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' *****
' Surname, Initials: Kuni, D
' Student Number: 201320596
' Practical: P04
' Class name: frmes1
' *****
Option Strict On
Option Explicit On
Option Infer Off
Public Class frmes1
    Private Disasters() As Disaster
    Private Sub btnsetup_Click(sender As Object, e As EventArgs) Handles btnsetup.Click
        Dim nD As Integer = CInt(InputBox("Please enter the number of Disasters", "Number
of Disasters")) - 1 'gets the number of disasters
        ReDim Disasters(nD)
        End Sub

    Private Sub btninput_Click(sender As Object, e As EventArgs) Handles btninput.Click
        'in here , neccessary data is obtained from the user
        Dim nH, level As Integer
        For i As Integer = 0 To Disasters.Length - 1
            nH = 0
            level = CInt(InputBox("Please enter a number between 1 to 10 for the level of
disaster " + CStr(i + 1), "Level of disaster"))
            nH = CInt(InputBox("Please enter the number of Emergancy workers for Disaster
" + CStr(i + 1), "Number of emergancy workers")) - 1
            Disasters(i) = New Disaster(level, nH)
            For r As Integer = 0 To nH
                Disasters(i).Heroes(r).surname = InputBox("Please enter the surname of
Emergancy worker " + CStr(r + 1), "Disaster " + CStr(i + 1))
                Disasters(i).Heroes(r).experiance = CDb1(InputBox("Please enter the
number of years of experience for Emergancy worker " + Disasters(i).Heroes(r).surname,
"Disaster " + CStr(i + 1)))
            Next r, i
        End Sub

    Private Sub btndisplay_Click(sender As Object, e As EventArgs) Handles
btndisplay.Click
        Dim index As Integer = CInt(InputBox("Please enter the number of the disaster's
roster to view ", "Which Disaster?")) - 1
        'gets the specified array number to display the data
        txtroster.Text = Disasters(index).DisplayRoster
        txtsuccess.Text = CStr(Disasters(index).CalculateTeamSuccess)
        End Sub

    Private Sub frmes1_Load(sender As Object, e As EventArgs) Handles MyBase.Load
        Randomize()
    End Sub
End Class

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' *****
' Surname, Initials: Kuni, D
' Student Number: 201320596
' Practical: P04
' Class name: Disaster

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' *****
Option Strict On
Option Explicit On
Option Infer Off
Public Class Disaster
#Region "Attributes"
    Private dID As Integer
    Private dLevel As Integer
    Private _Heroes() As EmergencyWorker
    Private Shared IDcount As Integer = 0 'used to keep track of the number of objects
created
#End Region
#Region "Property Methods"
    Public ReadOnly Property ID As Integer
        Get
            Return dID
        End Get
    End Property
    Public WriteOnly Property level As Integer
        Set(value As Integer)
            dLevel = value
        End Set
    End Property
    Public Property Heroes(ByVal index As Integer) As EmergencyWorker
        Get
            Return _Heroes(index)
        End Get
        Set(value As EmergencyWorker)
            _Heroes(index) = value
        End Set
    End Property
#End Region
#Region "Methods"
    Public Shared Function GenerateID() As Integer
        IDcount += 1
        Return IDcount
    End Function
    Public Function DisplayRoster() As String
        DisplayRoster = "Disaster ID :" + CStr(ID) + Environment.NewLine 'gets id of
disaster
        For i As Integer = 0 To _Heroes.Length - 1 'goes through all workers to collect
information
            DisplayRoster += "Emergency worker Number " + CStr(i + 1) + " : "
            DisplayRoster += Heroes(i).Rank + Space(2) + Heroes(i).surname +
Environment.NewLine
            DisplayRoster += "Experience : " + CStr(Heroes(i).experience) + " years" +
Environment.NewLine
        Next
    End Function
    Public Function CalculateTeamSuccess() As Double
        Dim total As Double = 0
        Dim array_size As Integer = _Heroes.Length - 1
        For i As Integer = 0 To array_size
            total += Heroes(i).CalculateSuccess(dLevel) 'total up
        Next
        Return Math.Round(total / (array_size + 1), 2) 'average the total and return
rounded off value
    End Function

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#End Region
Public Sub New(ByVal level As Integer, ByVal NumberofWorkers As Integer)
    dID = GenerateID() 'set ID of disaster
    Me.level = level 'set level of disaster
    ReDim _Heroes(NumberofWorkers)
    For i As Integer = 0 To NumberofWorkers
        _Heroes(i) = New EmergencyWorker 'creates the objects
    Next
End Sub
End Class

' *****
' Surname, Initials: Kuni, D
' Student Number: 201320596
' Practical: P04
' Class name: EmergencyWorker
' *****

Option Strict On
Option Explicit On
Option Infer Off
Public Class EmergencyWorker
#Region "Attributes"
    Private eSurname As String
    Private eExperience As Double
    Private eRank As String
#End Region
#Region "Properties"
    Public Property surname As String
        Get
            Return eSurname
        End Get
        Set(value As String)
            eSurname = value
        End Set
    End Property
    Public Property experience As Double
        Get
            Return eExperience
        End Get
        Set(value As Double)
            If value >= 0 Then
                eExperience = value
            End If
            SetRank() 'calls the sub to set the rank when experience is set
        End Set
    End Property
    Public ReadOnly Property Rank As String
        Get
            Return eRank
        End Get
    End Property
#End Region
#Region "Methods"
    Private Function LuckRandomiser() As Double
        Return 1 * Rnd()
    End Function

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End Function
Private Sub SetRank() 'sets the experience of emergency worker
    Select Case experience
        Case Is < 3
            eRank = "Private"
        Case 3 To 5
            eRank = "Sergeant"
        Case Is > 5
            eRank = "Lieutenant"
    End Select
End Sub
Public Function CalculateSuccess(ByVal difficulty As Integer) As Double
    Dim Luck As Double = LuckRandomiser()
    ' calculates the success rate of the emergency worker by multiplying the
    difficulty level by a random number and adding 9 6ths of his or her experience
    Return (difficulty * Luck) + (experience * 1.5)
End Function
#End Region
Public Sub New()
    eSurname = ""
    eExperience = 0
    eRank = "unknown" 'experience is 0 therefore rank is unknown
End Sub
End Class

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