LISTING PROGRAM COCKTAIL SHAKER SORT

Imports System.Data.Odbc
Imports System.Data

Public Class cocktail
    Dim k As Integer
    Dim insertquery As String
    Dim deletequery As String
    Dim hasil As Integer
    Dim hasil_delete As Integer
    Dim detik As Double

    Private Sub cocktail_Load(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles MyBase.Load
        getConnString()
        Label7.Visible = False
        Label6.Visible = False
        Label4.Visible = False
        Label5.Visible = False
    End Sub

    Public Function CocktailSortNumber(ByVal ListofNumber As List(Of Integer)) As List(Of Integer)
        Dim swaps As Boolean = True
        While swaps = True
            swaps = False
            For i As Integer = 0 To ListofNumber.Count - 2
                If ListofNumber(i) > ListofNumber(i + 1) Then
                    Dim temp As Integer = ListofNumber(i)
                    ListofNumber(i) = ListofNumber(i + 1)
                    ListofNumber(i + 1) = temp
                    swaps = True
                End If
            Next
            swaps = False
            For i As Integer = ListofNumber.Count - 2 To 0 Step -1
                If ListofNumber(i) > ListofNumber(i + 1) Then
                    Dim temp As Integer = ListofNumber(i)
                    ListofNumber(i) = ListofNumber(i + 1)
                    ListofNumber(i + 1) = temp
                    swaps = True
                End If
            Next
        End While
    End Function

End Class
Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button1.Click
    Label6.Visible = True
    Label7.Visible = True
    Label4.Visible = True
    Label5.Visible = True
    Label5.Text = txtjumangka.Text

    Try
        openConn()

        deletequery = ("delete from angka")
        cmd = New OdbcCommand(deletequery, conn)
        hasil_delete = cmd.ExecuteNonQuery

        deletequery = ("delete from cocktail")
        cmd = New OdbcCommand(deletequery, conn)
        hasil_delete = cmd.ExecuteNonQuery

        Dim randomG As New Random
        Dim ListOfInteger As New List(Of Integer)
        For i As Integer = 1 To txtjumangka.Text
            insertquery = ("insert into angka values('','" & randomG.Next(0, 100000) & ")")
            cmd2 = New OdbcCommand(insertquery, conn)
            hasil = cmd2.ExecuteNonQuery
        Next

        cmd12 = New OdbcCommand("select * from angka order by id_angka ASC", conn)
        rd12 = cmd12.ExecuteReader
        While rd12.Read
            ListOfInteger.Add(rd12.Item("angka"))
        End While

        Dim oWatch As New Stopwatch

Watch.Start()
''Sort and format
Dim outpt2 As String = 
For Each bub As String In CocktailSortNumber(ListOfInteger)
  outpt2 += bub & 
  insertquery = ("insert into cocktail values('','" & bub & 
"'))
  cmd2 = New OdbcCommand(insertquery, conn)
  hasil = cmd2.ExecuteNonQuery
Next
Watch.Stop()

detik = Val(Watch.ElapsedMilliseconds.ToString / 1000)

Label6.Text = detik & " Detik"

Dim cmd As New OdbcCommand("SELECT * FROM waktu_cocktail WHERE jum_angka = '" & txtjumangka.Text & ", conn)
  rd = cmd.ExecuteReader
  If rd.HasRows Then
    insertquery = ("UPDATE waktu_cocktail SET waktu='" & detik & 
" WHERE jum_angka= '" & txtjumangka.Text & ", conn)
    cmd2 = New OdbcCommand(insertquery, conn)
    hasil = cmd2.ExecuteNonQuery
  Else
    insertquery = ("insert into waktu_cocktail values('','" & txtjumangka.Text & ", conn)
    cmd2 = New OdbcCommand(insertquery, conn)
    hasil = cmd2.ExecuteNonQuery
  End If

Dim dt As New DataTable
GetData(dt, "select angka from angka order by id_angka ASC")
  dgsebelum.DataSource = dt
  dgsebelum.Columns(0).HeaderText = "Angka"
  dgsebelum.Columns(0).Width = 550

Dim dt2 As New DataTable
GetData(dt2, "select angka from cocktail order by id_cocktail ASC")
  dgsesudah.DataSource = dt2
  dgsesudah.Columns(0).HeaderText = "Angka"
  dgsesudah.Columns(0).Width = 550

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

Private Sub Label2_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Label2.Click
End Sub

Private Sub Button2_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button2.Click
    Form2.Show()
End Sub

Private Sub chartbanding_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles chartbanding.Click
    Form1.Show()
End Sub

Private Sub dgsebelum_CellContentClick(ByVal sender As System.Object, ByVal e As System.Windows.Forms.DataGridViewCellEventArgs) Handles dgsebelum.CellContentClick
End Sub

Private Sub txtjumangka_TextChanged(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles txtjumangka.TextChanged
End Sub

