3.1. Do the workshop 2 in the CD (Cryptography).

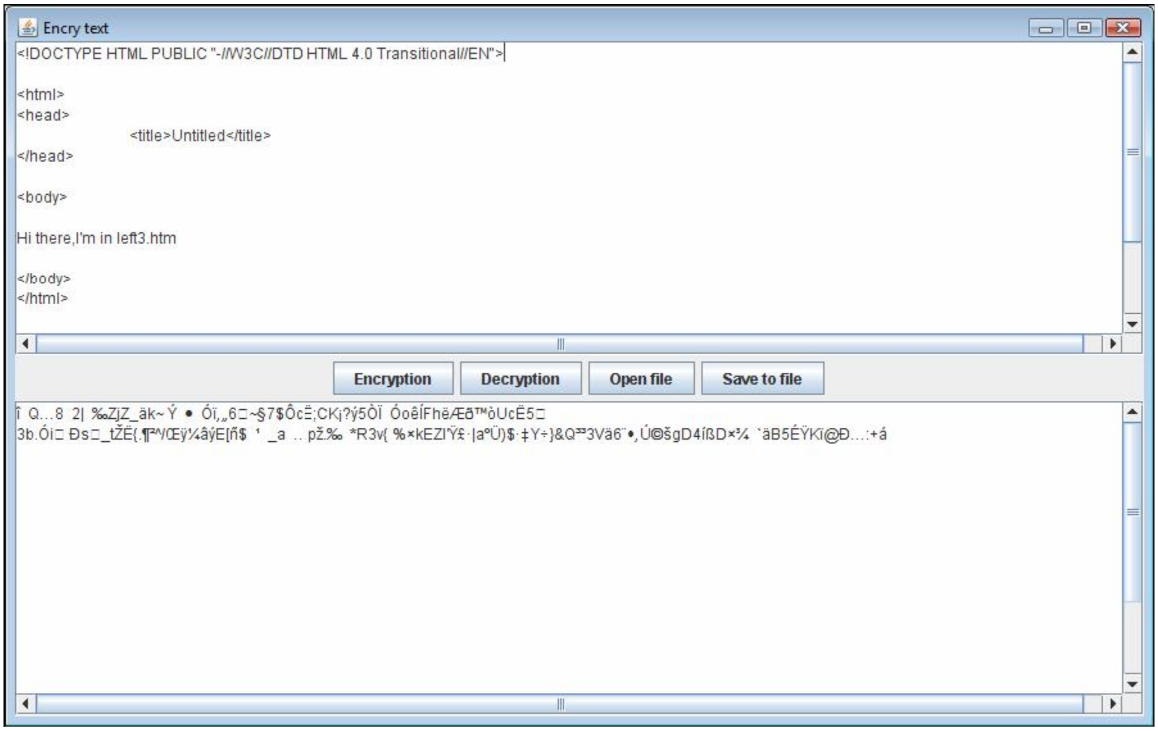
3.2. Type the below code

```
import java.awt.*;
import java.awt.event.*;
import java.security.*;
import javax.crypto.*;
import javax.swing.*;
import javax.swing.JTextArea;
import javax.swing.filechooser.FileFilter;
import java.io.*;
 class filter extends  FileFilter
  {
    public boolean accept(File f) {
        if (f.isDirectory())
            return true;
        String path = f.getAbsolutePath();
        int i = path.lastIndexOf(".");
        String ext=null;
        if(i > 0 && i < path.length() - 1)
            ext = path.substring(i+1);
        if(ext == null)
            return false;
        if(ext.equals("ext")||ext.equals("htm")||ext.equals("html"))
            return true;
        else
            return false;

    }

    public String getDescription() {
        return "just text";
    }
}
public class encry_jframe {
    JTextArea txt1, txt2;
    JButton btnEncry,btnDecry,btnOpen,btnSave;
    Cipher ci = null;
    SecretKey skey = null;
  public encry_jframe() {
    JFrame f = new JFrame("Encry text");
    Container c = f.getContentPane();
    txt1 = new JTextArea("Your text is here",20,80);
    txt2 = new JTextArea(20,80);
    btnEncry = new JButton("Encryption");
    btnDecry = new JButton("Decryption");
    btnOpen = new JButton("Open file");
    btnSave = new JButton("Save to file");
    JScrollPane p1 = new
JScrollPane(txt1,JScrollPane.VERTICAL_SCROLLBAR_AS_NEEDED,
JScrollPane.HORIZONTAL_SCROLLBAR_AS_NEEDED);
    JScrollPane p2 = new
JScrollPane(txt2,JScrollPane.VERTICAL_SCROLLBAR_AS_NEEDED,
JScrollPane.HORIZONTAL_SCROLLBAR_AS_NEEDED);
    JPanel pnl = new JPanel();
    pnl.setLayout(new FlowLayout());
    pnl.add(btnEncry);pnl.add(btnDecry);
pnl.add(btnOpen);pnl.add(btnSave);
btnDecry.setEnabled(false);
    btnSave.setEnabled(false);
    c.setLayout(new BoxLayout(c,BoxLayout.Y_AXIS));
    c.add(p1);
    c.add(pnl);
    c.add(p2);
    btnEncry.addActionListener(btnListener);
    btnDecry.addActionListener(btnListener);
    btnOpen.addActionListener(btnListener);
    btnSave.addActionListener(btnListener);
    txt2.setEditable(false);
    f.setVisible(true);
    f.pack();
    f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    try
    {
        KeyGenerator g = KeyGenerator.getInstance("DES");
        skey = g.generateKey();
        ci = Cipher.getInstance("DES/ECB/PKCS5Padding");
    }
    catch(NoSuchAlgorithmException e)
    {
        System.out.println(e);
    }
    catch(NoSuchPaddingException e)
    {
        System.out.println(e);
    }
    catch(Exception e)
    {
        System.out.println(e);
    }
  }
```

```
public void encrytxt()
{
    String txtinput = txt1.getText().trim();
    String txtencry;
    try
    {
        ci.init(Cipher.ENCRYPT_MODE,skey);
        byte [] b  = txtinput.getBytes();
        byte [] bencry = ci.doFinal(b);
        txtencry = new String(bencry);
        txt2.setText(""+txtencry);
    }
    catch(InvalidKeyException e)
    {
