

Question 1:

```
Public Class Form1 'Ilker Hadzhalaran

    Private Sub Form1_Load(sender As Object, e As EventArgs) Handles MyBase.Load
        lblDisplayArray.Text = String.Empty
        txtUserEntersNumberOfNumbers.Clear()
    End Sub

    Private Sub btnGenerate_Click(sender As Object, e As EventArgs) Handles
        btnGenerate.Click

        Dim N As Integer
        Dim intArray() As Integer = {}
        Dim rand As New Random()
        Dim intRandomNumber As Integer
        Dim intMin, intMax As Integer

        N = CInt(txtUserEntersNumberOfNumbers.Text)

        If N > 0 Then
            ReDim intArray(N - 1)
        Else
            lblDisplayArray.Text = "Enter a number greater than 0."
            Exit Sub
        End If

        For intCounter As Integer = 0 To intArray.Length - 1 Step 1

            If intCounter Mod 10 = 0 And intCounter <> 0 Then
                lblDisplayArray.Text &= vbCrLf
            End If

            intRandomNumber = rand.Next(1001) + 1

            intArray(intCounter) = intRandomNumber

            lblDisplayArray.Text &= Space(5) & intArray(intCounter).ToString()
        Next

        FindMinAndMax(intMin, intMax, N, intArray)

        lblDisplayArray.Text &= vbCrLf & vbCrLf & "Random Number with the highest value: " &
intMax
        lblDisplayArray.Text &= vbCrLf & "Random Number with the lowest value: " & intMin

    End Sub

    Private Sub FindMinAndMax(ByRef intMin As Integer, ByRef intMax As Integer, ByVal N
As Integer, ByVal ParamArray intArray() As Integer)

        intMin = intArray.Min
        intMax = intArray.Max

    End Sub
```

```
Private Sub btnClear_Click(sender As Object, e As EventArgs) Handles btnClear.Click
    lblDisplayArray.Text = String.Empty
    txtUserEntersNumberOfNumbers.Clear()

End Sub

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

The screenshot shows a Windows Form titled "Form1" with a standard Windows title bar (blue background, minimize, maximize, and close buttons). The form has a light gray background. At the top, there is a label "Enter the number of random numbers you want to generate:". Below this label is a text box containing the number "11". Underneath the text box, a list of 11 random numbers is displayed: 587, 476, 241, 674, 237, 665, 923, 57, 154, 539, and 880. Below the list, two lines of text provide summary information: "Random Number with the highest value: 923" and "Random Number with the lowest value: 57". At the bottom of the form, there are three buttons: "Generate", "Clear", and "Exit". The "Generate" button is highlighted with a blue border.

Form1

Enter the number of random numbers you want to generate:

26

118	438	408	757	207	968	555	866	54	954
888	904	158	858	423	891	596	632	982	622
756	270	234	700	170	921				

Random Number with the highest value: 982
Random Number with the lowest value: 54

Generate Clear Exit

Form1

Enter the number of random numbers you want to generate:

Generate Clear Exit

Question 2:

```
Public Class Form1 'Ilker Hadzhalaran

    Private Sub Form1_Load(sender As Object, e As EventArgs) Handles MyBase.Load

        lstMaterialsList.Items.Add("Aluminum")
        lstMaterialsList.Items.Add("Brass")
        lstMaterialsList.Items.Add("Copper")
        lstMaterialsList.Items.Add("Nylon")
        lstMaterialsList.Items.Add("Steel")
        lstMaterialsList.Items.Add("Teflon")

        txtInputA.Clear()
        txtInputDeltaL.Clear()
        txtInputLKnot.Clear()
        lblDisplayResults.Text = String.Empty
        lstMaterialsList.SelectedIndex = 0

    End Sub

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

        Dim dblInputA, dblInputLKnot, dblInputDeltaL, dblForceMagnitude As Double
        Dim intIndexOfListBox As Integer
        Dim dblArrayYoungModulus() As Double = {6.9, 9.0, 11.0, 0.37, 21.0, 0.037}

        dblInputA = Cdbl(txtInputA.Text)
        dblInputLKnot = Cdbl(txtInputLKnot.Text)
        dblInputDeltaL = Cdbl(txtInputDeltaL.Text)

