Assignment 5
Graphical User Interfaces

Write a Java application that implements the vignere and affine ciphers. Each of these must be in its own class. The system has a GUI that collects input and displays output. It must also be in its own class, Cipher.java. Handle your GUI widgets with a panel. Write a class like the various Demo classes on the website that creates the window that you add the panel to. This is to be called CipherDemo.java

This means your application is composed of four classes: CipherDemo.java, Cipher.java, Affine.java, Vignere.java
Create a directory called asgn5. Copy these four files and nothing else to asgn5. Submit asgn5 using the ada submit facility.

I’m afraid that I will be forced to deduct points from your assignment if you don’t follow these instructions precisely.

The basic GUI follows. The widgets have these meanings:

Vignere/Affine/Encrypt/Decrypt are all radio buttons with the cipher types in a group and the modes in a group.

Key is the key necessary for the vignere cipher. It should be uneditable unless vignere has been selected. Shift and Multiplier are necessary for the affine cipher. They should be uneditable unless affine has been selected.

The two text areas below the GUI widgets are for plaintext and ciphertext respectively. In Encrypt mode, the user types plaintext in the first box. When he/she is finished entering text, the user presses the go button. The Cipher text appears in the second box. Pressing refresh, causes both boxes to be emptied of content. Pressing Copy causes the contents of the second box to be copied to the first box. The two text boxes should have scroll bars associated with them.

Error Conditions:
- If Vignere is chosen, there must be a Key.
- If Affine is chosen, there must be both a Shift and a Multiplier.
- The Shift must be in the range [1 .. 25]
- The multiplier must be in the set {1,3,5,7,9,11,15,17,19,21,23}
<table>
<thead>
<tr>
<th>Vignere</th>
<th>0</th>
<th>Affine</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encrypt</td>
<td>0</td>
<td>Decrypt</td>
<td>0</td>
</tr>
<tr>
<td>Key</td>
<td></td>
<td>Copy Button</td>
<td></td>
</tr>
<tr>
<td>Shift</td>
<td></td>
<td>Refresh Button</td>
<td></td>
</tr>
<tr>
<td>Multiplier</td>
<td></td>
<td>Go Button</td>
<td></td>
</tr>
</tbody>
</table>