

.TickLabels.Font.Size = 7

.TickLabels.Font.Bold = True

.TickLabels.Font.Color = RGB(0, 32, 96)

.NumberFormat = "#,##0"

End With

On Error GoTo 0

' Hide field buttons

.ShowAllFieldButtons = False

End With

End Sub