

## F27SB2 Software Development 2

### Laboratory 1

The following program, similar to the one shown to you in Lecture 2

```
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;
class White extends JFrame
{   public White()
    {   getContentPane().setBackground(Color.white);   }
}

class TestWhite
{   public static void main(String [] args)
    {   White w;
        w = new White();
        w.setSize(200,220);
        w.setTitle("White");
        w.setVisible(true);
        w.addWindowListener
            (new WindowAdapter()
             {   public void windowClosing(WindowEvent e)
                 {   System.exit(0);   }
             });
    }
}
```

displays a window with a white background.

- a) Add a parameter to the constructor to specify the initial background colour of the window.
- b) Change `main` to simultaneously display a red 250\*250 window and a blue 350\*100 window and a green 200\*450 window, each with suitable titles.

The following program, also from Lecture 2:

```
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;
import java.util.*;

class Blackwhite extends JFrame
{   public Blackwhite()
    {   getContentPane().setBackground(Color.black);   }

    private void pause(long millisecs)
    {   long startTime =
        Calendar.getInstance().getTimeInMillis();
        while(Calendar.getInstance().getTimeInMillis() -
            startTime < millisecs);
    }
}
```

```

    public void flash()
    {   while(true)
        {   pause(500);
            getContentPane().setBackground(Color.white);
            pause(500);
            getContentPane().setBackground(Color.black);
        }
    }
}

class TestBlackwhite
{   public static void main(String [] args)
    {   Blackwhite b;
        b = new Blackwhite();
        b.setSize(200,220);
        b.setTitle("Black and white");
        b.setVisible(true);
        b.addWindowListener
            (new WindowAdapter()
             {   public void windowClosing(WindowEvent e)
                 {   System.exit(0); }
             });
        b.flash();
    }
}

```

changes the background colour of a window between white and black every second.

c) Given an array of colours:

```

Color [] rainbow =
{ Color.red,Color.orange,Color.yellow,
  Color.green,Color.blue,Color.magenta,Color.black };

```

change `flash` so that it repeatedly displays each colour in turn for one second. Use a variable initialised to 0 to index the current colour from rainbow. Every second, increment the variable. If the variable exceeds the number of colors in rainbow then reset it to 0.

d) Change `flash` so that instead of pausing every second, it prompts for and inputs an empty line from the keyboard before moving to the next colour.