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CS-3333

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Final Project Explanation

On this final project Robert and I decided to use the Java language for the Caesar Cipher, Hill Cipher, and Data Encryption Standard (DES). As we started on this project its going to be in JavaFx GUI where you type in a message or phase in the text box then select enter then as the process goes for each cipher it prints the output. I will give an explanation of the process for the Caesar, Hill, and DES.

The options screen which is your menu that gives Caesar button, Hill button, and DES button. Wants you choose a cipher then we implement a encrypt or decrypt option button. The layout and text alignment in the center for each cipher button that’s where it’s switch to one stage or scene that will be execute. For this process this is the Encryption controller option and Decryption controller option.

Caesar Cipher

In Caesar Cipher we implement a Caesar text field for the “Please Enter Plaintext” then next step to encrypted and same for the decrypted in Ciphertext where you could put as many characters as you would like. The layout font size of the text field and we implement a submit button on the layout x, y and anchor pane.

Encryption- In the encryption the characters for the Caesar cipher we have printed “hello” to encrypt to khoor.

Decryption- In the decryption the characters for the Caesar cipher we put “Khoor” to decrypt to “hello”.

Hill Cipher

In Hill Cipher we implement a Hill text field for the “Please Enter 4 Character Plaintext” then next step to encrypted and same for the decrypted in Ciphertext where you put only 2 characters. The alignment would be in the center with the layout, height, and width. The font size of the text field is text and we implement a submit button on the layout x, y.

Encryption- In the encryption the characters should be only 2 but the key is “HILL”. When you put the characters in the text box you will get 2x2 matrix of the output.

Decryption- In the decryption the characters should be only 2 but the key is “HILL”. When you put the characters in the text box you will get 2x2 matrix of the output.

DES-Data Encryption Standard

In DES we implement a DES text field accepting input from the user for the phrase “Enter your phrase” input then next step the phrase is in the text once it’s in the “text” then the hexadecimal characters we implement should occur. That gives an encryption of that text. Then when it’s encrypted for every byte in of the text then it gets decrypted which is your original text.

Encryption- In encryption, we implement a key generator imported from the DES library to generate a unique. The DES cipher generates a secret key and encrypt mode. For the DES we gather the input from text field and storing input in a string variable. In the input that stores then converts into byte to byte. That’s where the encryption part process happens for every byte.

Decryption- In decryption, we will be calling this function decryption to decrypt. It’s important to have doFinal as it encrypt or decrypt data into an existing byte array. The byte process is similar to the encryption process but we implement an input Decrypted so it will give the ciphertext of Des will print the original text in output. That’s the new string for the input for decryption.