Question 1:

```
Public Class Form1    ' Ilker Hadzhalaran

    Dim dblFx As Double
    Dim dblFy As Double
    Dim dblResultantVector As Double
    Dim dblThetaA As Double

    Private Sub Form1_Load(sender As Object, e As EventArgs) Handles MyBase.Load
        chkShowThetaA.Checked = False
    End Sub

    Private Sub btnExit_Click(sender As Object, e As EventArgs) Handles btnExit.Click
        Me.Close()
    End Sub

    Private Sub btnCalculate_Click(sender As Object, e As EventArgs) Handles
btnCalculate.Click

        dblFx = CDbl(txtInputFx.Text)
        dblFy = CDbl(txtInputFy.Text)

        'Ensuring the Fx and Fy values are not 0
        If (dblFx = 0 Or dblFy = 0) Then
            MsgBox("Neither Fx nor Fy can be 0")
        End If

        'Calculation and displaying the result
        dblResultantVector = CDbl(Math.Sqrt(Math.Pow(dblFx, 2) + Math.Pow(dblFy, 2)))
        lblResultantVector.Text = "Resultant Vector: " &
(dblResultantVector).ToString("n1")

        dblThetaA = CDbl((Math.Atan(Math.Abs(dblFy / dblFx))) * (180 / (Math.PI)))


        'Checking if checkbox is checked or not and determining which angle to show
