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' *****
' Surname, Initials: Kuni, D
' Student Number: 201320596
' Practical: P02
' Class name: frmsme
' *****
Option Strict On
Option Explicit On
Option Infer Off
Public Class frmsme 'stand for Student Mark Evaluator
#Region "Variable Declartion "
    Private the_Student_details() As student_detail_blueprint
    Private numbstu, subz As Integer
#End Region
#Region "Custom Functions and Sub routines"
    Private Sub setup() 'helps with initialization of app
        MsgBox("Please note, to access a students information, enter the student ID of
desired student in the display button", MsgBoxStyle.OkOnly, "Please Note!")
        numbstu = CInt(InputBox("Please enter the number of Students in the class",
"Number of students")) - 1 'handles any number of students,the number of students is one
less to work from position "0" of the array
        ReDim the_Student_details(numbstu) 'resizes the array
        subz = CInt(InputBox("Please enter the number of subjects for students ",
"Subjects")) - 1 'handles any number of subjects,the number of subjects is one less to
work from position "0" of the array
    End Sub
    Private Function rate(ByVal ave As Double) As Boolean 'checks if student passed the
subject or not
        Select Case ave
            Case Is < 50
                Return False 'if student got less thn 50 then it is a failed the semester
or year
            Case Else
                Return True ' it is a passed the semester or year
        End Select
    End Function
#End Region
    Private Sub btnsetup_Click(sender As Object, e As EventArgs) Handles btnsetup.Click
        setup() 'sub routine is called
        For i As Integer = 0 To numbstu
            the_Student_details(i) = New student_detail_blueprint(subz) 'instantiation is
being done
            the_Student_details(i)._studentID = InputBox("Please enter the ID of student
" + CStr(i + 1), "Student " + CStr(i + 1)) 'getting data from the user
            the_Student_details(i)._surname = InputBox("Please enter the Surname of the
student ", the_Student_details(i)._studentID) 'getting data from the user
            For r As Integer = 0 To subz
                the_Student_details(i).subject_marks(r) = CInt(InputBox("Please enter
subject mark " + CStr(r + 1) + " for student " + the_Student_details(i)._surname,
the_Student_details(i)._studentID)) 'getting data from the user
            Next
        Next
    End Sub

    Private Sub btnave_Click(sender As Object, e As EventArgs) Handles btnave.Click
        If subz <= 0 Or numbstu <= 0 Then ' if the user has not setup the app, program
will stop user and infrom the user to enter correct values

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        MsgBox("Please click te setup application and enter neccessary data",
MsgBoxStyle.OkOnly, "ERROR!!!")
    Else
        Dim total As Integer
        For i As Integer = 0 To numbstu
            total = 0 'initialized value
            the_Student_details(i).passed = 0 'initialized value
            For r As Integer = 0 To subz
                If the_Student_details(i).subject_marks(r) >= 50 Then 'gets the
number of subjects passed
                    the_Student_details(i).passed += 1
                End If
                total += the_Student_details(i).subject_marks(r)
            Next
            the_Student_details(i).average = total / (subz + 1) 'calculates the
average
        Next
        MsgBox("The Averages have been calculated ", MsgBoxStyle.OkOnly, "Averages")
'since no data is displayed , user will be notified that the average has been calculated
    End If
End Sub

Private Sub btnrating_Click(sender As Object, e As EventArgs) Handles btnrating.Click
    If subz <= 0 Or numbstu <= 0 Then ' if the user has not setup the app, program
will stop user and infrom the user to enter correct values
        MsgBox("Please click te setup application and enter neccessary data",
MsgBoxStyle.OkOnly, "ERROR!!!")
    Else
        For i As Integer = 0 To numbstu
            the_Student_details(i).rating = rate(the_Student_details(i).average) ' it
rates the student average and gives an end result of a fail or pass
        Next
        MsgBox("The ratings have been calculated", MsgBoxStyle.OkOnly, "Ratings")
    End If
End Sub

Private Sub btndisplay_Click(sender As Object, e As EventArgs) Handles
btndisplay.Click
    txtdisplay.Text = "" 'clears the textbox
    If subz <= 0 Or numbstu <= 0 Then ' if the user has not setup the app, program
will stop user and infrom the user to enter correct values
        MsgBox("Please click te setup application and enter neccessary data",
MsgBoxStyle.OkOnly, "ERROR!!!")
    Else
        ' in this button the user will be able to display a students details with the
use of there ID
        Dim ID As String = InputBox("Please enter the student ID of the details you
wish to view", "Student ID")
        For i As Integer = 0 To numbstu
            If ID = the_Student_details(i)._studentID Then
                txtdisplay.Text = "Student ID : " + the_Student_details(i)._studentID
+ vbNewLine + "Surname : " + the_Student_details(i)._surname
                For r As Integer = 0 To subz
                    txtdisplay.Text += vbNewLine + "Subject " + CStr(r + 1) + " mark:"
+ CStr(the_Student_details(i).subject_marks(r))
                Next r
                txtdisplay.Text += vbNewLine + "Number of subjects Passed : " +
CStr(the_Student_details(i).passed)
            End If
        Next
    End If
End Sub

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        txtdisplay.Text += vbNewLine + "Student Average : " +  
CStr(Math.Round(the_Student_details(i).average, 2)) 'rounds of the average to avoid  
recurring numbers  
        If the_Student_details(i).rating = True Then  
            txtdisplay.Text += vbNewLine + "Rating :Student Has Passed"  
        Else  
            txtdisplay.Text += vbNewLine + "Rating :Student Has Failed"  
        End If  
    End If  
Next  
End If  
End Sub  
End Class
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' *****
' Surname, Initials: Kuni, D
' Student Number: 201320596
' Practical: P02
' Class name: student_detail_blueprint
' *****
Option Strict On
Option Explicit On
Option Infer Off
Public Class student_detail_blueprint
#Region "Variable Declartion "
    Public _studentID As String
    Friend _surname As String
    Private _subject_marks(), _passed As Integer
    Private _average As Double
    Private _rating As Boolean
#End Region
#Region "Property Methods"
    Public Property rating As Boolean
        Get
            Return _rating
        End Get
        Set(value As Boolean)
            _rating = value
        End Set
    End Property
    Public Property passed As Integer
        Get
            Return _passed
        End Get
        Set(ByVal value As Integer)
            _passed = value
        End Set
    End Property
    Public Property subject_marks(ByVal index As Integer) As Integer
        Get
            Return _subject_marks(index)
        End Get
        Set(value As Integer)
            If value <= 100 And value >= 0 Then 'Stops User from Entering an invalid
value
                _subject_marks(index) = value
            Else
                MsgBox("Error! value incorrect , please provide the correct value again",
MsgBoxStyle.OkOnly, "ERORR!!")
                Dim re_entered_mark As Integer = CInt(InputBox("Enter the correct integer
mark for the student", _studentID)) 'gets the correct value
                subject_marks(index) = re_entered_mark 'sends value back into property
method to check its validity
            End If
        End Set
    End Property
    Public Property average As Double
        Get
            Return _average
        End Get

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        Set(value As Double)
            _average = value
        End Set
    End Property
#End Region
    Friend Sub New(ByVal index As Integer)
        ReDim _subject_marks(index) 'resizes the array
        For Each mark As Integer In _subject_marks
            subject_marks(mark) = 0 'deletes any values within the array
        Next
    End Sub
End Class
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