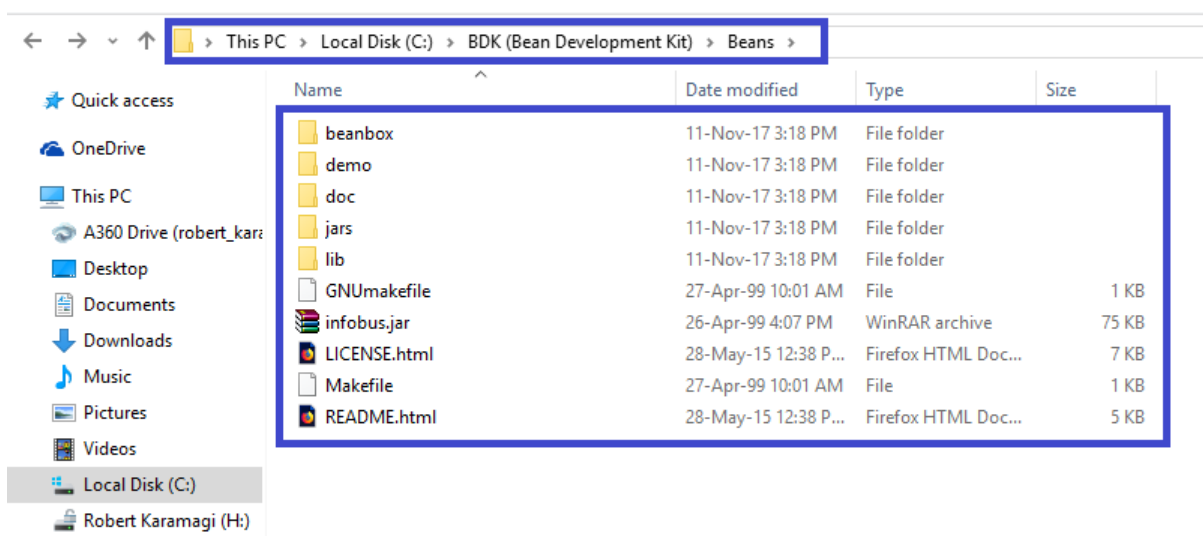


Running programs in the Java Bean Development Kit



Download the Bean Development Kit (BDK) from the internet and unzip the file in your Local Disk (C:\) drive or any other location of interest.



Open the notepad editor and write the **SimpleBean.java** file

SimpleBean.java

```
import java.awt.*;
import java.io.*;
import java.util.*;
import java.io.Serializable;

public class SimpleBean extends Canvas implements Serializable{

    private String msg;
    public SimpleBean(){
        setSize(200,50);
        setBackground(Color.green);
        msg="Robert Innocent Karamagi";
    }

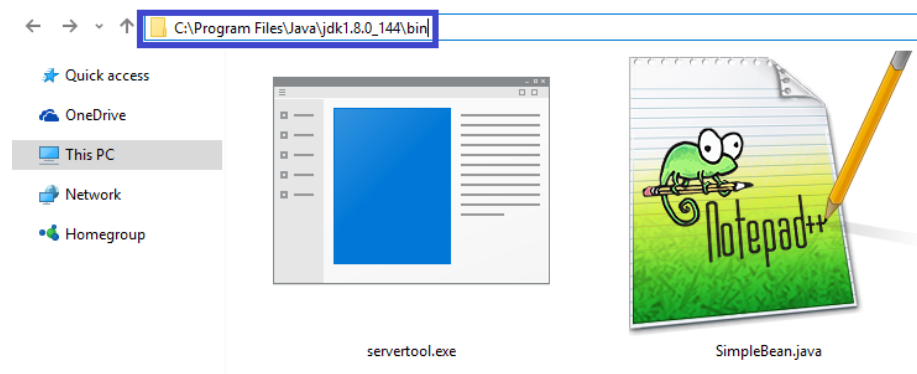
    public void setMsg(String msg){
        this.msg=msg;
    }

    public String getMsg(){
        return msg;
    }

    public void paint(Graphics g){
        g.drawString(msg,10,10);
    }
}
```

Save the file in a directory of your choice. Here we have selected:

C:\Program Files\Java\jdk1.8.0_144\bin (to rectify any compilation errors that occur in some systems we have chosen the same folder as the java compiler – javac.exe)



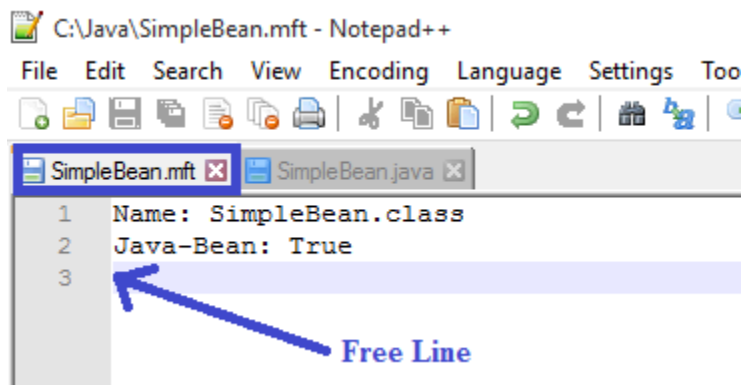
Next, we shall write out the **manifest file** in the notepad editor.

SimpleBean.mft

Name: SimpleBean.class

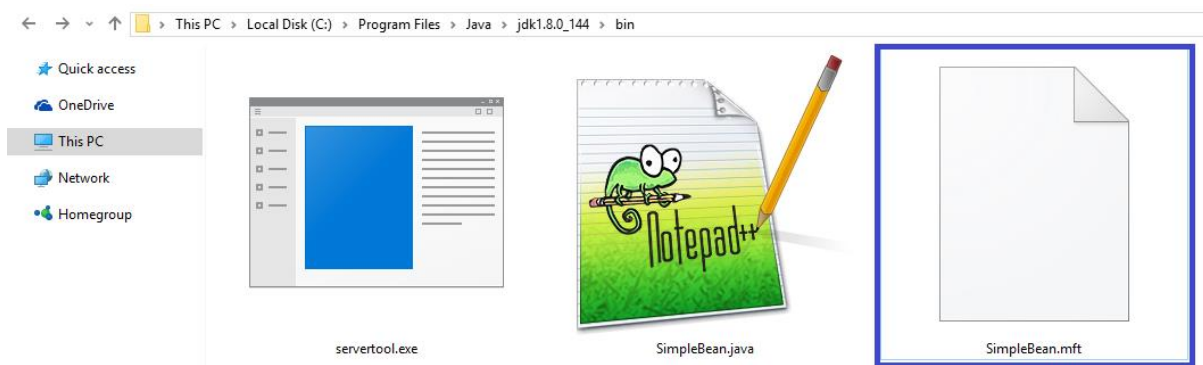
Java-Bean: True

Note: Make sure that you jump a line by clicking the Enter Button after the “True” otherwise the java compiler shall fail to read the manifest file.

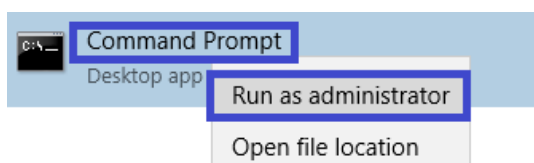


Save the file in the same location as SimpleBean.java

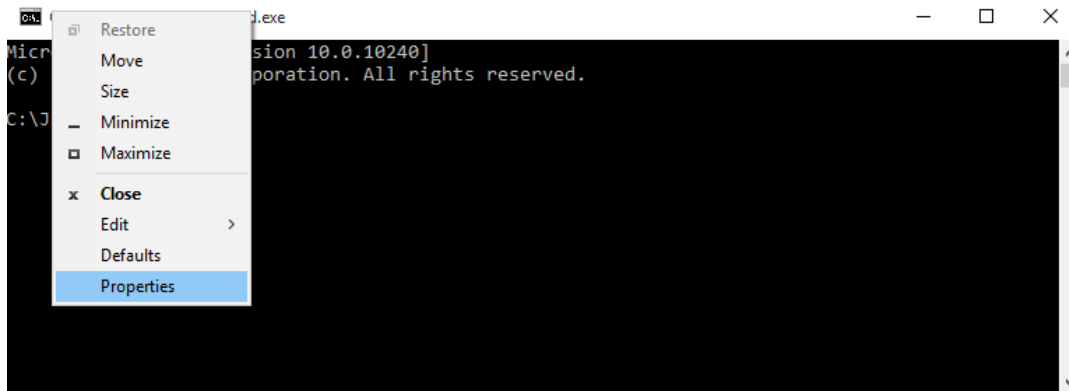
i.e. C:\Program Files\Java\jdk1.8.0_144\bin



