Aim: To implement Poly-Alphabetic

The Poly-Alphabetic cipher is also an example of substitution cipher which uses multiple one-character keys.

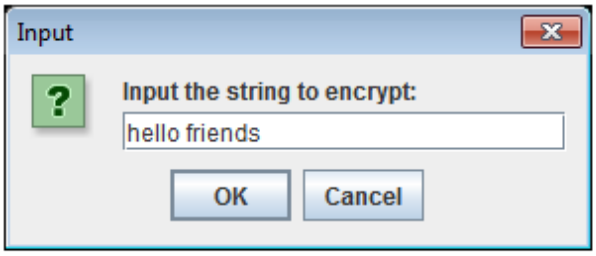
In the program we are implementing Mono-Alphabetic cipher which is an example of substitution cipher. Program consists of two methods encryption and decryption. The encryption method has two parameter one the plain text and second is key. To facilitate the encryption process all the alphabets are usually written out in a large table known as Vigenere tableau. The size of tableau is 26x26 so that 26 full cipher text alphabets are available. Each key encrypts one plain text character. The decryption method also has two parameters one encrypted message and key. It does opposite process of encryption.

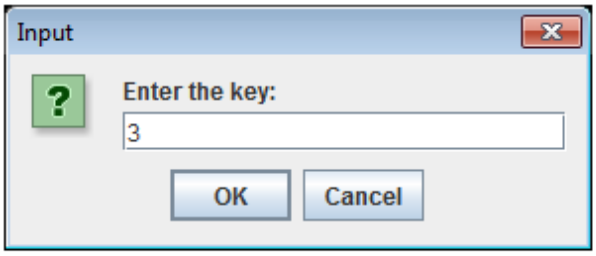
Program

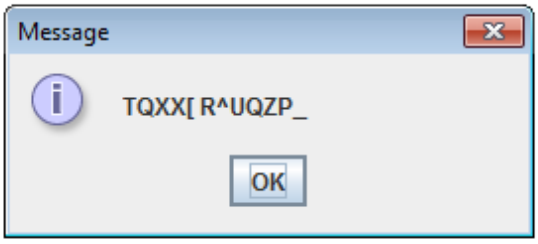
```
importjavax.swing.JOptionPane;
public class PolyAlphabetic {
public static void main(String[] args)
   {
      // TODO code application logic here
      String plain_text,cipher1,cipher2;
plain_text=JOptionPane.showInputDialog("Input the string to encrypt:");
      String k=JOptionPane.showInputDialog("Enter the key:");
      cipher1=encryption(plain_text,k);
      cipher2=decryption(cipher1,k);
JOptionPane.showMessageDialog(null, cipher1);
JOptionPane.showMessageDialog(null, cipher2);
   }
public static String encryption(String p1,String k1)
   {
      String result="";
intoffset,j=0,shift;
for(int i=0;i<p1.length();i++)
      {
if(p1.charAt(i)>='a' && p1.charAt(i)<='z')
         {
shift=((int)k1.charAt(j))-97;
j++;
j%=k1.length();
offset=((int)p1.charAt(i))-97;
offset=(offset+shift)%26;
            result+=(char)(offset+97);
         }
else if(p1.charAt(i)>='A' && p1.charAt(i)<='Z')
         {
shift=((int)k1.charAt(j))-65;
j++;
j%=k1.length();
offset=((int)p1.charAt(i))-65;
offset=(offset+shift)%26;
            result+=(char)(offset+65);
         }
else
         {
result=result+p1.charAt(i);
         }
      }
return result;
```

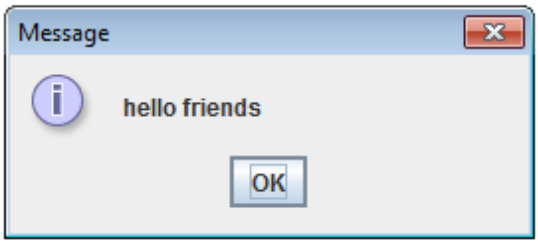
```
   }
public static String decryption(String p1,String k1)
   {
      String result="";
intoffset,j=0,shift;
for(int i=0;i<p1.length();i++)
      {
if(p1.charAt(i)!=' ')
         {
shift=((int)k1.charAt(j))-97;
j++;
j%=k1.length();
offset=((int)p1.charAt(i))-97;
offset=(offset-shift)%26;
if(offset<=0)
            {
offset+=26;
            }
            result+=(char)(offset+97);
         }
else if(p1.charAt(i)>='A' && p1.charAt(i)<='Z')
         {
shift=((int)k1.charAt(j))-65;
j++;
j%=k1.length();
offset=((int)p1.charAt(i))-65;
offset=(offset-shift)%26;
if(offset<=0)
            {
offset+=26;
            }
            result+=(char)(offset+65);
         }
else
         {
result=result+p1.charAt(i);
         }
      }
return result;
   }
}
```

Output:


Input
Input the string to encrypt:
hello friends
OK
Cancel


Input
Enter the key:
3
OK
Cancel


Message
TQXX[R^UQZP_
OK


Message
hello friends
OK