        System.out.println(e);
    }
    catch(BadPaddingException e)
    {
        System.out.println(e);
    }
    catch(IllegalBlockSizeException e)
    {
        System.out.println(e);
    }
    btnDecry.setEnabled(true);
    btnSave.setEnabled(true);
}
public void decrytxt()
{
    String txtdencry = txt2.getText();
```

```
        try
        {
            ci.init(Cipher.DECRYPT_MODE,skey);
            byte []b = txtdencry.getBytes();
            byte []bdecry = ci.doFinal(b);
            String txtencry = new String(bdecry);
            JOptionPane.showMessageDialog(null,txtencry,"Result",
JOptionPane.INFORMATION_MESSAGE);
        }
        catch(InvalidKeyException e)
        {
            System.out.println(e);
        }
        catch(BadPaddingException e)
        {
            System.out.println(e);
        }
        catch(IllegalBlockSizeException e)
        {
            System.out.println(e);
        }
    }
    public void openFile()
    {
        JFileChooser fc = new JFileChooser();
        fc.setMultiSelectionEnabled(false);
        fc.setFileFilter(new filter());
        int v = fc.showOpenDialog(null);
        if(v == JFileChooser.CANCEL_OPTION)
            return;
        File f = fc.getSelectedFile();
        try
        {
            BufferedReader br = new BufferedReader(new FileReader(f));
            String name = "";
            txt1.setText("");
            while((name = br.readLine())!=null)
                txt1.append(name+"\n");
            br.close();
        }
        catch(IOException e)
        {

        }
    }
    public void saveFile()
    {
        JFileChooser fc = new JFileChooser();
        fc.setMultiSelectionEnabled(false);
        fc.setFileFilter(new filter());
        int flag = 1;
        File f = null;
        while(flag==1)
        {
            int v = fc.showSaveDialog(null);
            if ( v == fc.CANCEL_OPTION)
                return;
            f = fc.getSelectedFile();
            if(f.isFile())
            {
               v = JOptionPane.showConfirmDialog(null,"Override file","Overwrite file",
JOptionPane.YES_NO_OPTION,JOptionPane.INFORMATION_MESSAGE);
               if ( v == JOptionPane.NO_OPTION)
                   flag = 1;
            }
            else
                flag = 0;
        }
        String text = txt2.getText();
        try
        {
            BufferedWriter bw = new BufferedWriter(new FileWriter(f));
            bw.write(text);
            bw.close();
        }
        catch(IOException e)
        {

        }
    }

    ActionListener btnListener = new ActionListener() {
        public void actionPerformed(ActionEvent evt) {
            if(evt.getSource()==btnEncry)
                encrytxt();
            if (evt.getSource() == btnDecry)
                decrytxt();
            if (evt.getSource() == btnOpen)
                openFile();
            if (evt.getSource() == btnSave)
            saveFile();
        }
    };
    public static void main(String []args)
    {
        new encry_jframe();
    }
}
```