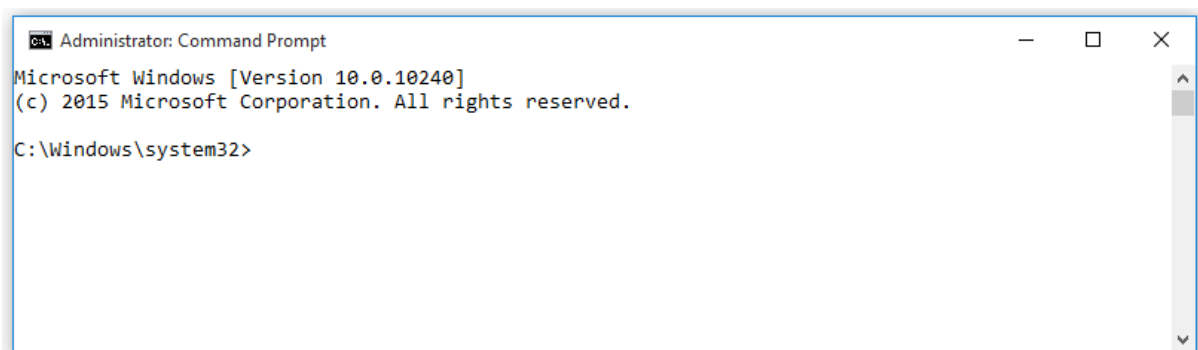
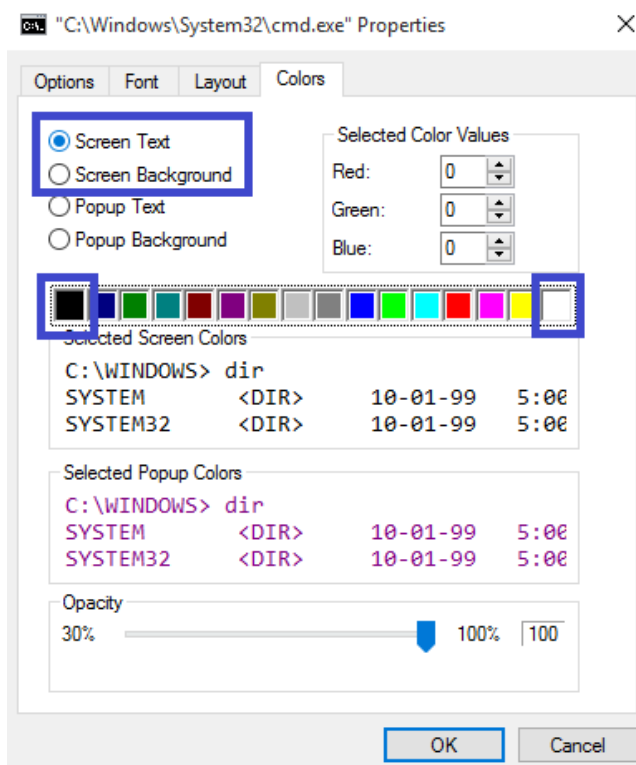
Next, we run the Command Prompt with Administrator Privileges.



We can change the color of the Command Prompt by right-clicking on the title bar panel and Selecting the Properties.



We set the Screen Background Color to White and Screen Text Color to Black and hit OK.



We browse to our directory with the change directory command followed by the folder path.

cd C:\Program Files\Java\jdk1.8.0_144\bin

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\Windows\system32>cd C:\Program Files\Java\jdk1.8.0_144\bin
C:\Program Files\Java\jdk1.8.0_144\bin>
```

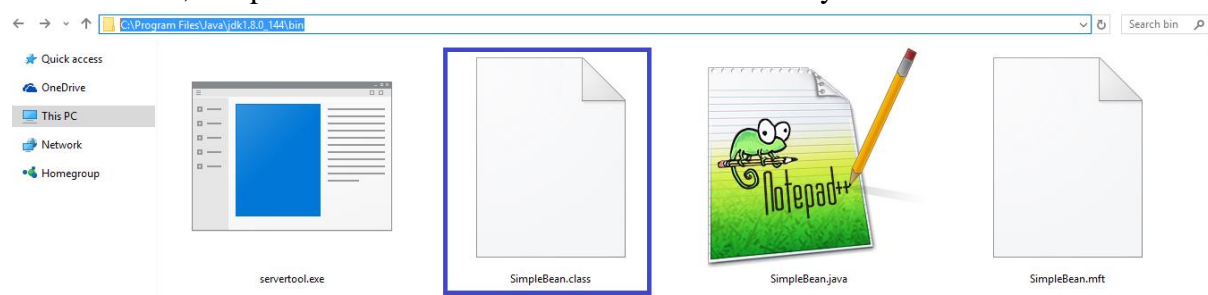
Next, we compile SimpleBean.java using the command:

`javac SimpleBean.java`

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\Windows\system32>cd C:\Program Files\Java\jdk1.8.0_144\bin
C:\Program Files\Java\jdk1.8.0_144\bin>javac SimpleBean.java
C:\Program Files\Java\jdk1.8.0_144\bin>
```

The class file, SimpleBean.class shall be created in the directory



The next step is the **creation of the jar file**.

Syntax:

jar -cfm JarFileName.jar ManifestFileName.mft ClassFileName.class

or

jar -cmf ManifestFileName.mft JarFileName.jar ClassFileName.class

Note: When we use the *cfm* command we start with the JarFileName.jar but if we use the *cmf* command we then start with the ManifestFileName.mft

The **c** option indicates that you want to create a JAR file.

The **-c** is to change directories during execution of the command.

The **f** option indicates that you want the output to go to a file

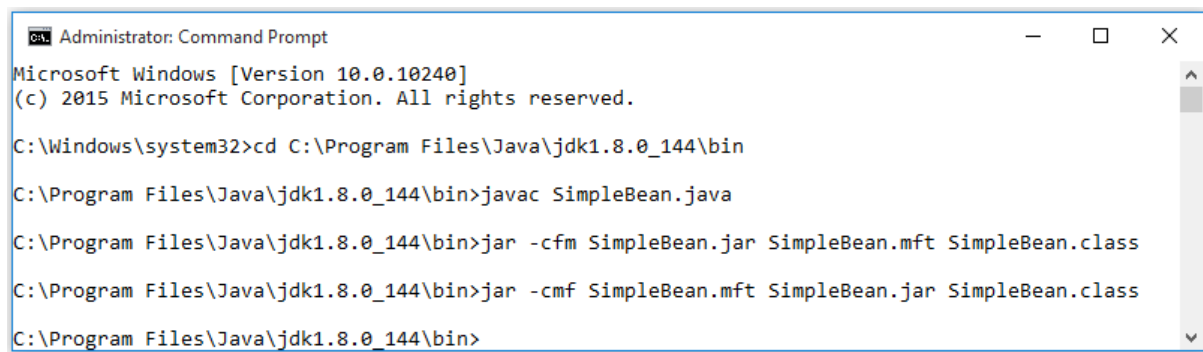
The **m** option is used to include manifest information from an existing manifest file

Thus, in the command prompt we type in:

```
jar -cfm SimpleBean.jar SimpleBean.mft SimpleBean.class
```

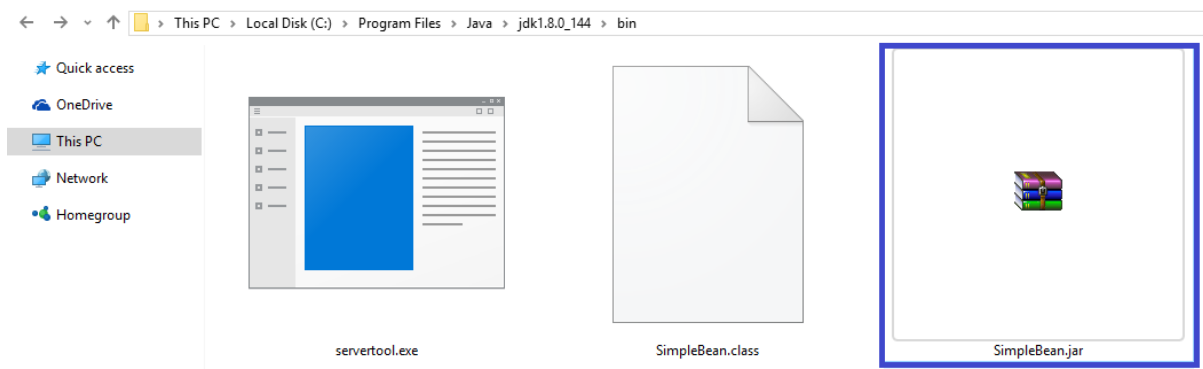
or

```
jar -cmf SimpleBean.mft SimpleBean.jar SimpleBean.class
```