Private Sub Label1_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Label1.Click
End Sub
End Class
LISTING PROGRAM 4 WAY MERGE SORT

Imports System.Data.Odbc
Imports System.Data

Public Class mergesort

    Dim tmp As Integer
    Dim tmp2 As Integer
    Dim tmp3 As Integer
    Dim tmp4 As Integer
    Dim tmp5 As Integer
    Dim insertquery As String
    Dim deletequery As String
    Dim hasil As Integer
    Dim hasil_delete As Integer
    Dim bagi As Integer
    Dim bagi2 As Integer
    Dim bagi3 As Integer
    Dim bagi4 As Integer
    Dim detik As Double

Private Sub mergesort_Load(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles MyBase.Load
    getConnString()
    Label7.Visible = False
    Label6.Visible = False
    Label4.Visible = False
    Label5.Visible = False
End Sub

Private Sub Button1_Click_1(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button1.Click
    Label6.Visible = True
    Label7.Visible = True
    Label4.Visible = True
    Label5.Visible = True

    Try
        openConn()
        deletequery = ("delete from way1")
        cmd = New OdbcCommand(deletequery, conn)
        hasil_delete = cmd.ExecuteNonQuery
        closeConn()
    Catch ex As Exception
        MessageBox.Show(ex.Message)
    End Try
End Try
Try
    openConn()
    deletequery = ("delete from way2")
    cmd = New OdbcCommand(deletequery, conn)
    hasil_delete = cmd.ExecuteNonQuery
    closeConn()
Catch ex As Exception
    MessageBox.Show(ex.Message)
End Try

Try
    openConn()
    deletequery = ("delete from way3")
    cmd = New OdbcCommand(deletequery, conn)
    hasil_delete = cmd.ExecuteNonQuery
    closeConn()
Catch ex As Exception
    MessageBox.Show(ex.Message)
End Try

Try
    openConn()
    deletequery = ("delete from way4")
    cmd = New OdbcCommand(deletequery, conn)
    hasil_delete = cmd.ExecuteNonQuery
    closeConn()
Catch ex As Exception
    MessageBox.Show(ex.Message)
End Try

Try
    openConn()
    deletequery = ("delete from way_akhir")
    cmd = New OdbcCommand(deletequery, conn)
    hasil_delete = cmd.ExecuteNonQuery
    closeConn()
Catch ex As Exception
    MessageBox.Show(ex.Message)
End Try

Try
    openConn()
    cmd11 = New OdbcCommand("SELECT COUNT(*) AS jum_angka FROM angka", conn)
    rd11 = cmd11.ExecuteReader
    rd11.Read()
    txtjumangka.Text = rd11.Item("jum_angka")
bagi = Math.Ceiling(rd11.Item("jum_angka") / 4)
bagi2 = Val(bagi + bagi)
bagi3 = Val(bagi2 + bagi)
bagi4 = Val(bagi3 + bagi)

cmd12 = New OdbcCommand("select * from angka order by id_angka
ASC LIMIT 0," & bagi & "," & bagi & ",", conn)
rd12 = cmd12.ExecuteReader
While rd12.Read
    insertquery = ("insert into way1 values('',',' &
rd12.Item("id_angka") & ",'' &
rd12.Item("angka") & ",")")
    cmd2 = New OdbcCommand(insertquery, conn)
    hasil = cmd2.ExecuteNonQuery
End While

cmd13 = New OdbcCommand("select * from angka order by id_angka
ASC LIMIT "," & bagi & "," & bagi & ",", conn)
rd13 = cmd13.ExecuteReader
While rd13.Read
    insertquery = ("insert into way2 values('',',' &
rd13.Item("id_angka") & ",'' &
rd13.Item("angka") & ",")")
    cmd2 = New OdbcCommand(insertquery, conn)
    hasil = cmd2.ExecuteNonQuery
End While

cmd14 = New OdbcCommand("select * from angka order by id_angka
ASC LIMIT "," & bagi & "," & bagi & ",", conn)
rd14 = cmd14.ExecuteReader
While rd14.Read
    insertquery = ("insert into way3 values('',',' &
rd14.Item("id_angka") & ",'' &
rd14.Item("angka") & ",")")
    cmd2 = New OdbcCommand(insertquery, conn)
    hasil = cmd2.ExecuteNonQuery
End While

cmd15 = New OdbcCommand("select * from angka order by id_angka
ASC LIMIT "," & bagi & "," & bagi & ",", conn)
rd15 = cmd15.ExecuteReader
While rd15.Read
    insertquery = ("insert into way4 values('',',' &
rd15.Item("id_angka") & ",'' &
rd15.Item("angka") & ",")")
    cmd2 = New OdbcCommand(insertquery, conn)
    hasil = cmd2.ExecuteNonQuery
End While

Dim output As New List(Of Integer)

cmd = New OdbcCommand("select angka from way1 order by id_angka
ASC", conn)
rd = cmd.ExecuteReader
While rd.Read
    output.Add(rd("angka"))
End While