The output of the program

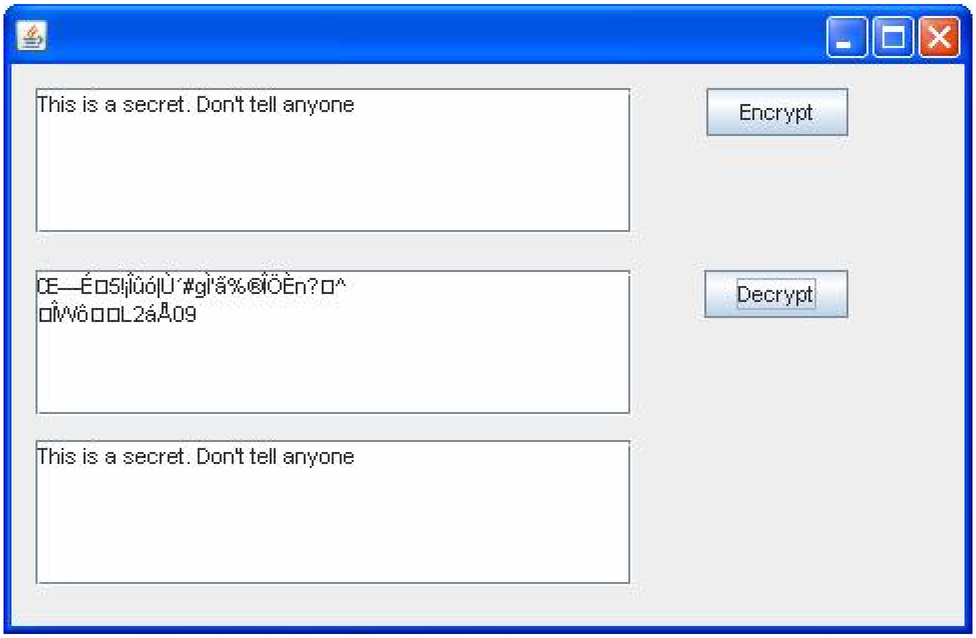


```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<html>
<head>
                <title>Untitled</title>
</head>

<body>

Hi there,I'm in left3.htm

</body>
</html>
```

```
î Q...8 2| ‰ZjZ_äk~Ý • Óï,„6□~§7$ÔcË;CK¡?ý5ÒÏ ÓoêÍFhëÆð™òUcË5□
3b.Óì□ Ðs□_tŽË{.¶ª^/Œÿ¼âýE[ñ$ ¹ _a .. pž‰ *R3v{ %×kEZI'Ÿ£·|aºÜ)$·‡Y÷}&Q³³3Vä6¨•,Ú©šgD4íßD×¾ `äB5ÉŸKï@Ð...:+á
```

Do It Yourself

3.3. Write a Java application myEncryption that will encrypt and decrypt characters. The output of the program is as shown as below.



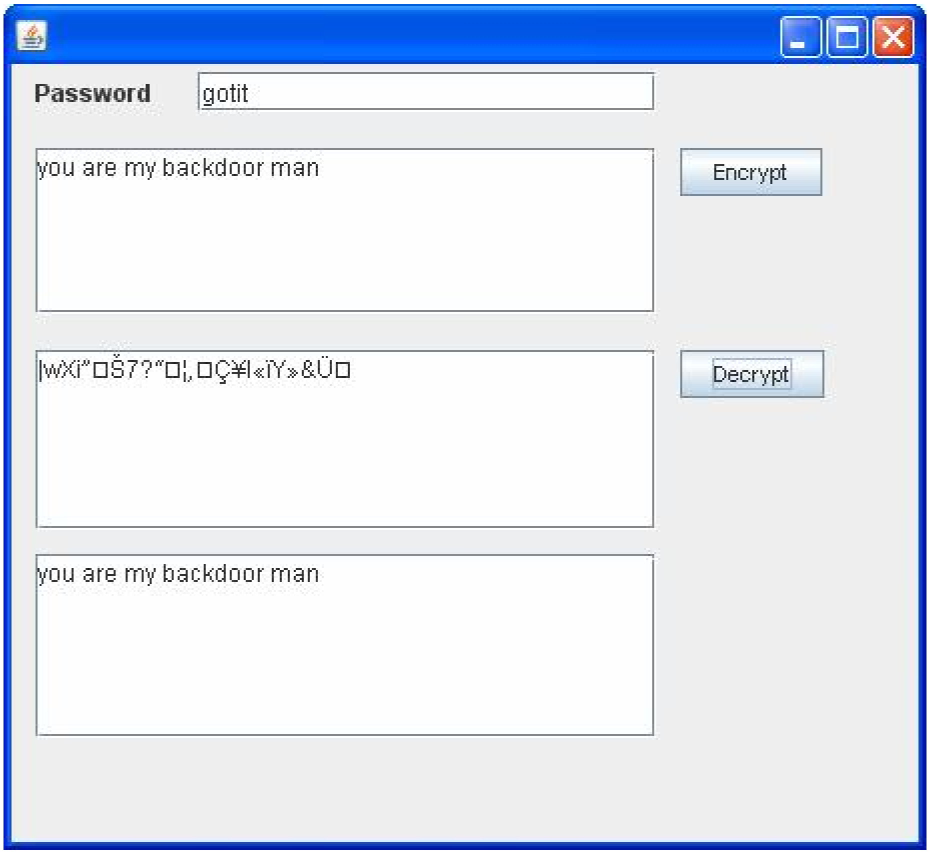
```
This is a secret. Don't tell anyone
```

```
Œ—É□5!¡Îûó¦Ù´#gÌ'ã%®ÎÖÈn?□^
□ÎŴô□□L2áÅ09
```

```
This is a secret. Don't tell anyone
```

3.4. Write exercise 3.1 again by adding password to encrypt and decrypt characters

The output of the program is as shown as below.



Password gotit

```
you are my backdoor man
```

```
¦wXí"□Š7?"□¦¸□Ç¥l«ÌY»&Ü□
```

```
you are my backdoor man
```