Pseudocode

stringInBounds(String plainText)

Declare a boolean variable called bool

For i from 0 to the size of plainText

If the number i character of plainText is less than LOWER\_BOUND or

This character is greater than UPPER\_BOUND

Bool is equal to false

End if

End for

Return bool

encryptCaesar(String plainText, int key)

Declare a String variable called encryptText initialize to “”

Declare a char variable called temp

For i from 0 to the size of plainText

Temp equal to (char)(plainText.charAt(i)+key)

While temp is greater than UPPER\_BOUND

Temp equal to temp – RANGE

End while

encryptedText equal to encryptedText + temp

End for

Return encryptedText

encryptBellaso(String plainText, String bellasoStr)

Declare a String called encryptText initialize to “”

Declare a char variable called temp

Declare a int variable called key

For i from 0 to the size of plainText

key equal to bellasoStr.charAt(i%bellasoStr.length())

temp equal to (char)(plainText.charAt(i)+key)

while (temp is larger than UPPER\_BOUND)

temp equal to temp – RANGE

encryptedText equal to encryptedText + temp

Return encryptedText

decryptCaesar(String encryptedText, int key)

Declare a String called decryptText initialize to “”

Declare a int variable called temp

For i from 0 to the size of encryptedText

Temp equal to encryptedText.charAt(i)-key

While temp is lower than LOWER\_BOUND

Temp equal to temp + RANGE

decryptText equal to decryptText + (char)temp

Return decryptText

decryptBellaso(String encryptedText, String bellasoStr)

Declare a String called decryptText initialize to “”

Declare a int variable called temp

Declare a int variable called key

For i from 0 to the size of encryptedText

key equal to bellasoStr.charAt(i%bellasoStr.length());

While temp is lower than LOWER\_BOUND

Temp equal to temp + RANGE

decryptText equal to decryptText + (char)temp

Return decryptText

Test plan

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Cases | Input | Input Key | Encrypted  (Caesar cipher) | Encrypted  (Bellaso cipher) | Decrypt |
| Case 1 | My name is Jay Cheng | 15 | \(/]P\T/X"/YP(/RWT]V |  | My name is Jay Cheng |
| Case 2 | Today is Sunday | 10 | ^YNK#\*S]\*]\_XNK# |  | Today is Sunday |
| Case 3 | My name is Jay Cheng | java |  | WZ6OKN[!ST6KKZ6DRF$H | My name is Jay Cheng |
| Case 4 | Today is Sunday | jay |  | ^P]KZ9ST9]V'NB2 | Today is Sunday |
| Case 5 | Hello World~~~ | 15 | WT[[^/&^SMMM |  | HELLO WORLD>>> |

Screenshot

![Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

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Lesson Learned

I learn how to use .length() and .charAt(). The successful is I know how to use .length() and .charAt(). The not successful is I get a bit messy up when I programing.