**Problem3**：最長共同子序列**(15%)**

給2 個字串，請你輸出他們的最長共同子序列（longest common subsequence）的長度。也就是說，在這兩個字串各自所有的子序列之中，內容相同而且長度最長的那個子序列。舉例來說有兩個字串abcdgh 和aedfhr，它們的最長共同子序列為adh，長度為3。

輸入說明：

輸入檔含有多筆測試資料，每筆測試資料為二行字串，每行最多有 1000 個字元。

輸出說明：

對輸入的每筆測試資料，輸出它們最長共同子序列的長度。

輸入範例：

a1b2c3d4e

zz1yy2xx3ww4vv

abcdgh

aedfhr

輸出範例：

4

3

程式碼：

Imports System.IO

Public Class Form1

Dim fr As New FileInfo("in.txt")

Dim fw As New FileInfo("out.txt")

Dim sw As StreamWriter = fw.CreateText

Dim n, a, b, a2, b2 As Integer

Dim ia, ib1(2), ib2(2), ic1(2), ic2(2), aa(2), bb(2) As String

Private Sub Form1\_Load(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles MyBase.Load

If fr.Exists = False Then

End

ElseIf fw.Exists = False Then

fw.Create()

End If

Dim sr As StreamReader = fr.OpenText

Do

ia = Trim(sr.ReadLine)

If ia = "" Then Exit Do

ReDim ib1(2), ib2(2) : a = 0 : b = 0

For i = 0 To 1

For j = 1 To Len(ia) '帶入每航資料

If i = 0 Then

ib1(j - 1) = Microsoft.VisualBasic.Mid(ia, j, 1) : a += 1 : ReDim Preserve ib1(a)

Else

ib2(j - 1) = Microsoft.VisualBasic.Mid(ia, j, 1) : b += 1 : ReDim Preserve ib2(b)

End If

Next

If i = 0 Then ia = Trim(sr.ReadLine)

Next

ReDim ic1(2), ic2(2) : a2 = 0 : b2 = 0

ReDim Preserve ib1(a - 1), ib2(b - 1)

For i = 1 To a '找出第一航資料中的字是否也存在第二航資料中 若存在則另外取出

For j = 1 To b

If ib1(i - 1) = ib2(j - 1) Then

ic1(a2) = ib1(i - 1) : a2 += 1 : ReDim Preserve ic1(a2)

End If

Next

Next

For i = 1 To b '找出第二航資料中的字是否也存在第一航資料中 若存在則另外取出

For j = 1 To a

If ib1(j - 1) = ib2(i - 1) Then

ic2(b2) = ib2(i - 1) : b2 += 1 : ReDim Preserve ic2(b2)

End If

Next

Next

Erase ib1, ib2 '清除原有2航資料的分解

For i = a2 To 1 Step -1 'a2,a2-1,a2-2 找出最長串列

ReDim aa(2), bb(2) : a = 0

For j = 1 To a2

If j + i - 1 <= a2 Then

For k = j To j + i - 1

aa(a) &= ic1(k - 1)

bb(a) &= ic2(k - 1)

Next

Else : Exit For

End If

a += 1

ReDim Preserve aa(a), bb(a)

Next

For j = 1 To a

For k = 1 To a

If aa(j - 1) = bb(k - 1) Then sw.WriteLine(Len(aa(j - 1))) : GoTo 1

Next

Next

Next

1: Loop

sw.Flush() : sw.Close() : End

End Sub

End Class