        If dblInputA < 0.01 Or dblInputA > 0.2 Then
            MsgBox("0.01 <= A <= 0.2")
            Exit Sub
        End If

        If dblInputLKnot < 10 Or dblInputLKnot > 20 Then
            MsgBox("10 <= L knot <= 20")
            Exit Sub
        End If

        If dblInputDeltaL <= 0 Or dblInputDeltaL > (1.5 * 10 ^ -3) Then
            MsgBox("0 < delta L <= 1.5 * 10^-3")
            Exit Sub
        End If

        Try

            intIndexOfListBox = lstMaterialsList.SelectedIndex

            dblForceMagnitude = (dblArrayYoungModulus(intIndexOfListBox) * 10 ^ 10) *
(dblInputDeltaL / dblInputLKnot) * dblInputA
            lblDisplayResults.Text = "Input Values: " & (dblInputA).ToString("e3") & "
m^2," & Space(5) & (dblInputLKnot).ToString("e3") & " m," & Space(5) &
```

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(dblInputDeltaL).ToString("e3") & " m," & Space(5) & "Material: " &
lstMaterialsList.SelectedItem
    lblDisplayResults.Text &= vbCrLf & "Magnitude of Force: " &
(dblForceMagnitude).ToString("e3") & " N"

    Catch ex As Exception
        MessageBox.Show(ex.Message)
    End Try

End Sub

Private Sub btnClear_Click(sender As Object, e As EventArgs) Handles btnClear.Click
    txtInputA.Clear()
    txtInputDeltaL.Clear()
    txtInputLKnot.Clear()
    lblDisplayResults.Text = String.Empty
    lstMaterialsList.SelectedIndex = 0

End Sub

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

```

The image shows two windows from a Windows application. The main window, titled 'Form1', has a light gray background and contains the following elements:

- A label: "Enter A (m²), L knot (m), and delta L (m):"
- Three text input boxes: the first contains '5', the second contains '6', and the third contains '7'.
- A list box below the inputs, currently showing 'Aluminum' as the selected item. Other items in the list are Brass, Copper, Nylon, Steel, and Teflon.
- Three buttons at the bottom: 'Calculate', 'Clear', and 'Exit'.

To the right of the main window is a smaller dialog box titled 'Lab6_Question2'. It has a white background and contains:

- The text: "0.01 <= A <= 0.2"
- An 'OK' button at the bottom.

Form1

Enter A (m²), L knot (m), and delta L (m):

0.02 6 7

Aluminum
Brass
Copper
Nylon
Steel
Teflon

Calculate Clear Exit

Lab6_Question2

10 <= L knot <= 20

OK

Form1

Enter A (m²), L knot (m), and delta L (m):

0.02 14 7

Aluminum
Brass
Copper
Nylon
Steel
Teflon

Calculate Clear Exit

Lab6_Question2

0 < delta L <= 1.5 * 10⁻³

OK

Form1

Enter A (m²), L knot (m), and delta L (m):

0.02 14 0.0003

Aluminum
Brass
Copper
Nylon
Steel
Teflon

Input Values: 2.000e-002 m², 1.400e+001 m, 3.000e-004 m, Material: Steel
Magnitude of Force: 9.000e+004 N

Calculate Clear Exit

Form1

Enter A (m²), L knot (m), and delta L (m):

Aluminum
Brass
Copper
Nylon
Steel
Teflon

Calculate Clear Exit

Form1

Enter A (m²), L knot (m), and delta L (m):

0.03 11 0.0006

Aluminum
Brass
Copper
Nylon
Steel
Teflon

Input Values: 3.000e-002 m², 1.100e+001 m, 6.000e-004 m, Material: Teflon
Magnitude of Force: 6.055e+002 N

Calculate Clear Exit