        If chkShowThetaA.Checked = True Then
            lblDirectionAngle.Text = "Direction Angle (deg): " &
(dblThetaA).ToString("n1")

        ElseIf (chkShowThetaA.Checked = False) Then

            If (dblFx > 0 And dblFy > 0) Then
                lblDirectionAngle.Text = "Direction Angle (deg): " &
(dblThetaA).ToString("n1")

            ElseIf (dblFx > 0 And dblFy < 0) Then
                lblDirectionAngle.Text = "Direction Angle (deg): " & (360 -
dblThetaA).ToString("n1")

            ElseIf (dblFx < 0 And dblFy > 0) Then
                lblDirectionAngle.Text = "Direction Angle (deg): " & (180 -
dblThetaA).ToString("n1")

            ElseIf (dblFx < 0 And dblFy < 0) Then
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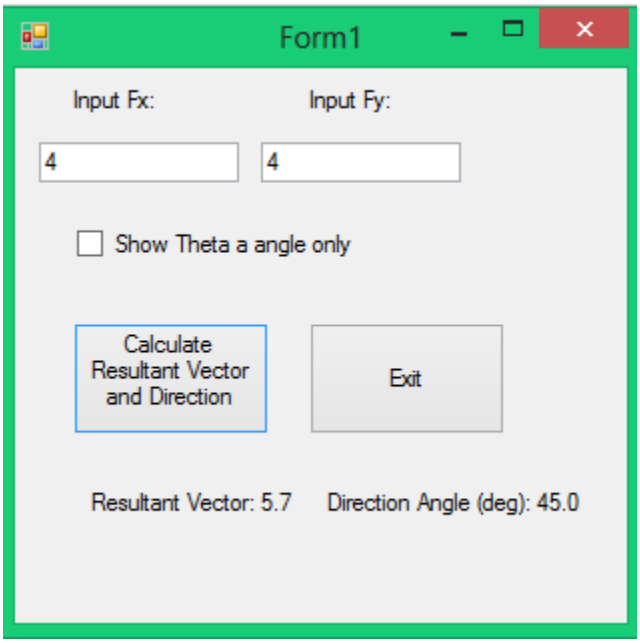
                lblDirectionAngle.Text = "Direction Angle (deg): " & (180 +
dblThetaA).ToString("n1")

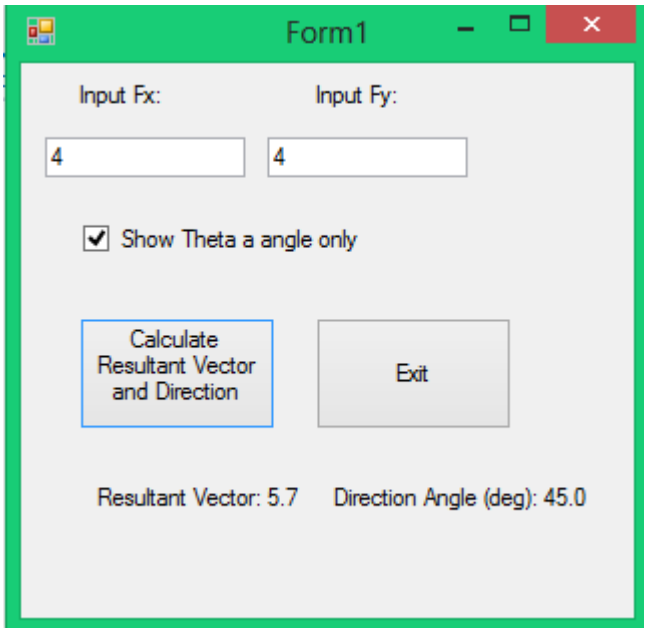

            End If

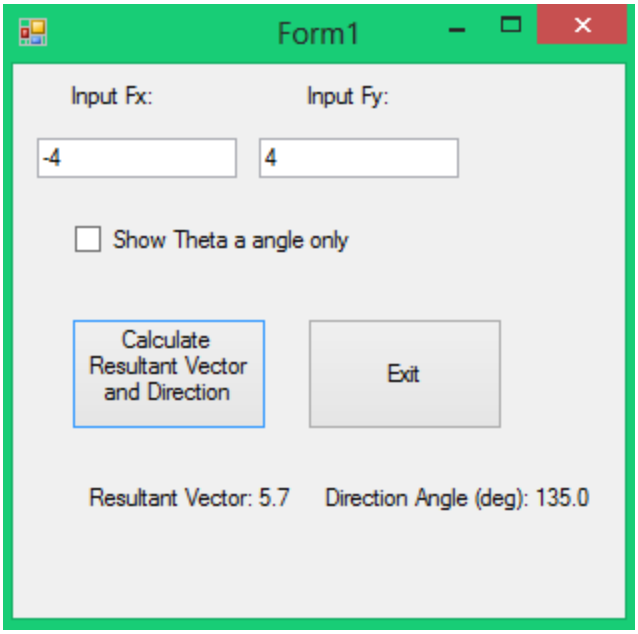
        End If

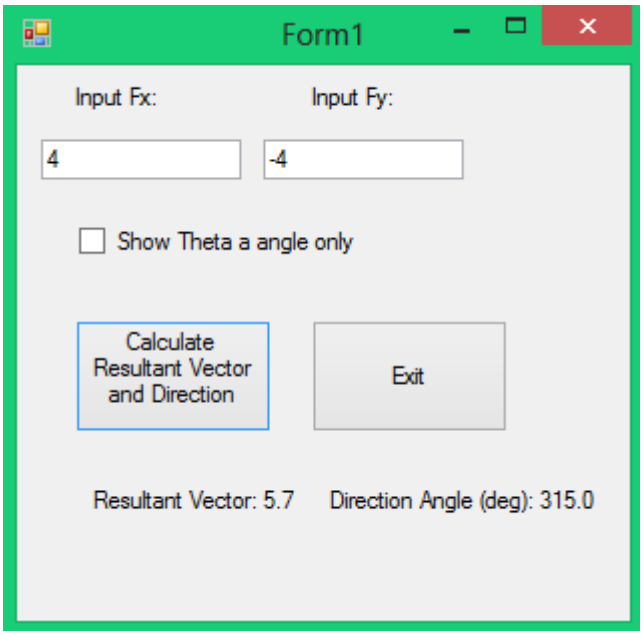

    End Sub

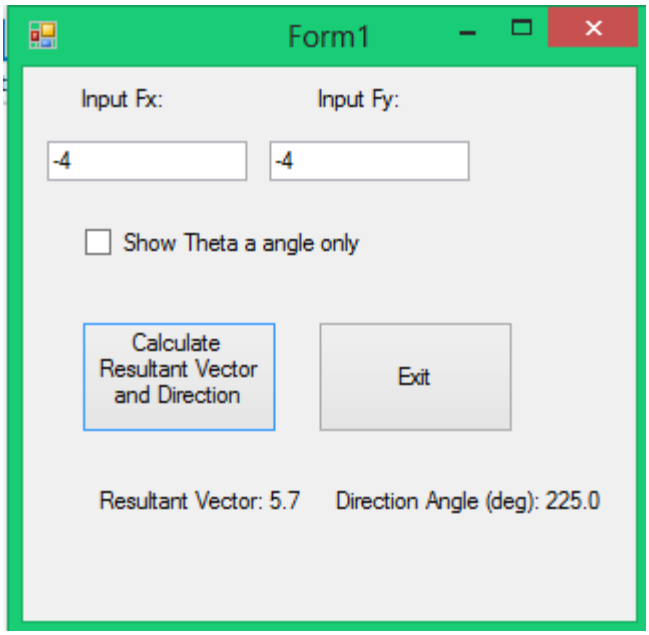

End Class
```