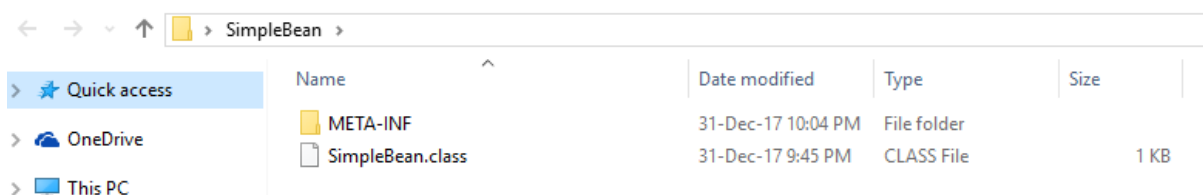


```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

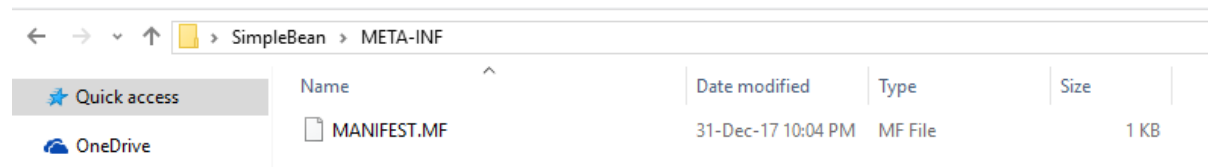
C:\Windows\system32>cd C:\Program Files\Java\jdk1.8.0_144\bin
C:\Program Files\Java\jdk1.8.0_144\bin>javac SimpleBean.java
C:\Program Files\Java\jdk1.8.0_144\bin>jar -cfm SimpleBean.jar SimpleBean.mft SimpleBean.class
C:\Program Files\Java\jdk1.8.0_144\bin>jar -cmf SimpleBean.mft SimpleBean.jar SimpleBean.class
C:\Program Files\Java\jdk1.8.0_144\bin>
```



If we extract the contents of the SimpleBean.jar file we find a folder META-INF and SimpleBean.class



In the folder META-INF we find the file MANIFEST.MF



Name	Date modified	Type	Size
MANIFEST.MF	31-Dec-17 10:04 PM	MF File	1 KB

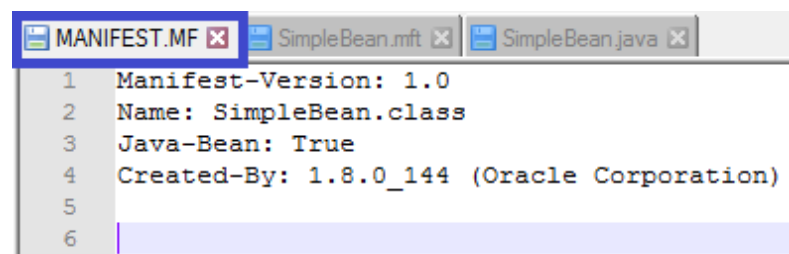
MANIFEST.MF

Manifest-Version: 1.0

Name: SimpleBean.class

Java-Bean: True

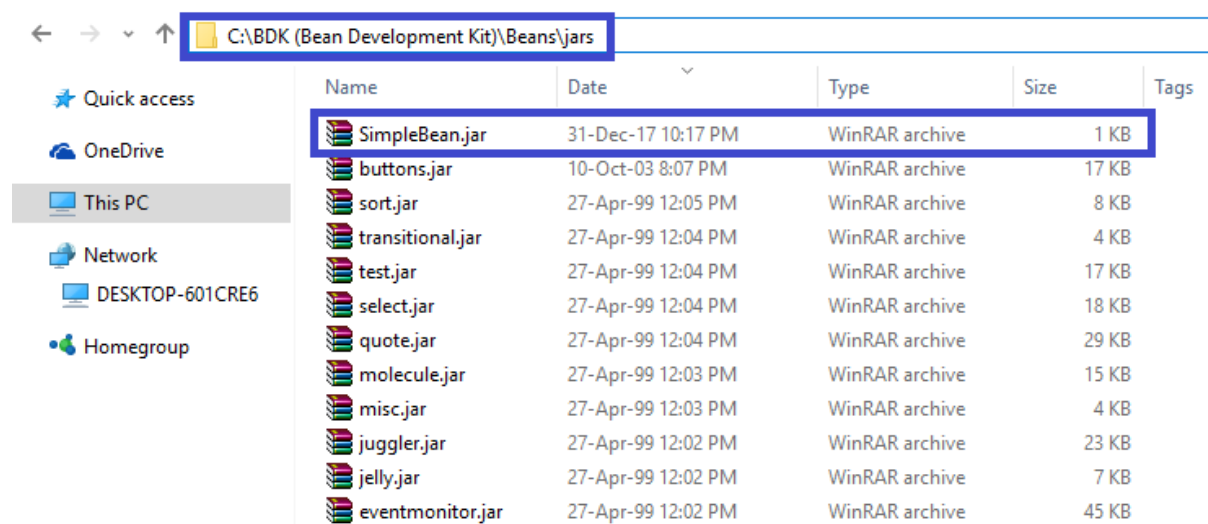
Created-By: 1.8.0_144 (Oracle Corporation)



```
1 Manifest-Version: 1.0
2 Name: SimpleBean.class
3 Java-Bean: True
4 Created-By: 1.8.0_144 (Oracle Corporation)
5
6
```

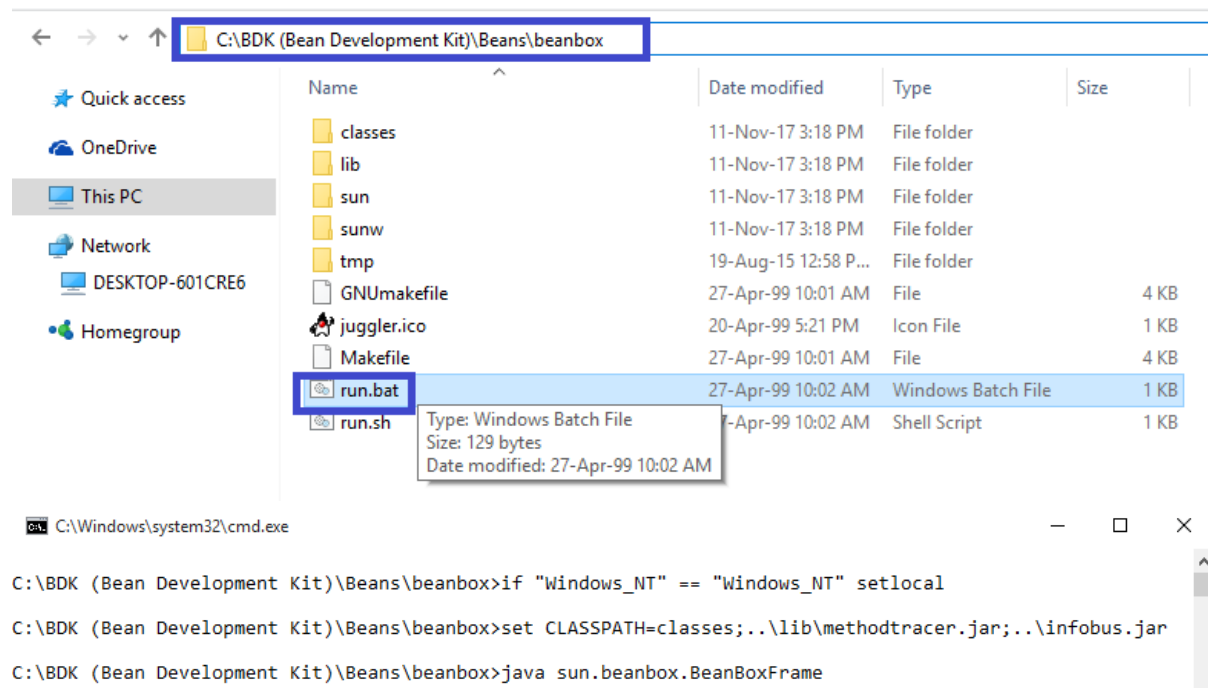
Now we copy the SimpleBean.jar file into our Bean Box Development kit Directory. There is a folder called “jars” for storing all the Beans in the jar file format.

