

Mutators

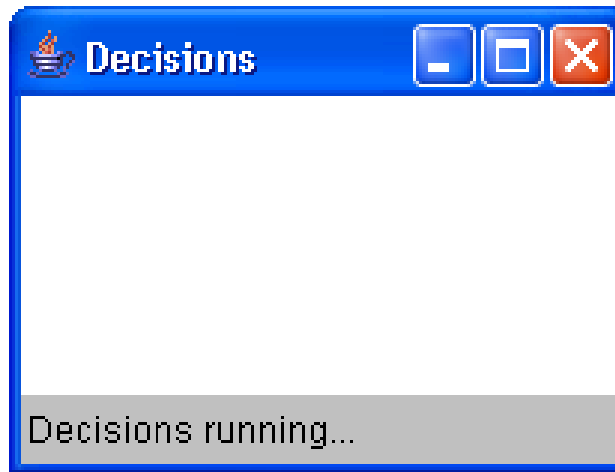
Screen Formatting

In init method

Changes the size
of the screen

```
resize(200, 100);
```

100

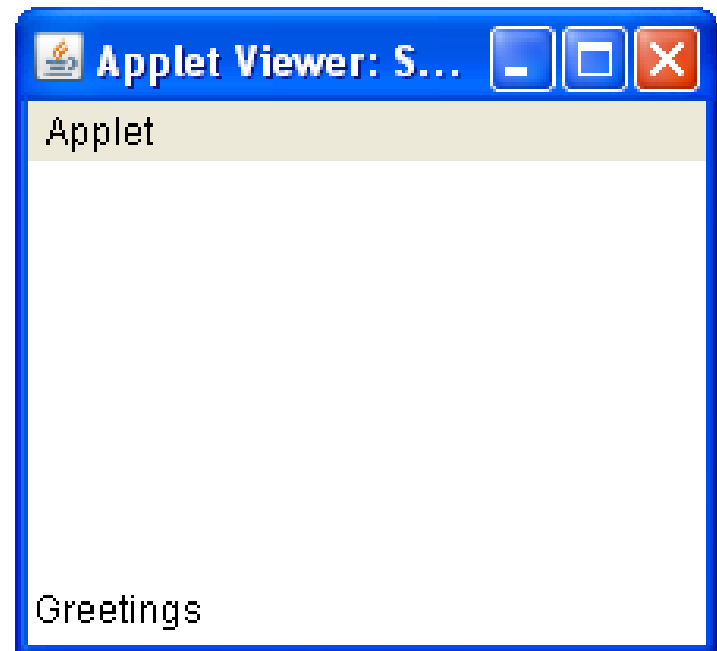


200

Changes the
status bar

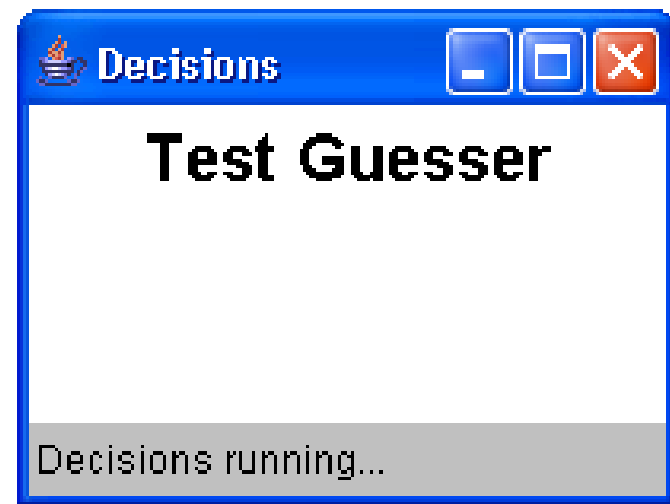
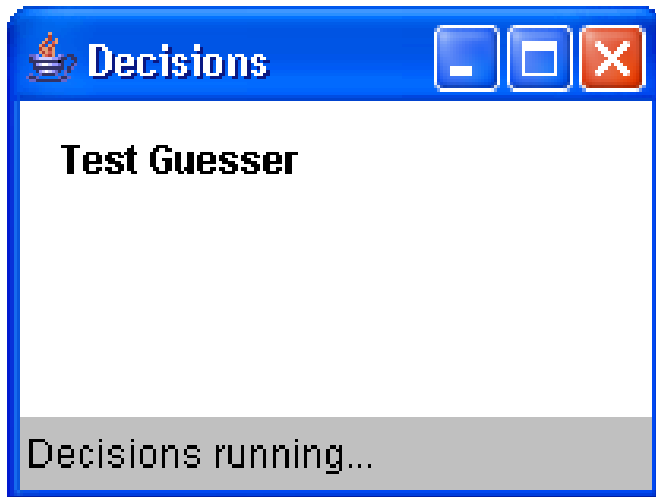
```
showStatus("Greetings");
```

