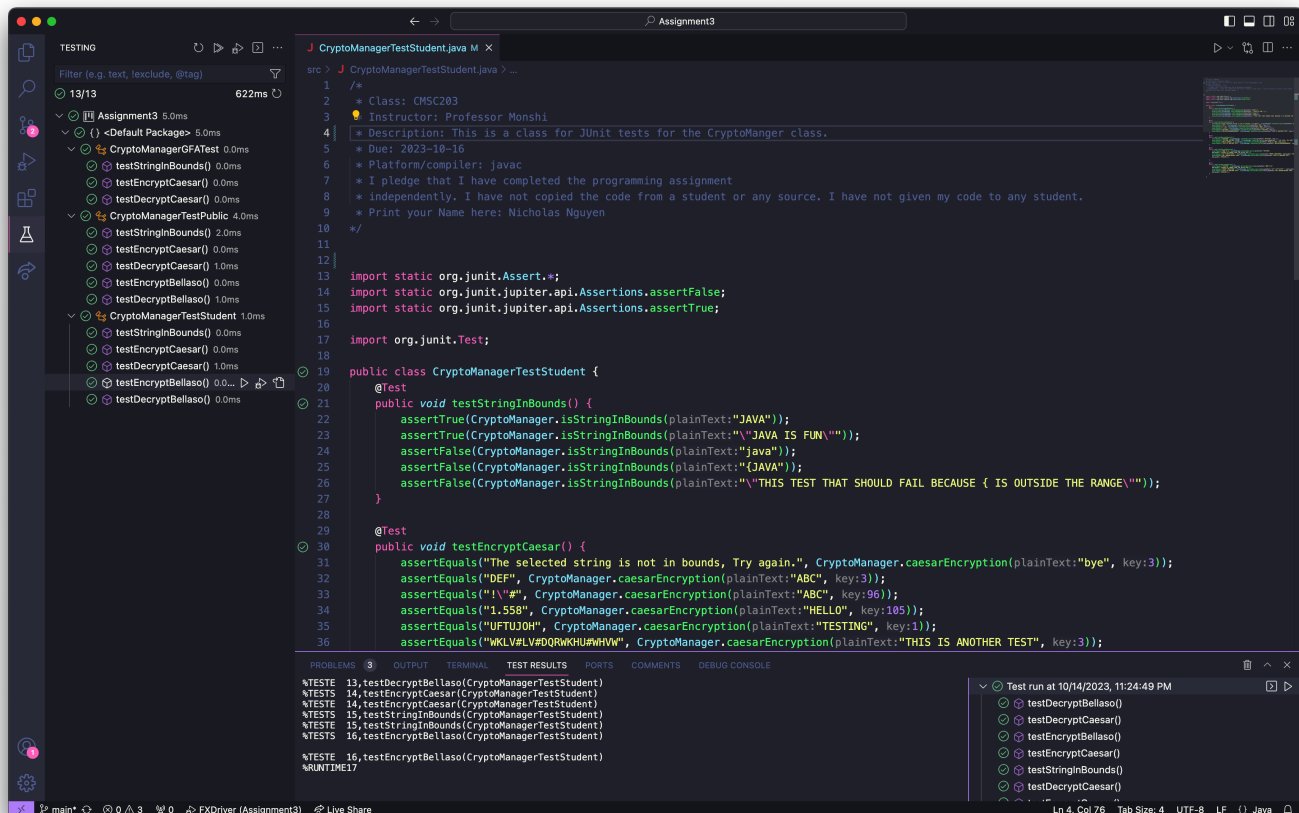


# NNguyen - Assignment 3

## Screenshots

### JUnit Tests



## GitHub

| learning-java / CMSC203 / Assignment3 / src / |  |                  | Add file                | ...     |
|---|--|------------------|-------------------------|---------|
| nick-nugat DONE WITH ASSIGNMENT3 WOOOO        |  |                  | d62c951 · 6 minutes ago | History |
| Name  | Last commit message                      | Last commit date |                         |         |
| ..  |  |                  |                         |         |
| CryptoManager.java                            | DONE WITH ASSIGNMENT3 WOOOO              | 6 minutes ago    |                         |         |
| CryptoManagerGFATest.java                     | finally got javafx to work - assignment3 | 4 days ago       |                         |         |
| CryptoManagerTestPublic.java                  | finally got javafx to work - assignment3 | 4 days ago       |                         |         |
| CryptoManagerTestStudent.java                 | almost done with assignment3             | 3 hours ago      |                         |         |
| FXDriver.java                                 | finally got javafx to work - assignment3 | 4 days ago       |                         |         |
| FXMainPane.java                               | finally got javafx to work - assignment3 | 4 days ago       |                         |         |

## Test Plan

## Caesar Encryption and Decryption #1

✓ Passed!