C:\BDK (Bean Development Kit)\Beans\jars

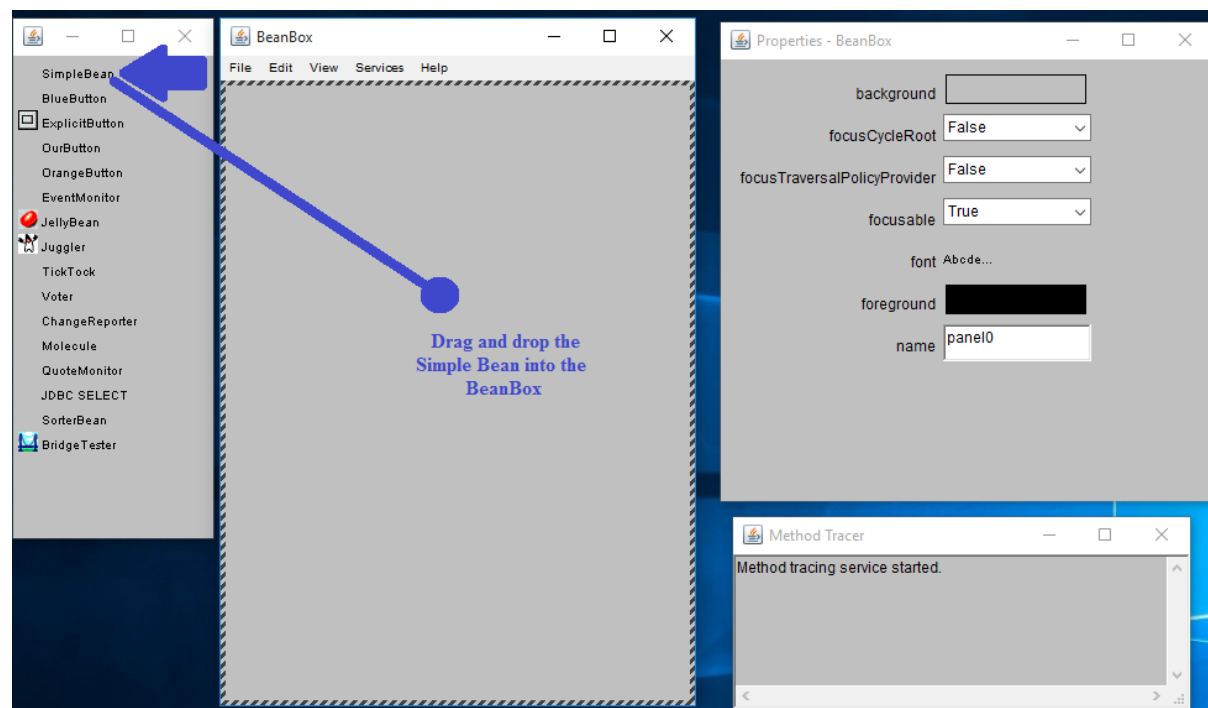


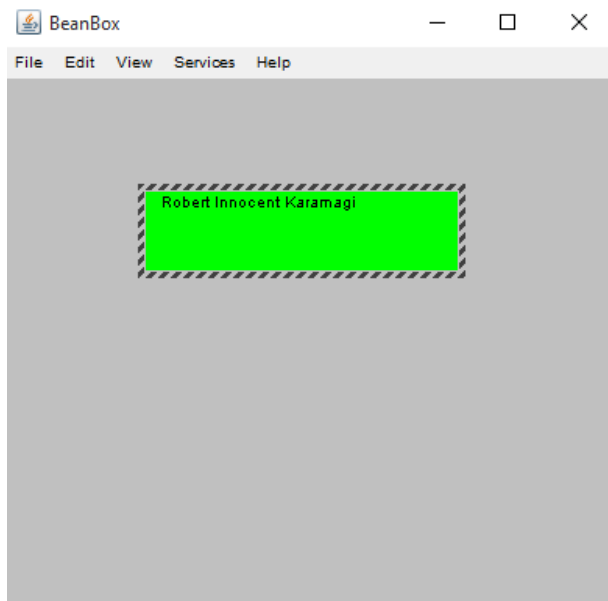
Name	Date	Type	Size	Tags
SimpleBean.jar	31-Dec-17 10:17 PM	WinRAR archive	1 KB	
buttons.jar	10-Oct-03 8:07 PM	WinRAR archive	17 KB	
sort.jar	27-Apr-99 12:05 PM	WinRAR archive	8 KB	
transitional.jar	27-Apr-99 12:04 PM	WinRAR archive	4 KB	
test.jar	27-Apr-99 12:04 PM	WinRAR archive	17 KB	
select.jar	27-Apr-99 12:04 PM	WinRAR archive	18 KB	
quote.jar	27-Apr-99 12:04 PM	WinRAR archive	29 KB	
molecule.jar	27-Apr-99 12:03 PM	WinRAR archive	15 KB	
misc.jar	27-Apr-99 12:03 PM	WinRAR archive	4 KB	
juggler.jar	27-Apr-99 12:02 PM	WinRAR archive	23 KB	
jelly.jar	27-Apr-99 12:02 PM	WinRAR archive	7 KB	
eventmonitor.jar	27-Apr-99 12:02 PM	WinRAR archive	45 KB	

We now run the BeanBox and verify the output of our Java Bean that we just created. We click on the **run.bat** batch file.

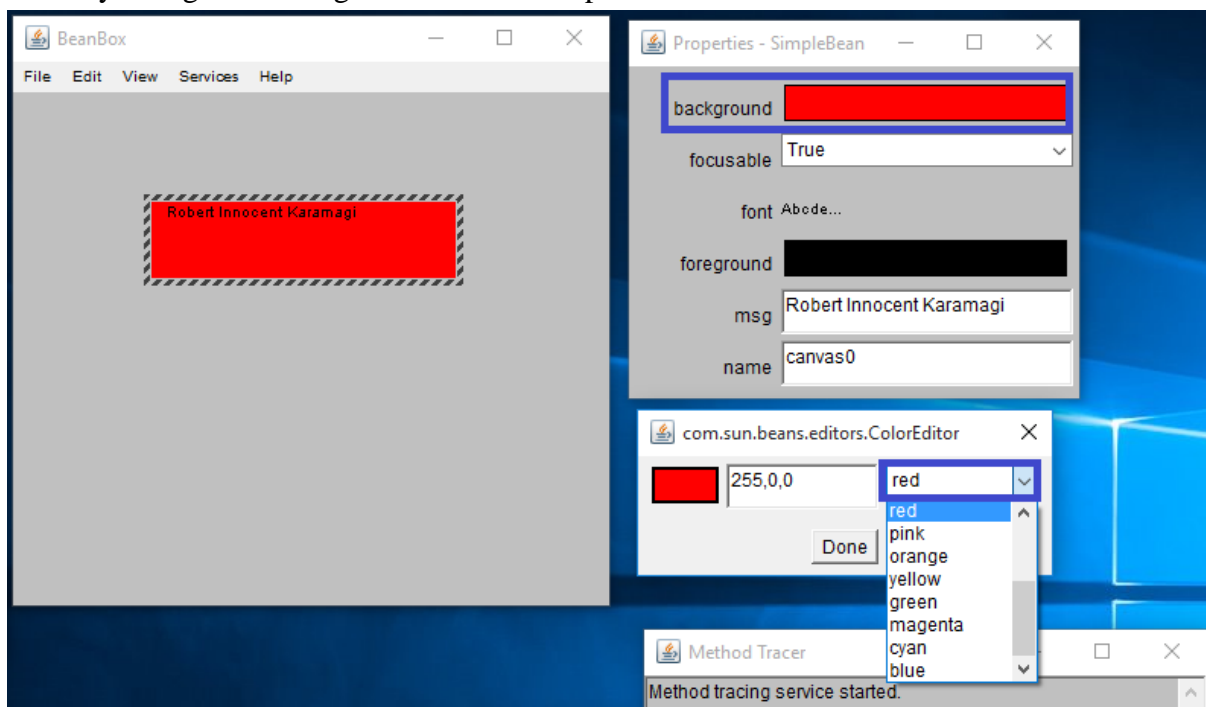


The SimpleBean we created is shown by the blue arrow. We drag and drop it into the BeanBox window.