Changes
status bar at
the bottom.



Changing the Font of a JLabel

```
JLabel title = new JLabel ("Test Guesser");  
title.setFont (new Font ("Arial", Font.BOLD, 20));  
add (title);
```

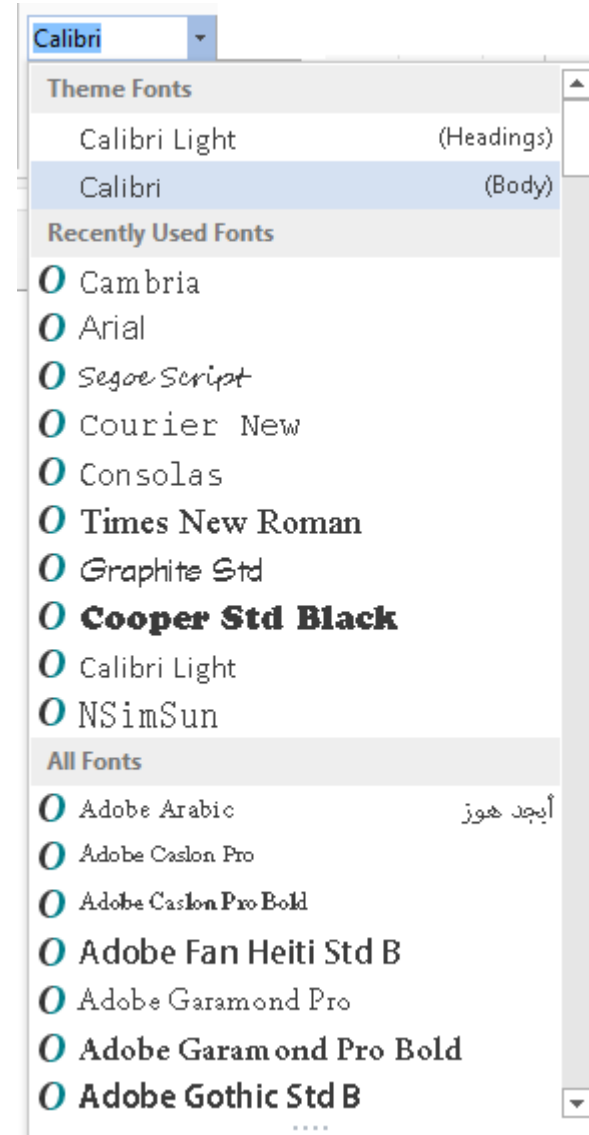


Type Options

Font.PLAIN, Font.BOLD, Font.ITALIC

The fonts you have loaded on the computer can be easily located in Word.

You need to spell the font name exactly.



