Programming Extensions

1. Add a menu Item
Almost always there as part of a bigger question
Add option “X” the when selected prints the first line of “Never going to give you up” by Rick Astley.
2. Validate GetTextFromUser
Does this need validating at input? Or at the point of using the text for encryption/decryption?
3. Validate GetKeyForCaeserCipher [likely!]
TypeCheck (integer), Range Check (not more than 25? Not less than -25) NOT Zero

### Brute force find Caesar Key

Create a sub routine that outputs the plaintext for each Caesar Key.

### Frequency Analysis

Create a sub routine that output the frequency of each of the Characters in the cypher text

1. Steganography Encryption
Really hard to automate BUT… Take a large piece of text (get the first chapter of a book from guttenburg) using letters from that text write the following message “The birds are ready to fly”.

The encrypted message should be simply the numbers that each jump between the letter represents.

### Steganography brute force decrypt

Try all the values of n below 20 for all the starting positions below 20 and output all the results.

1. Steganography Stepped N

Use in another code N+1 N+pi Function(N)? a non-linear way of jumping through the letters in the diary. There is a non-linear message hidden.

5 Display plaintext in the railfence grid?

 Sub DisplayRailFence(ByVal Plaintext As String, ByVal SizeOfRailFence As Integer)

 Dim NoOfColumns As Integer

 Dim NoOfRows As Integer

 Dim NoOfPlaintextCharacters As Integer

 Dim NoOfPlaintextCharactersProcessed As Integer=0

 Dim i As Integer

 Dim j As Integer

 Dim LastFullRowNo As Integer

 NoOfPlaintextCharacters = Plaintext.Length

 NoOfRows = SizeOfRailFence

 NoOfColumns = NoOfPlaintextCharacters \ SizeOfRailFence

 If NoOfPlaintextCharacters Mod SizeOfRailFence <> 0 Then

 NoOfColumns = NoOfColumns + 1

 End If

 '===========================Put characters into 2d array=================================

 Dim RailFenceGrid(NoOfColumns, NoOfRows) As Char

 For i = 1 To NoOfColumns

 j = 1

 Do

 RailFenceGrid(i, j) = Plaintext(NoOfPlaintextCharactersProcessed)

 j = j + 1

 NoOfPlaintextCharactersProcessed = NoOfPlaintextCharactersProcessed + 1

 Loop Until j > NoOfRows Or NoOfPlaintextCharactersProcessed = NoOfPlaintextCharacters

 Next

 '===========================Display Array=================================

 For j = 1 To NoOfRows

 For i = 1 To NoOfColumns

 Console.Write(RailFenceGrid(i, j))

 Next

 Console.WriteLine()

 Next

 Console.ReadLine()

 End Sub

6 Stegenography Encrption Solution

Looks like a dead cert…
Get the PlainText ; For each character in plaintext; Add N randomcharacters
see

 Case "o"

 N = GetValueForN()

 Ciphertext = AddNcharactersSteganography(Plaintext, N)

 DisplayCiphertext(Ciphertext)

Function AddNcharactersSteganography(ByVal PlainText As String, ByVal n As Integer) As String

 Dim HiddenMessage As String = ""

 For i = 0 To PlainText.Length - 1

 HiddenMessage = HiddenMessage + PlainText(i)

 For j = 1 To n

 HiddenMessage = HiddenMessage + GetRandomCharcter()

 Next

 Next

 AddNcharactersSteganography = HiddenMessage

 End Function

 Function GetRandomCharcter() As Char ' with roughly 1/5th chance of a space

 Dim AsciiCode As Integer

 'create a random number between 65 (A) and 90 (Z)

 AsciiCode = Math.Ceiling((Rnd() \* (95 - 65)) + 65)

 If AsciiCode >= 65 And AsciiCode <= 90 Then

 GetRandomCharcter = Chr(AsciiCode)

 Else

 GetRandomCharcter = Chr(32) 'this is the LineSpace character

 End If

 End Function