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CMSC 203

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**Assignment 3 Design Document**

Test Table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Input text | Input key | Encrypted (method 1) | Encrypted (method 2) | Decrypted (method 1) | Decrypted (method 2) |
| HELLO WORLD | 4 | LIPPS$[SVPH |  | HELLO WORLD |  |
| GOODBYE | 10 | QYYNL#O |  | GOODBYE |  |
| YOU SUCK | CAT |  | \P)#T)FL |  | YOU SUCK |
| GOOD JOB | DOG |  | K^VH/QSQ |  | GOOD JOB |

Pseudocode

Encrypt Method 1 (encryptCeasar)

If plainText is not in bounds

Return not in bounds message

Declare a character array called textArray to plainText length

For integer i equal to 0, while i is less than plainText length, add 1 to i

Set textArray at position i to plainText at length i plus key

While textArray at position i is greater than UPPER\_BOUND

Set textArray at position i to textArray at position i minus RANGE

While textArray at position i is less than LOWER\_BOUND

Set textArray at position i to textArray at position i plus RANGE

Return textArray as a string

Decrypt Method 1 (decryptCeasar)

If encryptedText is not in bounds

Return not in bounds message

Declare a character array called textArray to encryptedText length

For integer i equal to 0, while i is less than encryptedText length, add 1 to i

Set textArray at position i to encryptedText at length i minus key

While textArray at position i is greater than UPPER\_BOUND

Set textArray at position i to textArray at position i minus RANGE

While textArray at position i is less than LOWER\_BOUND

Set textArray at position i to textArray at position i plus RANGE

Return textArray as a string

Encrypt Method 2 (encryptBellaso)

If plainText is not in bounds

Return not in bounds message

Declare a character array called keyArray to plainText length

Declare an integer called length and initialize it to 0

While length is less than plainText length

Set keyArray at position length to bellasoStr char at len % bellasoStr length

Add 1 to length

Declare a character array called textArray to plainText length   
For integer i equal to 0, while i is less than plainText length, add 1 to i

Set textArray at position i to plainText at length i plus keyArray at position i

While textArray at position i is greater than UPPER\_BOUND

Set textArray at position i to textArray at position i minus RANGE

While textArray at position i is less than LOWER\_BOUND

Set textArray at position i to textArray at position i plus RANGE

Return textArray as a string

Decrypt Method 2 (decryptBellaso)

If encryptedText is not in bounds

Return not in bounds message

Declare a character array called keyArray to encryptedText length

Declare an integer called length and initialize it to 0

While length is less than encryptedText length

Set keyArray at position length to bellasoStr char at len % bellasoStr length

Add 1 to length

Declare a character array called encryptedArray to plainText length

For integer i equal to 0, while i is less than encryptedText length, add 1 to i

Set textArray at position i to plainText at length i minus keyArray at position i

While textArray at position i is greater than UPPER\_BOUND

Set textArray at position i to textArray at position i minus RANGE

While textArray at position i is less than LOWER\_BOUND

Set textArray at position i to textArray at position i plus RANGE

Return textArray as a string