ENCODING AND DECODING OF USER DATA

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Abstract:

The ideation of this paper is to give our users an option to encode and decode their inputs as many times as they want. It is a java program that allows the user to encode their data into any type of encoded text and they can bring back their original text when they decode it after encryption. This free Java Codec program is easy to use so that anyone can perform his required encoding and decoding. Moreover, such programs can be used for secure communication processes.

Keywords:

Encoding; Decoding; user input; Java project; Interface; Private Key.

Introduction:

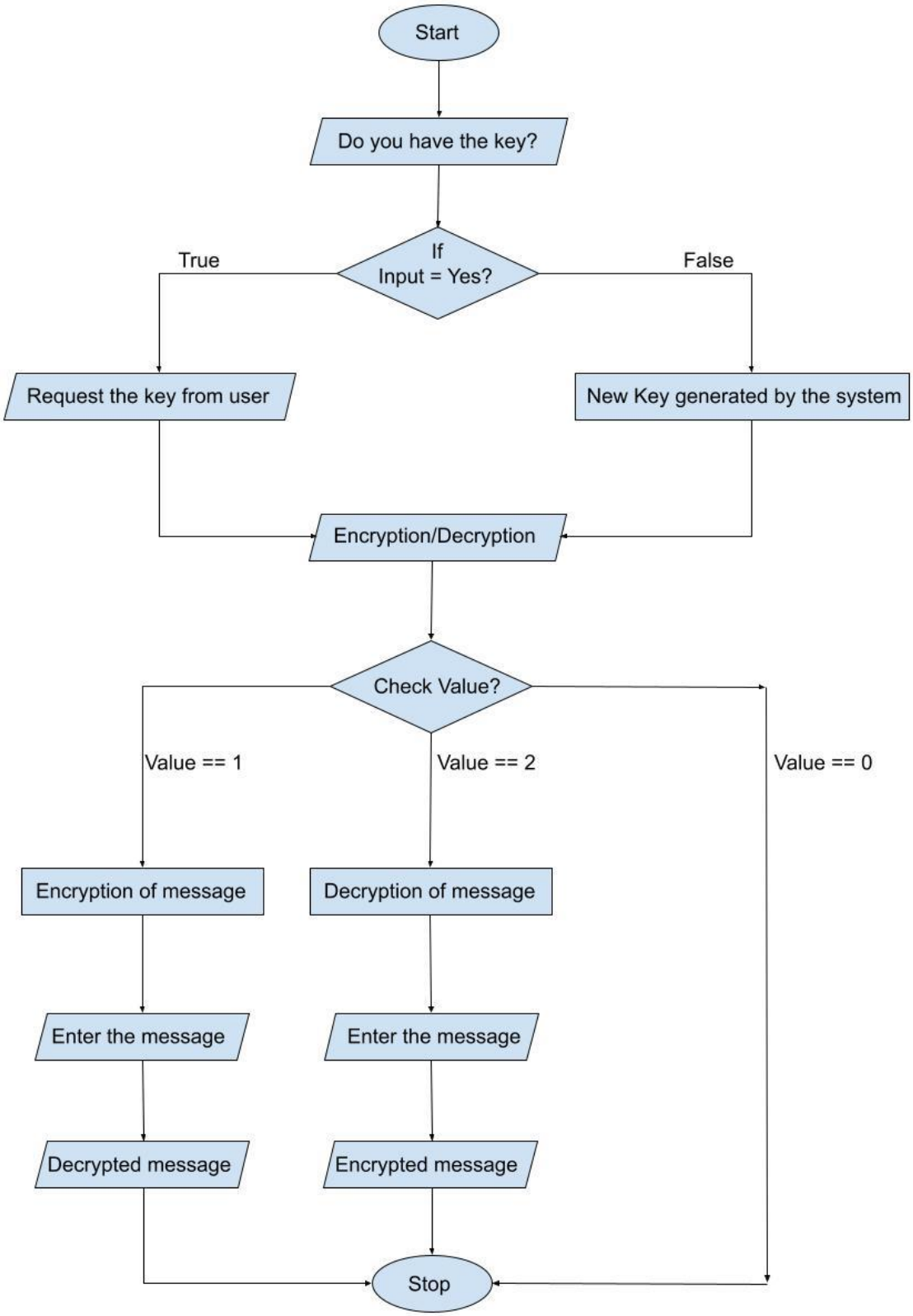
People don't think about it as an encoding or decoding process, but human communication begins when a sender formulates (encodes) a message. They choose the message they will convey and a communication channel. People do this every day with little thought to the encoding process.

The receiver must make sense of (decode) the message by deducing the meaning of words and phrases to interpret the message correctly. They then can provide feedback to the sender.

In any communication process, both the sender and receiver must deal with noise that can get in the way of the communication process. Noise involves the various ways that messages get disrupted, distorted, or delayed. These can include actual physiological noise, technical problems, or semantic, psychological, and cultural issues that get in the way of communication.

So to make this process easier and avoid communication noise we can use our Java program. We can simply run this code on any Java IDE (originally the program was run in Eclipse IDE) and give our desired choice as input and the program will process the given data accordingly.

For example-


Start
Do you have the key?
If
Input = Yes?
True
False
Request the key from user
New Key generated by the system
Encryption/Decryption
Check Value?
Value == 1
Value == 2
Value == 0
Encryption of message
Decryption of message
Enter the message
Enter the message
Decrypted message
Encrypted message
Stop

Techniques:

In our project, we have implemented the approach of the **Private key and Java Interface for abstraction.**

Public Key: is comprised of a string of random numbers and can be used to encrypt a message, which only the intended recipient can decipher and read by using the associated private key, which is also made of a long string of random numbers. This private key is a secret key and must remain known only to the recipient. The key pair is mathematically related so that whatever is encrypted with a public or private key can only be decrypted by its corresponding counterpart.

Abstraction: is a process of hiding the implementation details and showing only functionality to the user. Another way, it shows only essential things to the user and hides the internal details, for example, sending SMS where you type the text and send the message. You don't know the internal processing of the message delivery.

We allow our users to encode any message and get it back whenever they want with the help of a special key (The only condition is that you have to remember your key and if you forget then all your messages will be lost). All the main program and logic behind the encryption and decryption of message is 100% hidden with the help of Java interface so that no one can able to decrypt the message by himself/herself making it safe for our user.

ADVANTAGES AND LIMITATIONS –

Advantages-

- Easy to use
- Faster output
- Security for Data at All Times
- The user can access their encrypted messages with their Private Key.

Limitations-

- Expects correct output from the user, else the program will display an error message.
- The user can access their encrypted messages until they remember their Private Key.
- Since this is a coding program, the user will not be able to modify or improvise the code in case needed.

Conclusion-

As the world is changing and cybernetics being a crucial part of the living being, cryptography will and has to increase in order to strengthen the security mechanism.

So, we need a tool that helps us to attain a cipher mechanism. Our program implements such a process as per the user's choice, the program redirects to the type of cipher-(Encode/Decode).

References –

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