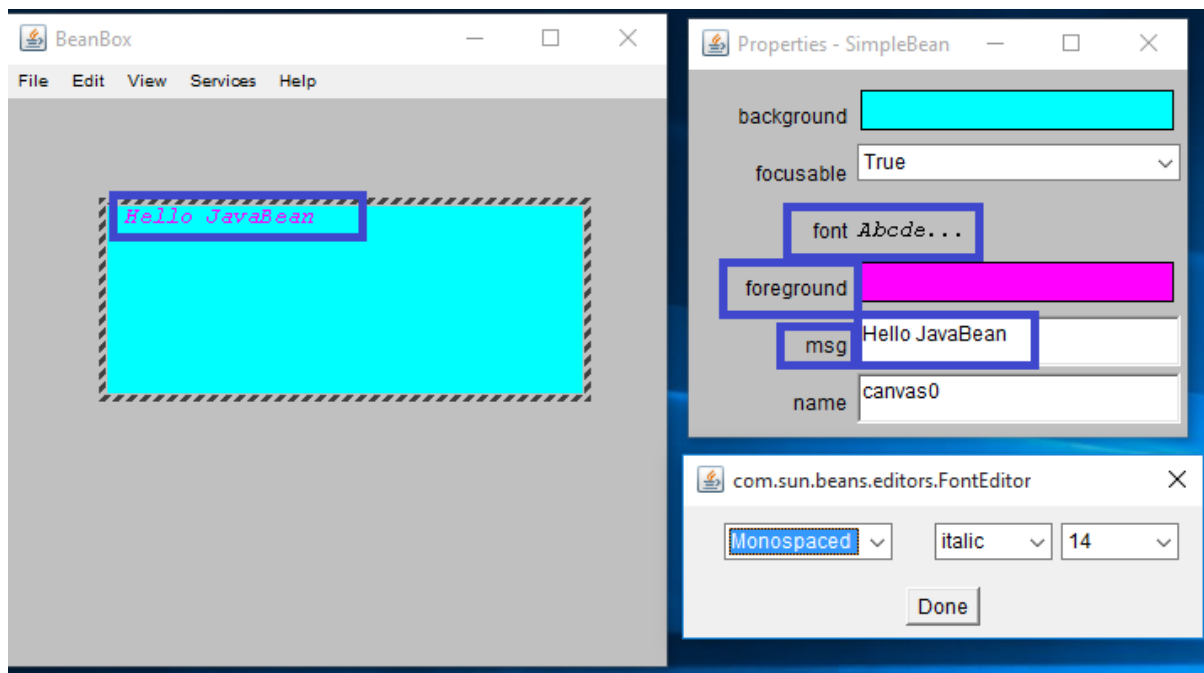




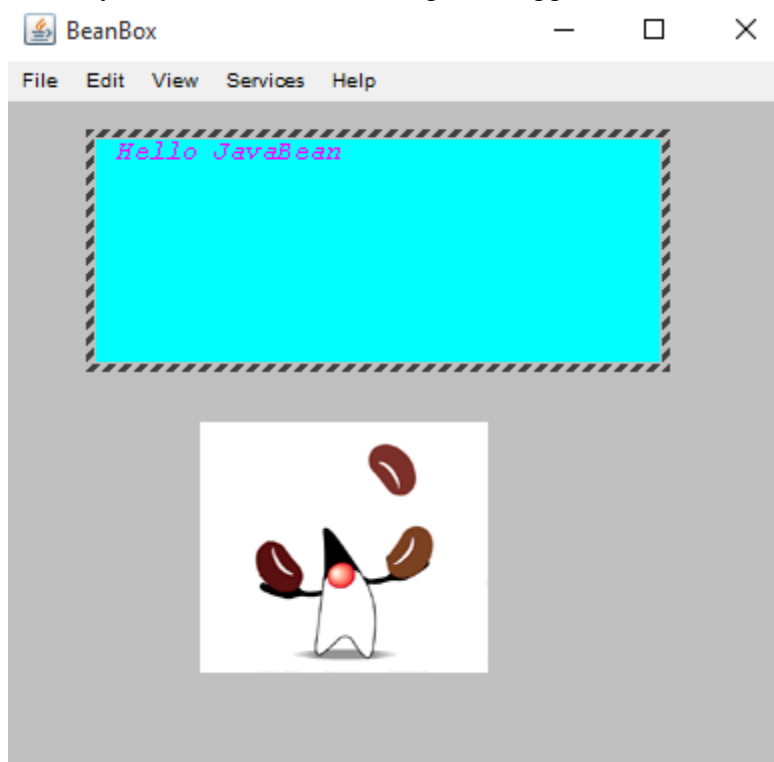
We may adjust the properties of the SimpleBean in the Properties Window.
We may change the Background Color that opens the `com.sun.beans.editors.ColorEditor`



We may change the font that opens the `com.sun.beans.editors.FontEditor` to any size, style and type. We may also change the message denoted by “msg”, the Foreground Color or the text color, the Focusable setting, and the Canvas Name.

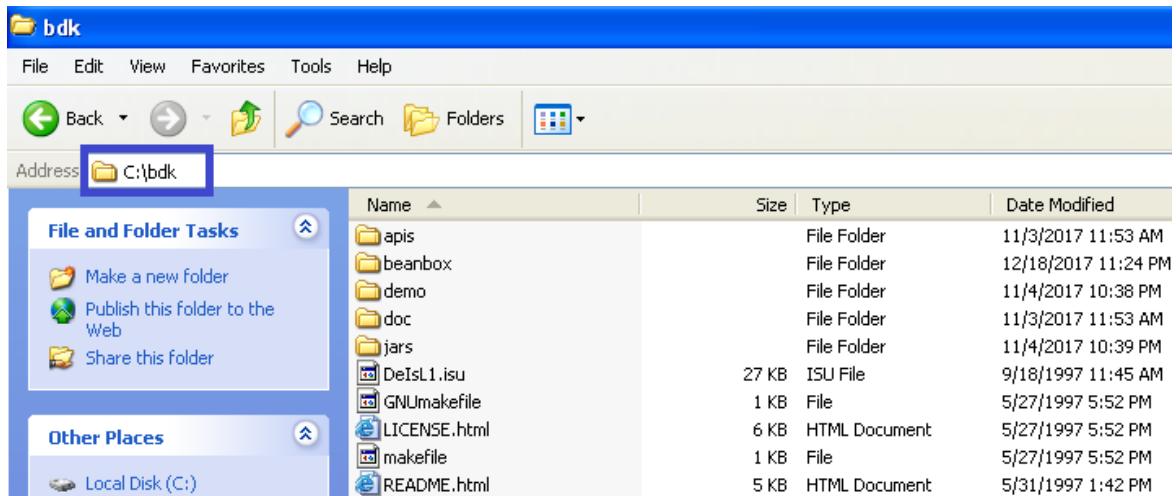


We may add the default beans e.g. the Juggler to our BeanBox.

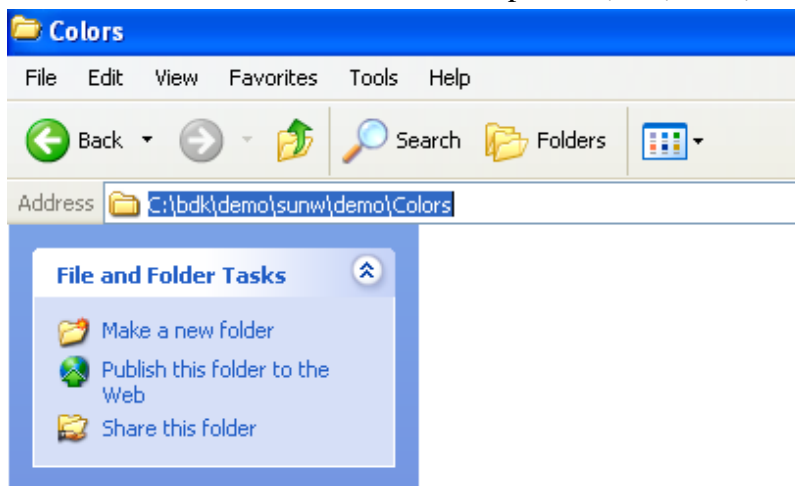


We will now run another JavaBean program called Colors.java using Windows XP Operating System on Oracle Virtual Machine VirtualBox to reduce compilation errors with the java compiler – javac.exe.

We have the Beans Development Kit installed to the path C:\bdk

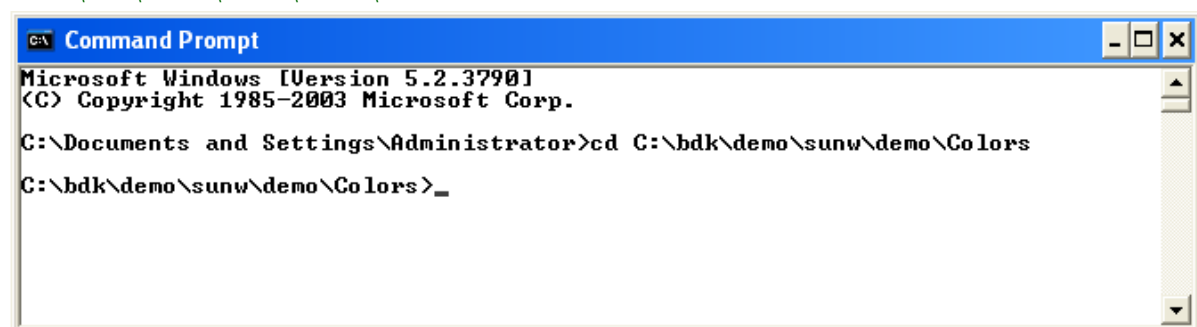


We create a folder called Colors in the path C:\bdk\demo\sunw\demo\Colors



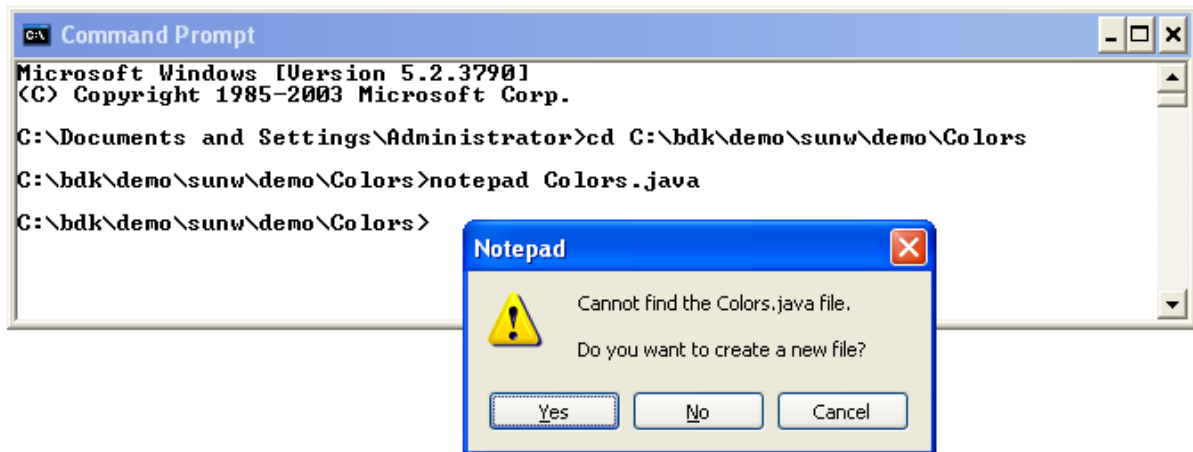
Open the command prompt and browse to the folder shown above using the change directory command and path name.

`cd C:\bdk\demo\sunw\demo\Colors`



Type the command:

`notepad Colors.java`



Select “Yes” and enter the program below into the Notepad editor and Save.