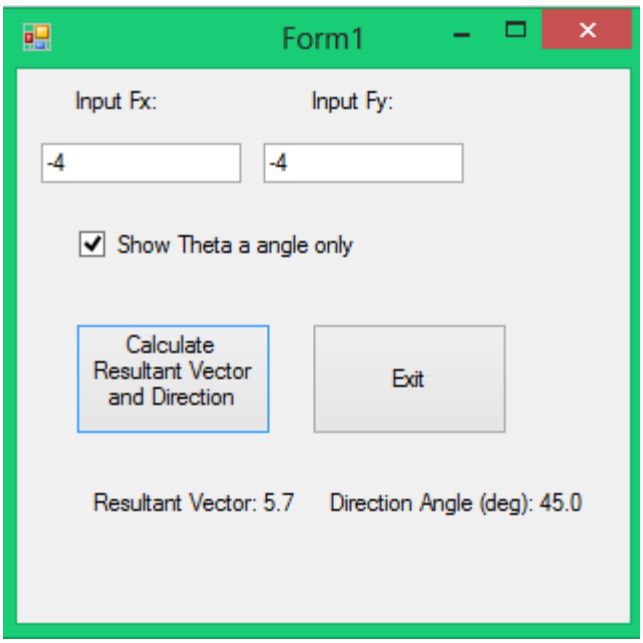



Form1
Input Fx:
Input Fy:
4
4
Show Theta a angle only
Calculate Resultant Vector and Direction
Exit
Resultant Vector: 5.7
Direction Angle (deg): 45.0


Form1
Input Fx:
Input Fy:
-4
4
Show Theta a angle only
Calculate Resultant Vector and Direction
Exit
Resultant Vector: 5.7
Direction Angle (deg): 135.0


Form1
Input Fx:
Input Fy:
4
-4
Show Theta a angle only
Calculate Resultant Vector and Direction
Exit
Resultant Vector: 5.7
Direction Angle (deg): 315.0


Form1
Input Fx:
Input Fy:
-4
-4
Show Theta a angle only
Calculate Resultant Vector and Direction
Exit
Resultant Vector: 5.7
Direction Angle (deg): 225.0


Form1
Input Fx:
Input Fy:
-4
-4
Show Theta a angle only
Calculate Resultant Vector and Direction
Exit
Resultant Vector: 5.7
Direction Angle (deg): 45.0

Question 2:

```
Public Class Form1     ' Ilker Hadzhalaran

    Dim dblMassPlanet As Double
    Dim dblMassObject As Double
    Const dblGRAVITY_CONST As Double = 0.00000000006674
    Const dblR_ON_PLANET As Double = 6380000
    Dim dblDistanceBetweenPlanetAndObject As Double
    Dim dblResultWeight As Double

    Private Sub Form1_Load(sender As Object, e As EventArgs) Handles MyBase.Load
        rad100Above.Checked = True

    End Sub

    Private Sub btnExit_Click(sender As Object, e As EventArgs) Handles btnExit.Click
        Me.Close()
    End Sub

    Private Sub btnCalculate_Click(sender As Object, e As EventArgs) Handles
btnCalculate.Click

        'Using TryParse to find/fix errors
        If Not Double.TryParse(txtInputMassPlanet.Text, dblMassPlanet) Then
            MsgBox("Invalid Mass of Planet value", , "Error")

        ElseIf Not Double.TryParse(txtInputMassObject.Text, dblMassObject) Then
            MsgBox("Invalid Mass of Object value", , "Error")

        End If

        dblMassPlanet = CDbl(txtInputMassPlanet.Text)
        dblMassObject = CDbl(txtInputMassObject.Text)


        'Radio buttons
        If radOnPlanet.Checked = True Then
            dblDistanceBetweenPlanetAndObject = dblR_ON_PLANET

        ElseIf rad100Above.Checked = True Then
            dblDistanceBetweenPlanetAndObject = CDbl(dblR_ON_PLANET + 100000)

        Else
            dblDistanceBetweenPlanetAndObject = CDbl(dblR_ON_PLANET + 500000)

        End If


        'The calculation
        dblResultWeight = CDbl(dblGRAVITY_CONST * (dblMassPlanet * dblMassObject) /
Math.Pow(dblDistanceBetweenPlanetAndObject, 2))

        'Displaying the inputs and outputs
        lblResultWeight.Text = "Result Weight (N): " & dblResultWeight.ToString("e")
        lblDisplayPlanetMass.Text = "Planet Mass (kg): " & dblMassPlanet.ToString("e")
        lblDisplayObjectMass.Text = "Object Mass (kg): " & dblMassObject.ToString("e")
```