The screenshot shows a macOS-style window titled "Cybersecurity Encryption and Decryption". At the top, there are two radio buttons: "Use Caesar cipher" (which is selected) and "Use Bellaso cipher". Below this, there are four text input fields and a key input field. The first field, labeled "Enter plain-text string to encrypt", contains "ABC". The second field, labeled "Encrypted string", contains "DEF". The third field, labeled "Decrypted string", contains "ABC". The fourth field, labeled "Cyber Key - enter an integer for Caesar Cipher", contains "3". At the bottom, there are four buttons: "Encrypt a string", "Decrypt a string" (which is highlighted with a blue border), "Clear", and "Exit".

## Caesar Encryption and Decryption #2

✓ Passed!

The screenshot shows the same application window as before, but with different values. The "Enter plain-text string to encrypt" field contains "ABC". The "Encrypted string" field contains "!\"#". The "Decrypted string" field contains "ABC". The "Cyber Key" field now contains "96". The "Decrypt a string" button remains highlighted.

## Bellaso Encryption and Decryption #1

✓ Passed!

## Bellaso Encryption and Decryption #2

✓ Passed!

## Pseudocode

```
Function isStringInBounds(plainText)
    For each character c in plainText
        If c is not within the allowable bounds
            Return false
    End For
    Return true
```

```
Function caesarEncryption(plainText, key)
    If not isStringInBounds(plainText)
```

```
Return "The selected string is not in bounds, Try again."
```

```
Adjust key within the allowable range
```

```
Create an empty character array encrypted
```

```
For each character c in plainText
```

```
    Encrypt c using the Caesar Cipher with the given key
```

```
    Append the encrypted character to the encrypted array
```

```
End For
```

```
Return a string created from the encrypted character array
```

```
Function caesarDecryption(encryptedText, key)
```

```
    If not isStringInBounds(encryptedText)
```

```
        Return "The selected string is not in bounds, Try again."
```

```
    Adjust key within the allowable range
```

```
Create an empty character array decrypted
```

```
For each character c in encryptedText
```

```
    Decrypt c using the inverse of the Caesar Cipher with the given key
```

```
    Append the decrypted character to the decrypted array
```

```
End For
```

```
Return a string created from the decrypted character array
```

```
Function bellasoEncryption(plainText, bellasoStr)
```

```
    Create an empty character array encrypted
```

```
    For i = 0 to length of plainText
```

```
        Encrypt the character at index i in plainText using Bellaso Cipher with bellasoStr
```

```
        Append the encrypted character to the encrypted array
```

```
    End For
```

```
Return a string created from the encrypted character array
```

```
Function bellasoDecryption(encryptedText, bellasoStr)
```

```
    Create an empty character array decrypted
```

```
    For i = 0 to length of encryptedText
```

```
        Decrypt the character at index i in encryptedText using the inverse of Bellaso Cipher  
with bellasoStr
```

```
        Append the decrypted character to the decrypted array
```

```
    End For
```

Return a string created from the decrypted character array

## Questions to Answer

② **Write about your Learning Experience, highlighting your lessons learned and learning experience from working on this project.**

I had a pretty fun time doing this project. I had fun learning more about encryption methods and how to implement them in Java.

② **What have you learned?**

I learned how to implement encryption methods in Java, as well as how helpful JUnit test cases can be in helping the programmer make sure the code they write works as intended.

② **What did you struggle with?**

I struggled with implementing the decryption methods for both Caesar's and Bellaso's encryption methods. Although I thought it would be as easy as reversing the steps done in the encryption methods, it ended up being a lot more than that and being super time consuming to figure out.

② **What would you do differently on your next project?**

I would likely plan out my time better and take more breaks to prevent frustration and burnout.

② **What parts of this assignment were you successful with, and what parts (if any) were you not successful with?**

I was successful with the majority of it; I understood everything I did and I am happy with the result.

② **Provide any additional resources/links/videos you used to while working on this assignment/project.**

N/A