Colors.java

```
package sunw.demo.Colors;
import java.awt.*;
import java.awt.event.*;

public class Colors extends Canvas {

    private Color color;

    private boolean rectangular;

    public void Colors() {

        addMouseListener(new MouseAdapter() {

            public void mousePressed(MouseEvent me) {
                change();
            }

        });

        rectangular=false;
        setSize(100,100);
        change();
    }

    public boolean getRectangular() {
```

```

        return rectangular;
    }

    public void setRectangular(boolean flag) {
        this.rectangular=flag; repaint();
    }

    public void change() {
        color=randomColor();
        repaint();
    }

    private Color randomColor() {
        // TODO Auto-generated method stub

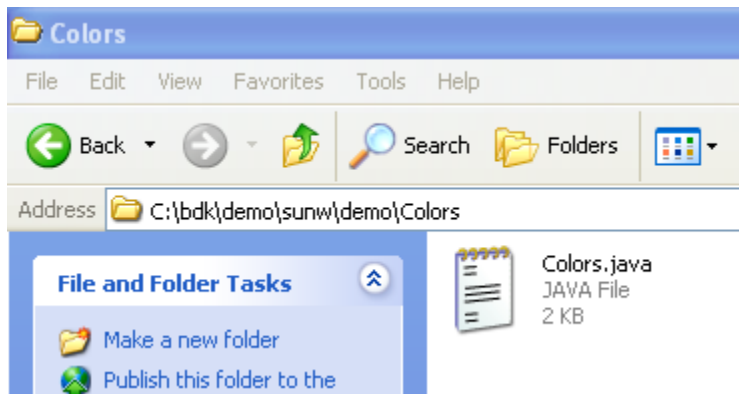
        int r=(int)(255*Math.random());
        int g=(int)(255*Math.random());
        int b=(int)(255*Math.random());
        return new Color(r,g,b);
    }

    public void paint(Graphics g) {
        Dimension d=getSize();
        int h=d.height;
        int w=d.width;
        g.setColor(color);

        if(rectangular) {
            g.fillRect(0, 0, w-1, h-1);
        }

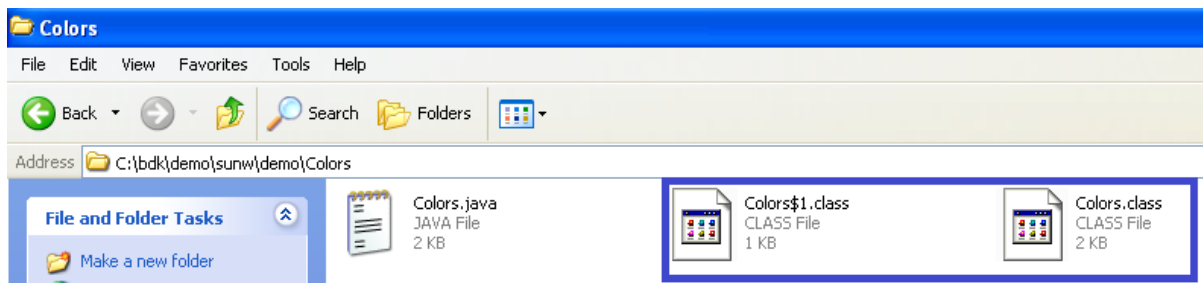
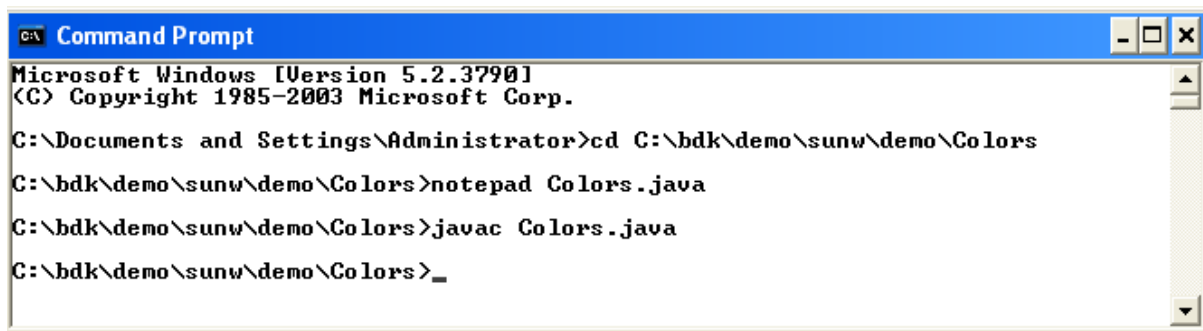
        else {
            g.fillOval(0, 0, w-1, h-1);
        }
    }
}

```

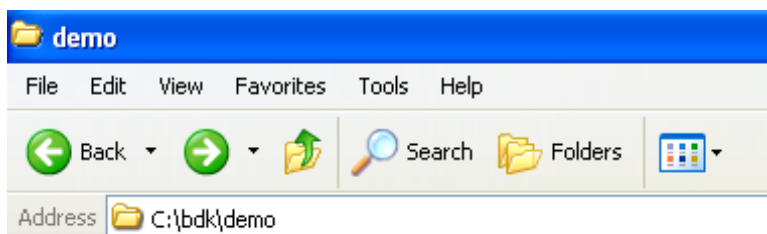


Compile the program by the command:

```
javac Colors.java
```



We move on to create a manifest file in the folder C:\bdk\demo

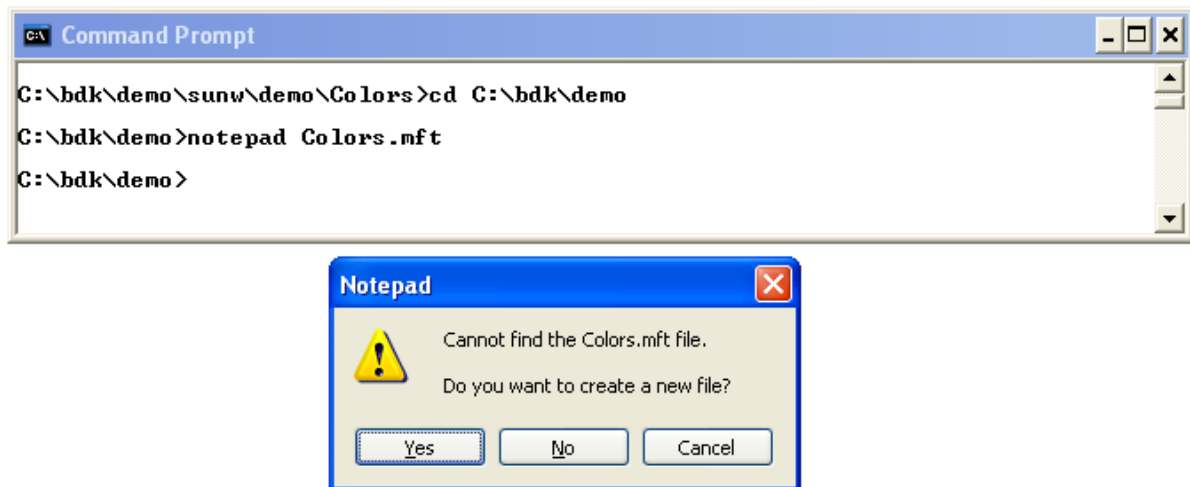


We use the following command in the command prompt to navigate to the folder above:

```
cd C:\bdk\demo
```

We write the command:

`notepad Colors.mft`

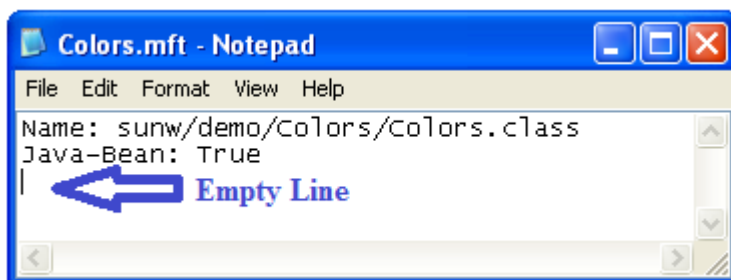


Click on “Yes” and type the following into the editor.

