



FACULTY OF SCIENCE

ACADEMY OF COMPUTER SCIENCE AND SOFTWARE ENGINEERING

MODULE	IFM01A1 & IFM1A10 INFORMATICS 1A: INTRODUCTION TO ALGORITHM DEVELOPMENT (VB)
CAMPUS	APK
FINAL SUMMATIVE ASSESSMENT	AUGUST 2020 (SPECIAL SSA)

DATE	2020-08-04	TIME	15:00–18:00
		UPLOAD DEADLINE	18:00–19:00

ASSESSORS	MR K LEBEA PROF WS LEUNG
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INTERNAL MODERATOR	MS M FOURIE
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DURATION (Writing)	3 Hours	MARKS	100
(Buffer for Uploads)	1 Hour		

INSTRUCTIONS

Note: The following code should only serve as a rough guideline when marking the student
For mark breakdown, please consult question paper



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Option Explicit On
Option Strict On
Option Infer Off
Public Class frmSCW
    '1.1: Definition of Period record structure
    Private Structure PeriodDT
        Public Costs() As Double
        Public TotalVouchers As Integer
        Public TotalVoucherVal As Integer
        Public TOC As Double
        Public FundsRaised As Integer
    End Structure
    '1.2: Definition of Restaurant record structure
    Private Structure RestaurantDT
        Public Name As String
        Public Staff As Integer
        Public Periods() As PeriodDT
        Public CFStatus As Integer
    End Structure
    Private Restaurants() As RestaurantDT
    Private nR, nP, nW As Integer
    Private Sub PT(ByVal r As Integer, ByVal c As Integer, ByVal t As String)
        grdRP.Row = r
        grdRP.Col = c
        grdRP.Text = t
    End Sub
    Private Sub btnInit_Click(sender As Object, e As EventArgs) Handles btnInit.Click
        '2.1
        nR = CInt(txtRest.Text)
        nP = CInt(txtPer.Text)
        nW = CInt(txtWeeks.Text)
        '2.2
        ReDim Restaurants(nR)
        Dim r, p As Integer
        For r = 1 To nR
            ReDim Restaurants(r).Periods(nP)
            For p = 1 To nP
                ReDim Restaurants(r).Periods(p).Costs(nW)
            Next p
        Next r
        '2.3
        grdRP.Rows = nR + 1
        grdRP.Cols = nP + 2
        '2.4
        For r = 1 To nR
            PT(r, 0, "Restaurant " & CStr(r))
        Next r
        For p = 1 To nP
            PT(0, p, "Period " & CStr(p))
        Next p
        PT(0, nP + 1, "Cashflow Status")
    End Sub
    ' Q3
    Private Sub btnInput_Click(sender As Object, e As EventArgs) Handles btnInput.Click
        Dim r, p, w As Integer
        For r = 1 To nR
            Restaurants(r).Name = InputBox("What is the name of Restaurant " & CStr(r) & "?")
            Restaurants(r).Staff = CInt(InputBox("How many staff employed at Restaurant " & CStr(r) & "?"))
            For p = 1 To nP
                For w = 1 To nW
                    Restaurants(r).Periods(p).Costs(w) = CDb1(InputBox("What was operating costs in Week " &
                        CStr(w) & ", Period " & CStr(p) &
                        " of Restaurant " & CStr(r) & "?"))
                Next w
                Restaurants(r).Periods(p).TotalVouchers = CInt(InputBox("How many vouchers were purchased?"))
                Restaurants(r).Periods(p).TotalVoucherVal = CInt(InputBox("What was the total value of the vouchers purchased?"))
            Next p
        Next r
    End Sub
    ' Q4
    Private Sub btnCalcTotal_Click(sender As Object, e As EventArgs) Handles btnCalcTotal.Click
        Dim r, p, w As Integer
        For r = 1 To nR
            For p = 1 To nP
                Restaurants(r).Periods(p).TOC = 0
                For w = 1 To nW
                    Restaurants(r).Periods(p).TOC += Restaurants(r).Periods(p).Costs(w)
                Next w
                PT(r, p, Format(Restaurants(r).Periods(p).TOC, "0.0"))
            Next p
        Next r
    End Sub
    ' Q5
    Private Sub btnFundsRaised_Click(sender As Object, e As EventArgs) Handles btnFundsRaised.Click
        Dim r, p As Integer
        For r = 1 To nR
            For p = 1 To nP
                Restaurants(r).Periods(p).FundsRaised = Restaurants(r).Periods(p).TotalVoucherVal +
                    Restaurants(r).Periods(p).TotalVouchers * 50
            Next p
        Next r
        MsgBox("Funds Raised Calculated")
    End Sub
    ' Q6
    Private Function CheckXY(ByVal x As Double, ByVal y As Double) As Integer
        If x > y Then
            Return 1
        Else
            Return 0
        End If
    End Function
    ' Q7
    Private Sub btnCalcCF_Click(sender As Object, e As EventArgs) Handles btnCalcCF.Click
        Dim r, p As Integer
        For r = 1 To nR
            Dim cnt As Integer = 0
            For p = 1 To nP
                cnt += CheckXY(Restaurants(r).Periods(p).FundsRaised, Restaurants(r).Periods(p).TOC)
            Next p
            Select Case cnt / nP
                Case 0
                    Restaurants(r).CFStatus = 0
                Case 1
                    Restaurants(r).CFStatus = 5
                Case > 0.5
                    Restaurants(r).CFStatus = 3
                Case > 0
                    Restaurants(r).CFStatus = 1
            End Select
            PT(r, nP + 1, CStr(Restaurants(r).CFStatus))
        Next r
    End Sub
    ' Q8
    Private Sub btnCalcBest_Click(sender As Object, e As EventArgs) Handles btnCalcBest.Click
        Dim Max As Integer
        Dim index As Integer
        index = 1
        Max = Restaurants(1).CFStatus
        Dim r As Integer
        For r = 2 To nR
            If Max < Restaurants(r).CFStatus Then
                Max = Restaurants(r).CFStatus
                index = r
            End If
        Next r
        txtBestCF.Text = Restaurants(index).Name
    End Sub
End Class
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