INTERNATIONAL gcse

cOMPUTER sCIENCE

pAPER ONE

Skeleton Program

**INSTRUCTIONS: COPY AND PASTE THE FOLLOWING CODE INTO VB.Net 2015. (also available In Python 3 And C#)**

' Skeleton Program for Oxford AQA International GCSE Computer Science Paper 1

' Developed Using VB.Net 2015

' To be pre-released to centres

' Also available In Python 3 And C#

'

' Version 1.0 Edited 26/10/2017

Module Module1

Function InputPlainText() As String

Dim PlainText As String

Console.Write("Please enter the plaintext: ")

PlainText = Console.ReadLine()

Return PlainText

End Function

Function InputCipherText() As String

Dim CipherText As String

Console.Write("Please enter the ciphertext: ")

CipherText = Console.ReadLine()

Return CipherText

End Function

Function InputKey() As Integer

Dim Key As Integer

Console.Write("Please enter the key value: ")

Key = Console.ReadLine()

Return Key

End Function

Function Encrypt(PlainText As String, Key As Integer) As String

Dim CharPos As Integer

Dim CipherText As String = ""

Dim Character As Char

Dim CharacterCode As Integer

For CharPos = 0 To PlainText.Length - 1

Character = PlainText(CharPos)

CharacterCode = Asc(Character)

If Character >= "A" And Character <= "Z" Then

CharacterCode = CharacterCode + Key

If CharacterCode > Asc("Z") Then

CharacterCode = CharacterCode - 26

End If

End If

CipherText = CipherText + Chr(CharacterCode)

Next

Return CipherText

End Function

Function LoadPlainText() As String

Dim FileName As String

Dim FileHandle As IO.StreamReader

Dim PlainText As String

Console.Write("Enter filename:")

FileName = Console.ReadLine()

If FileName.Length > 0 Then

FileHandle = New IO.StreamReader(FileName)

PlainText = FileHandle.ReadLine

FileHandle.Close()

Else

PlainText = "Error"

End If

Return PlainText

End Function

Function Decrypt(CipherText As String, Key As Integer) As String

Dim CharPos As Integer

Dim PlainText As String = ""

Dim Character As Char

Dim CharacterCode As Integer

For CharPos = 0 To CipherText.Length - 1

Character = CipherText(CharPos)

CharacterCode = Asc(Character)

If CharacterCode >= Asc("A") And CharacterCode <= Asc("Z") Then

CharacterCode = CharacterCode - Key

If CharacterCode < Asc("A") Then

CharacterCode = CharacterCode + 26

End If

End If

PlainText = PlainText + Chr(CharacterCode)

Next

Return PlainText

End Function

Sub DisplayMenu()

Console.WriteLine("K Input Key")

Console.WriteLine("P Input Plaintext")

Console.WriteLine("C Input Ciphertext")

Console.WriteLine("L Load Plaintext")

Console.WriteLine("E Encrypt Plaintext")

Console.WriteLine("D Decrypt Ciphertext")

Console.WriteLine("Q Quit")

End Sub

Sub Main()

Dim MenuOption As Char

Dim Key As Integer = 3

Dim PlainText As String = ""

Dim CipherText As String = ""

Do

DisplayMenu()

Console.Write("Enter Option > ")

MenuOption = Console.ReadLine().ToUpper()

Select Case MenuOption

Case "K"

Key = InputKey()

Case "P"

PlainText = InputPlainText()

Case "C"

CipherText = InputCipherText()

Case "L"

PlainText = LoadPlainText()

Console.WriteLine("Plaintext is : " + PlainText)

Case "E"

CipherText = Encrypt(PlainText, Key)

Console.WriteLine("Ciphertext is : " + CipherText)

Case "D"

PlainText = Decrypt(CipherText, Key)

Console.WriteLine("Plaintext is : " + PlainText)

End Select

Loop Until MenuOption = "Q"

End Sub

End Module

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