Colors.mft

Name: sunw/demo/Colors/Colors.class

Java-Bean: True

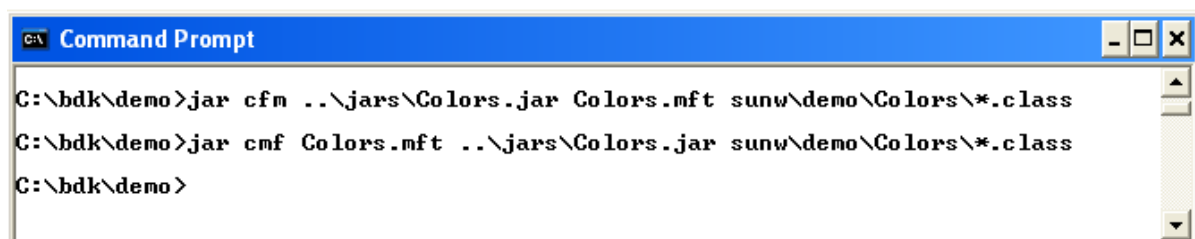


Finally, we create the Executable jar file Colors.jar with the command:

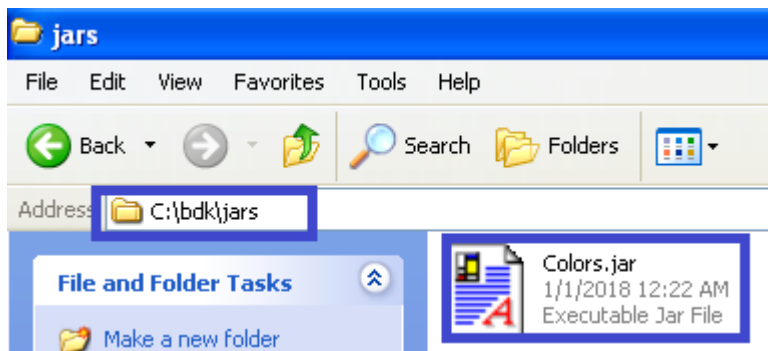
`jar cfm ../jars/Colors.jar Colors.mft sunw/demo/Colors/*.class`

or

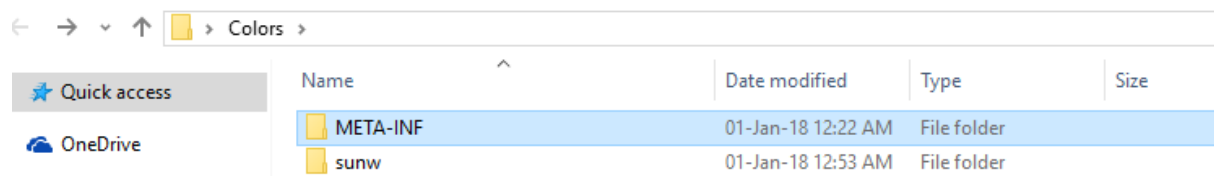
`jar cmf Colors.mft ../jars/Colors.jar sunw/demo/Colors/*.class`



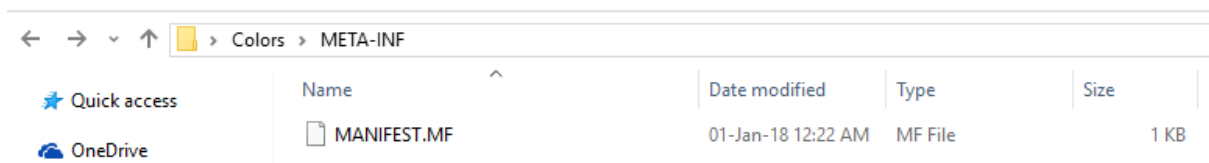
The jar file Colors.jar shall be created in the folder C:\bdk\jars



When extracting the contents of the Colors.jar jar file we get two folders META-INF and sunw



Inside the folder META-INF (Meta-Data Information) we have the MANIFEST.MF file. Meta-Data means Data about Data.



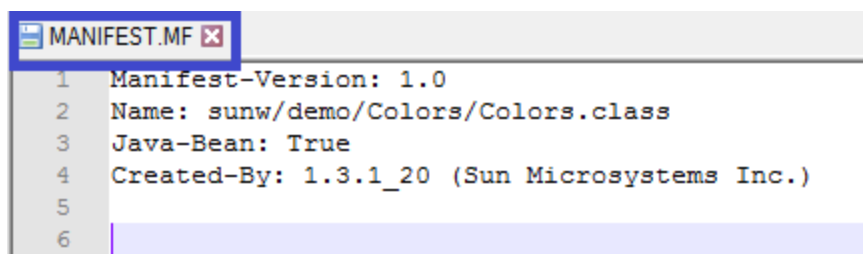
MANIFEST.MF

Manifest-Version: 1.0

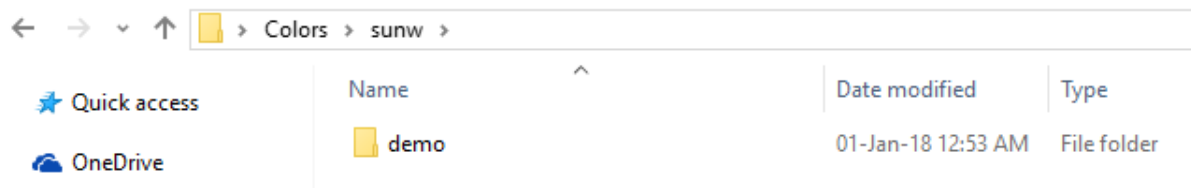
Name: sunw/demo/Colors/Colors.class

Java-Bean: True

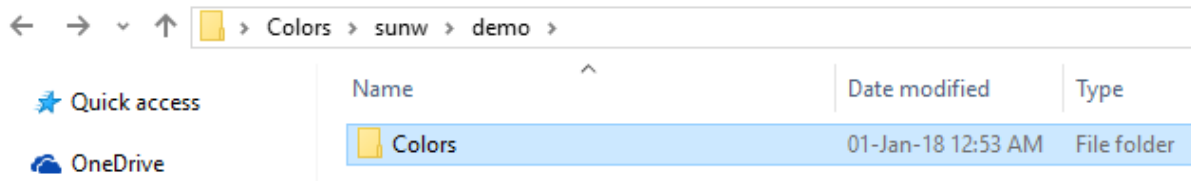
Created-By: 1.3.1_20 (Sun Microsystems Inc.)



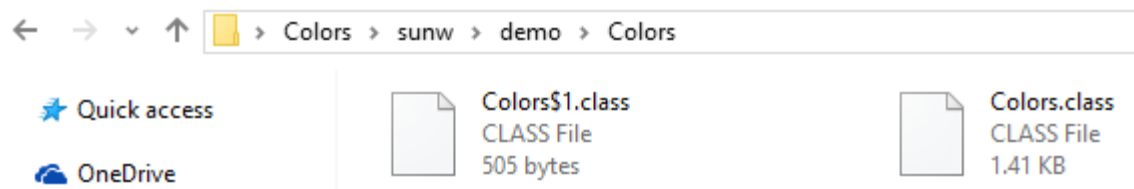
Inside the “sunw” folder we have the demo folder.



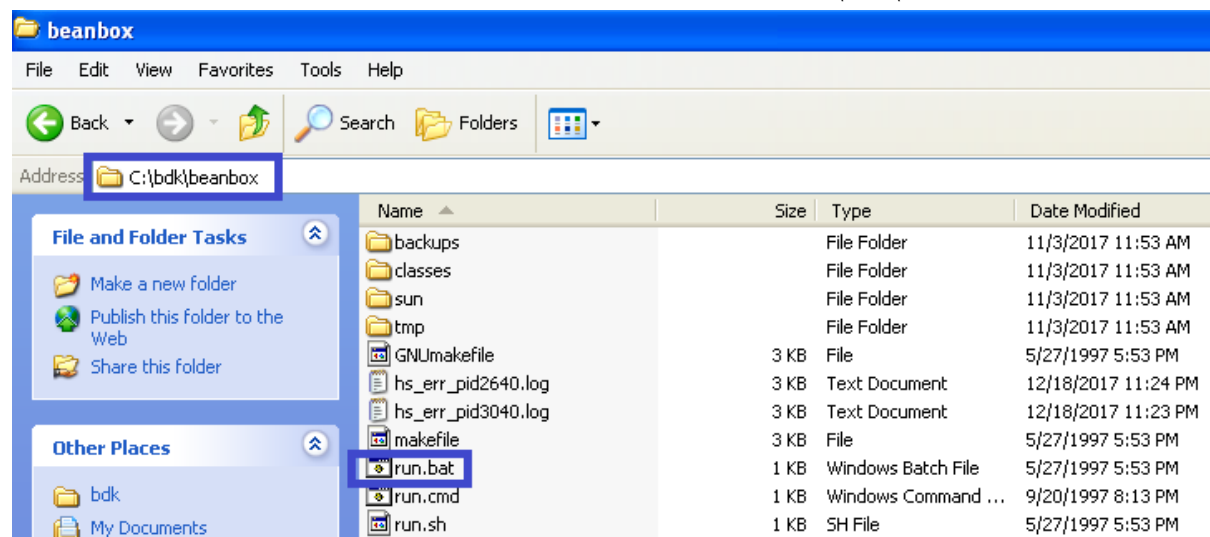
Inside the “demo” folder we have the “Colors” folder.