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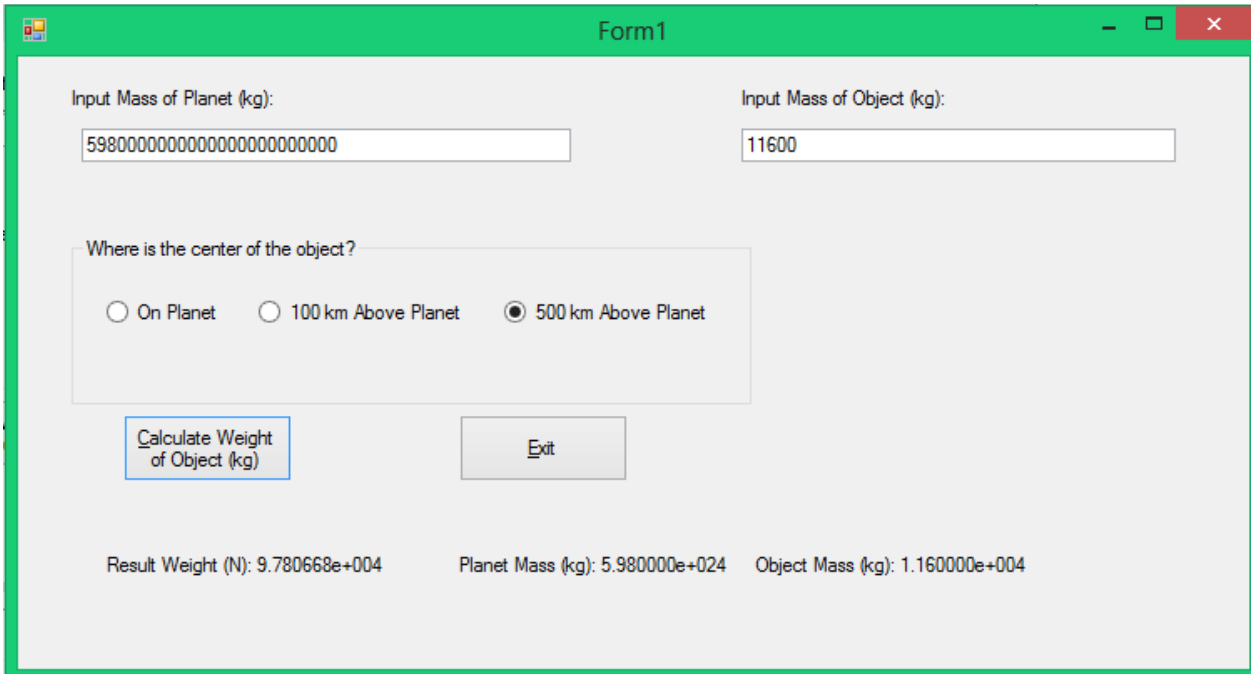
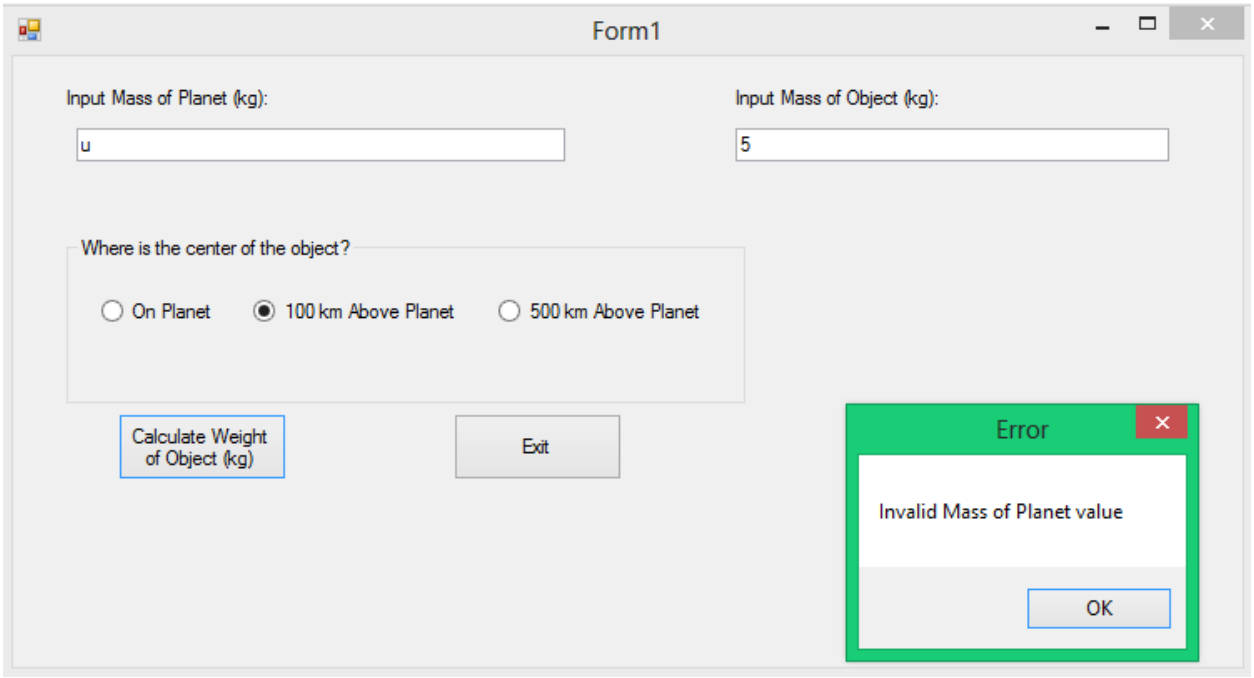
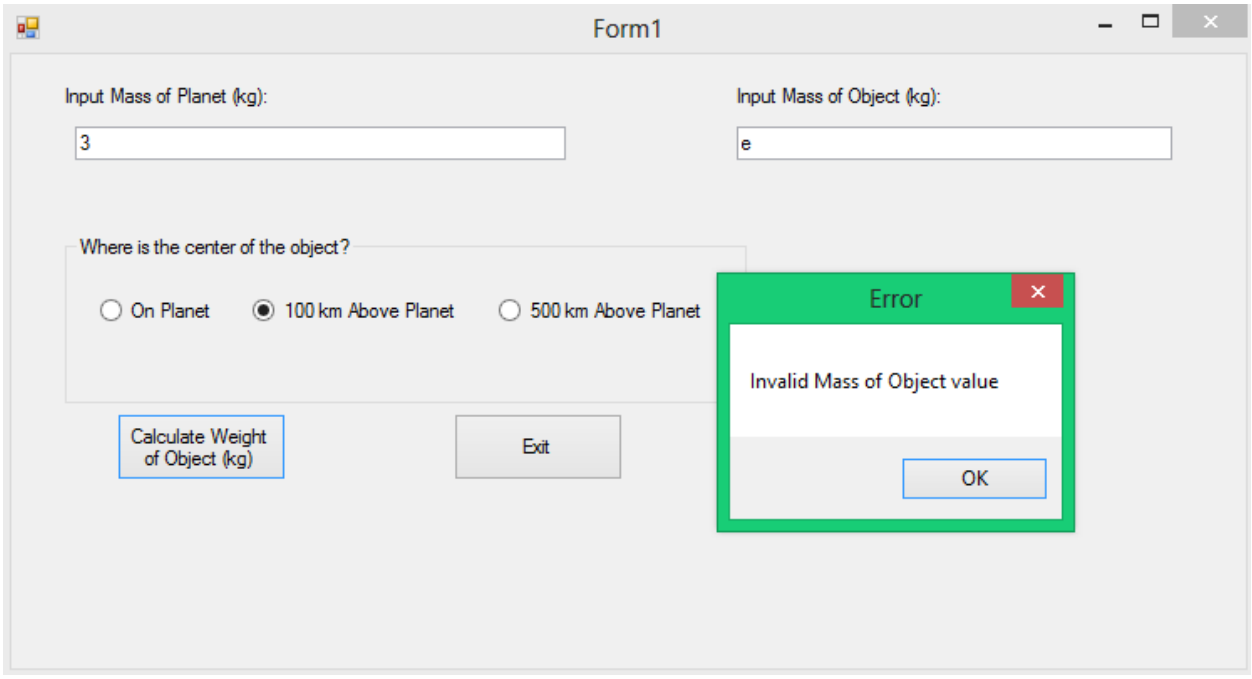
    End Sub

End Class
```






Form1
Input Mass of Planet (kg):
3
Input Mass of Object (kg):
e
Where is the center of the object?
On Planet
100 km Above Planet
500 km Above Planet
Calculate Weight of Object (kg)
Exit
Error
Invalid Mass of Object value
OK