Substitution Cipher

import javax.swing.JOptionPane;

public class SubstitutionCipher

{

static final int MAX = 26;

protected char[] encoder;

protected char[] decoder;

public SubstitutionCipher()

{

this.encoder = new char[MAX];

this.decoder = new char[MAX];

}

public void setKey (String KeyString)

{

this.encoder = KeyString.toCharArray();

for (int i = 0; i < MAX; i++)

{

char ch = (char)('A' + i);

int pos = KeyString.indexOf(ch);

if (pos == -1 || KeyString.length() > MAX)

{

System.out.println("Invalid Input. Please make sure there are exactly 26 non-repeating uppercase characters.");

System.exit(1);

}

this.decoder[i] = (char)('A' + pos);

}

}

public String encrypt(String message) { return transform(message, this.encoder); }

public String decrypt(String secret) { return transform(secret, this.decoder); }

private String transform(String original, char[] code)

{

char[] msg = original.toCharArray();

for (int k = 0; k < msg.length; k++)

if (Character.isUpperCase(msg[k]))

{

int j = msg[k] - 'A';

msg[k] = code[j];

}

return new String(msg);

}

public static void main(String[] args)

{

String KeyString = "FJORDBANKGLYPHSVEXTCWMQUIZ";

SubstitutionCipher subCipher = new SubstitutionCipher();

subCipher.setKey(KeyString);

String ask = JOptionPane.showInputDialog(null, "Do you want to Encrypt or Decrypt a message?\n(1) Encrypt\n(2) Decrypt", JOptionPane.PLAIN\_MESSAGE);

int resp = Integer.parseInt(ask);

switch(resp)

{

case 1:

String message = JOptionPane.showInputDialog("Encrypt a message: ");

String coded = subCipher.encrypt(message);

System.out.println("Secret: " + coded);

JOptionPane.showMessageDialog(null, "The encrypted message is: " + coded, "Substitution Cipher", JOptionPane.PLAIN\_MESSAGE);

break;

case 2:

String message2 = JOptionPane.showInputDialog("Decrypt a message: ");

String answer = subCipher.decrypt(message2);

System.out.println("Message: " + answer);

JOptionPane.showMessageDialog(null, "The decrypted message is: " + answer, "Substitution Cipher", JOptionPane.PLAIN\_MESSAGE);

break;

}

}

}