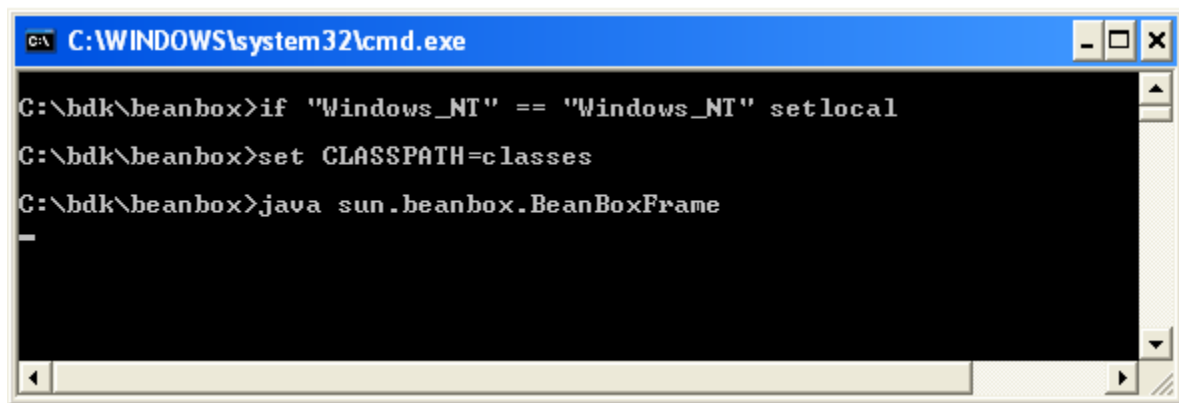


And inside the “Colors” folder we have the class files “Colors\$1.class” and “Colors.class”



We start the BeanBox with the batch file run.bat in the folder C:\bdk\beanbox

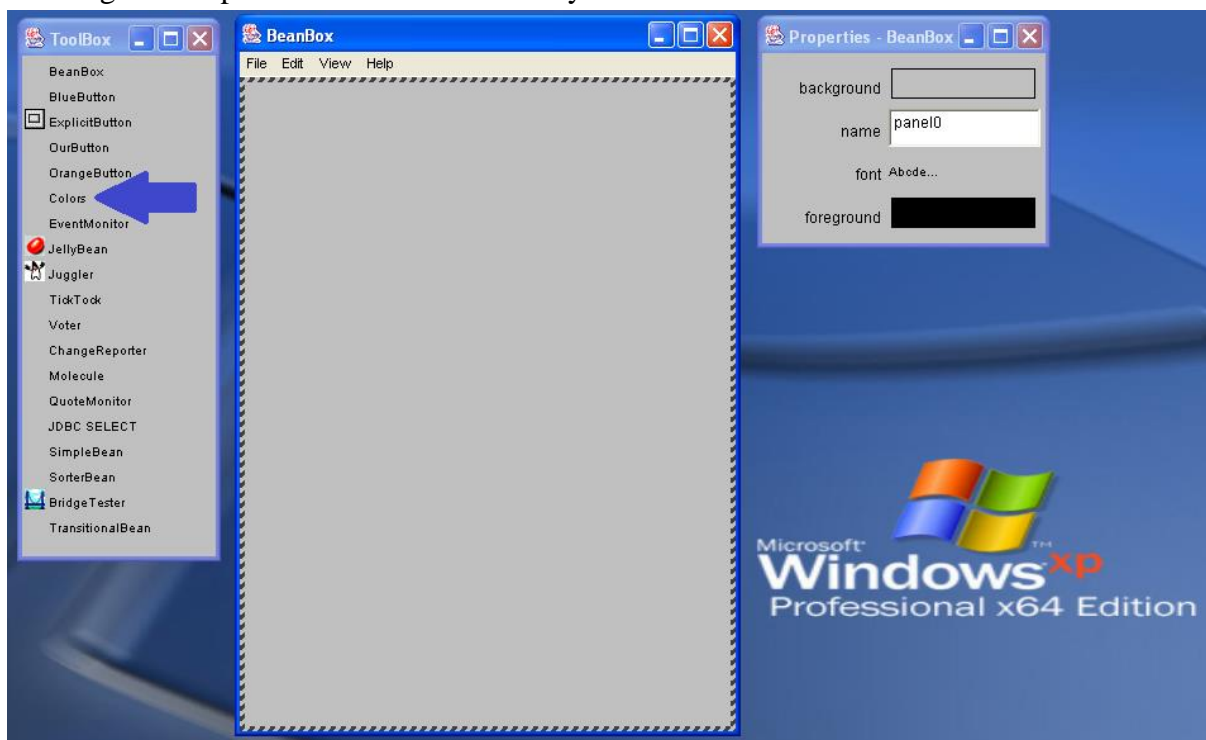




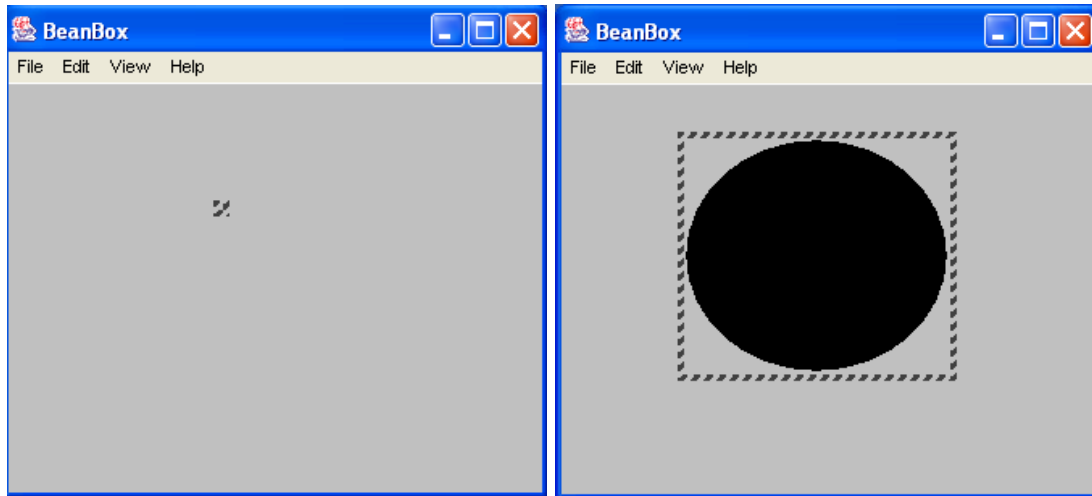
```
C:\WINDOWS\system32\cmd.exe

C:\bdk\beanbox>if "Windows_NT" == "Windows_NT" setlocal
C:\bdk\beanbox>set CLASSPATH=classes
C:\bdk\beanbox>java sun.beanbox.BeanBoxFrame
-
```

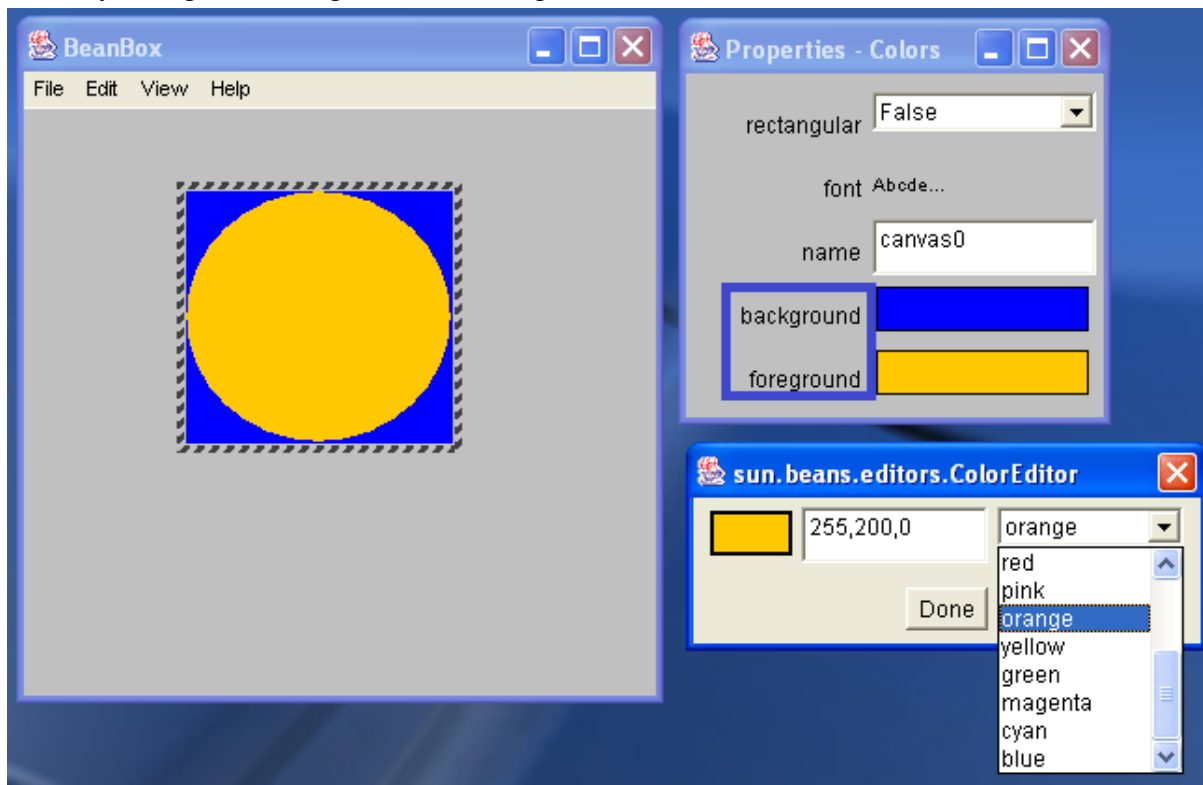
We drag and drop the Colors Bean shown by the blue arrow into the BeanBox.



We expand the Canvas by clicking on it and moving outwards using the mouse cursor.



We may change the background and foreground color.



We may also set the rectangular property to True.