Dim output2 As New List(Of Integer)
cmd3 = New OdbcCommand("select angka from way2 order by id_angka ASC", conn)
rd3 = cmd3.ExecuteReader
While rd3.Read
    output2.Add(rd3("angka"))
End While

Dim output3 As New List(Of Integer)
cmd6 = New OdbcCommand("select angka from way3 order by id_angka ASC", conn)
rd6 = cmd6.ExecuteReader
While rd6.Read
    output3.Add(rd6("angka"))
End While

Dim output4 As New List(Of Integer)
cmd8 = New OdbcCommand("select angka from way4 order by id_angka ASC", conn)
rd8 = cmd8.ExecuteReader
While rd8.Read
    output4.Add(rd8("angka"))
End While

Dim output5 As New List(Of Integer)
'watch
Dim oWatch As New Stopwatch
oWatch.Start()

For i As Integer = 0 To output.Count - 1
    For j As Integer = i + 1 To output.Count - 1
        If output(i) > output(j) Then
            tmp = output(i)
            output(i) = output(j)
            output(j) = tmp
        End If
    Next
Next

For i As Integer = 0 To output5.Count - 1
    output5.Add(output(i))
Next

For k As Integer = 0 To output2.Count - 1
    For l As Integer = k + 1 To output2.Count - 1
        If output2(k) > output2(l) Then
            tmp2 = output2(k)
            output2(k) = output2(l)
            output2(l) = tmp2
        End If
    Next
Next

For k As Integer = 0 To output2.Count - 1
    output5.Add(output2(k))
Next
Next

For m As Integer = 0 To output3.Count - 1
    For n As Integer = m + 1 To output3.Count - 1
        If output3(m) > output3(n) Then
            tmp3 = output3(m)
            output3(m) = output3(n)
            output3(n) = tmp3
        End If
    Next
Next

For m As Integer = 0 To output3.Count - 1
    output5.Add(output3(m))
Next

For o As Integer = 0 To output4.Count - 1
    For p As Integer = o + 1 To output4.Count - 1
        If output4(o) > output4(p) Then
            tmp4 = output4(o)
            output4(o) = output4(p)
            output4(p) = tmp4
        End If
    Next
Next

For o As Integer = 0 To output4.Count - 1
    output5.Add(output4(o))
Next

For y As Integer = 0 To output5.Count - 1
    For z As Integer = y + 1 To output5.Count - 1
        If output5(y) > output5(z) Then
            tmp = output5(y)
            output5(y) = output5(z)
            output5(z) = tmp
        End If
    Next
Next

oWatch.Stop()

For y As Integer = 0 To output5.Count - 1
    insertquery = ("insert into way_akhir values('','" & output5(y) & "')")
    cmd2 = New OdbcCommand(insertquery, conn)
    hasil = cmd2.ExecuteNonQuery
Next

detik = Val(oWatch.ElapsedMilliseconds.ToString) / 1000

Label6.Text = detik & " Detik"

cmd = New OdbcCommand("SELECT * FROM waktu_4merge WHERE jum_angka = '' & txtjumangka.Text & "'", conn)
rd = cmd.ExecuteReader
If rd.HasRows Then
    insertquery = (@"UPDATE waktu_4merge SET waktu='" & detik & "' WHERE jum_angka='" & txtjumangka.Text & "'")
    cmd2 = New OdbcCommand(insertquery, conn)
    hasil = cmd2.ExecuteNonQuery
Else
    insertquery = (@"insert into waktu_4merge values('','" & txtjumangka.Text & "','" & detik & "')")
    cmd2 = New OdbcCommand(insertquery, conn)
    hasil = cmd2.ExecuteNonQuery
End If

Dim dt As New DataTable
GetData(dt, "select angka from angka order by id_angka ASC")
dgsebelum.DataSource = dt
dgsebelum.Columns(0).HeaderText = "Angka"
dgsebelum.Columns(0).Width = 550

Dim dt2 As New DataTable
GetData(dt2, "select angka from way_akhir order by id_way_akhir ASC")
dgsesudah.DataSource = dt2
dgsesudah.Columns(0).HeaderText = "Angka"
dgsesudah.Columns(0).Width = 550

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

Label5.Text = txtjumangka.Text
End Sub

Private Sub Button2_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button2.Click
    Form3.Show()
End Sub

Private Sub chartbanding_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles chartbanding.Click
    Form1.Show()
End Sub

Private Sub txtjumangka_TextChanged(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles txtjumangka.TextChanged
End Sub

Private Sub dgsebelum_CellContentClick(ByVal sender As System.Object, ByVal e As System.Windows.Forms.DataGridViewCellEventArgs) Handles dgsebelum.CellContentClick
End Sub
Private Sub Label1_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Label1.Click
    End Sub
End Class