**Montgomery College**

**CMSC 203**

**Assignment 3 Implementation**

Class: CMSC203 CRN 38511

 Program: Assignment 3 Implementation

Instructor: Professor Grinberg

 Summary of Description: Crypto Cyphers

 Due Date: 03/14/2022

 Integrity Pledge: I pledge that I have completed the programming assignment independently.

 I have not copied the code from a student or any source.

Student: Miles Levine

**Part 1: Pseudo Code:**

Turn in pseudo-code for each of the methods specified in CryptoManager.java.   Refer to the [**Pseudocode Guideline**](#PSGdline)on how to write Pseudocode.

1. inside CryptoManager class:
2. declare lower and upper bounds and the range witch is upper bound subtracted by lower bound
3. inside stringInBounds method:
4. declare and initialize a Boolean variable to true
5. inside for loop that runs until variable count (initialized to 0) is greater than the plainText.length().
6. if any one of the charters are outside the bounds, then the Boolean variable value returns false.
7. Else return Boolean variable value
8. End of stringInBounds method
9. Inside encryptCaesar method:
10. Create String variable and initialize it
11. Inside for loop that runs until variable count (initialized to 0) is greater than the plainText.length().
12. Nested While loop that checks if key is greater than the upper bound, if it is, then key gets subtracted by the range until key is less than the upper bound.
13. End of for loop when finished
14. Return the String variable after the for loop. End of encryptCaesar method.
15. Inside decryptCaesar method:
16. Create String variable and initialize it
17. Inside for loop that runs until variable count (initialized to 0) is greater than encryptedText.length().
18. Nested While loop that checks if key is greater than the upper bound, if it is, then key gets subtracted by the upper bound minus the lower bound until key is less than the upper bound.
19. Subtract encryptedText from key then convert to string format and store in the string variable after each iteration.
20. End of for loop when finished
21. Return the string variable. End of decryptCaesar method.
22. Inside of encryptBellaso method:
23. Create String variable and initialize it
24. Inside for loop that runs until variable count (initialized to 0) is greater than plainText.length().
25. Add plainText to bellasoStr and store in key
26. Nested While loop that checks if key is greater than the upper bound, if it is, then key gets subtracted by the upper bound minus the lower bound until key is less than the upper bound.
27. Convert the key variable to a string and store in the string variable each iteration.
28. Return the string variable.
29. End method
30. Inside of decryptBellaso method:
31. Create String variable and initialize it
32. Inside for loop that runs until variable count (initialized to 0) is greater than plainText.length().
33. subtract plainText from bellasoStr and store in key
34. Nested While loop that checks if key is greater than the upper bound, if it is, then key gets subtracted by the upper bound minus the lower bound until key is less than the upper bound.
35. Convert the key variable to a string and store in the string variable each iteration.
36. Return the string variable.
37. End method

**Part 2: Comprehensive Test Plan**

Turn in a Test Plan table. Test Plan should include:

* at least two tests for the Caesar Cipher
* at least two for the Bellaso Cipher.
* at least one string that will fail because it has characters outside the acceptable ones.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Input text | Input Key | Encrypted (method1) | Encrypted (method2) | Decrypt (method1) | Decrypt (method2) |
| HELLO WORLD | 3 | Caesar Cipher | Bellaso Cipher | Caesar Cipher | Bellaso Cipher |
| Hello World  (fail, turns into uppercase) | 15 | Caesar Cipher | Bellaso Cipher | Caesar Cipher | Bellaso Cipher |
| PROGRAMMING IS FUN | 120 (wrap around to 56) | Caesar Cipher | Bellaso Cipher | Caesar Cipher | Bellaso Cipher |
| THIS IS ANOTHER TEST | 3 | Caesar Cipher  "WKLV#LV#DQRWKHU#WHVW” | Bellaso Cipher  "WU\VR9F#N!RF88U-'HED” | Caesar Cipher  THIS IS ANOTHER TEST | Bellaso Cipher  THIS IS ANOTHER TEST |

**Make sure your tests cover all the possible scenarios.**

Test case 1:

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Test case: 2

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Test case: 3

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Test Case: 4

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Junit:

Graphical user interface, text, application

Description automatically generated

GitHub Screenshot