Changing the text
colour and
background colour

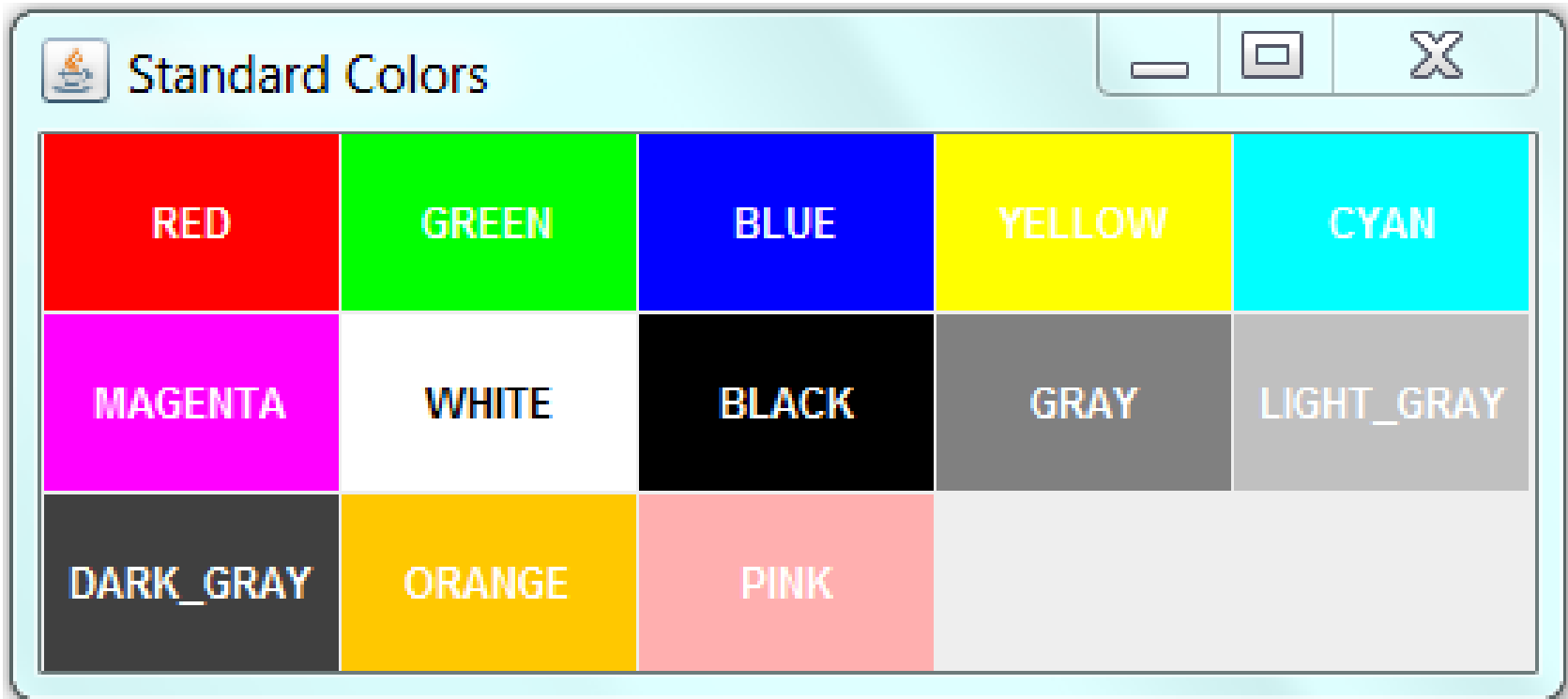
```
JButton tf = new JButton ("True/False");  
tf.setForeground (Color.yellow);  
tf.setBackground (Color.red);  
add (tf);
```

True/False

True/False

Java's default colour codes are listed

```
Color.RED      Color.WHITE  
Color.GREEN   Color.GRAY  
Color.BLUE    Color.DARK_GRAY  
Color.MAGENTA Color.LIGHT_GRAY  
Color.CYAN    Color.ORANGE  
Color.YELLOW  Color.PINK  
Color.BLACK
```



```
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
import java.applet.Applet;
```

Adding Images to the Screen

```
public class CatPicture extends Applet implements ActionListener
```

```
{
    public void init ()
    {
        resize (250, 610);
        JLabel pic = new JLabel (createImageIcon ("cat1.png"));
        add (pic);
    }
```

Calls createImageIcon to add cat1.png to JLabel.

```
public void actionPerformed (ActionEvent e)
{
}
```

Finds pictures and loads them on the screen

```
protected static ImageIcon createImageIcon (String path)
{
    java.net.URL imgURL = CatPicture.class.getResource (path);
    if (imgURL != null)
        return new ImageIcon (imgURL);
    else
        return null;
}
```

```
}
```


A blue speech bubble with a white border, pointing to the left. Inside the bubble, the text "More details about pictures" is written in white, centered.

More details about pictures

- Pictures can be loaded in JLabels or JButtons.

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- Save your pictures to the same folder as your program.

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Must match
class name

The Widget Life Cycle

```
JButton tf = new JButton ("True");
```

```
tf.setForeground (Color.blue);
```

```
add (tf);
```

The Widget Life Cycle

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A card for you to write:

Declaration

- Making a new variable. It sets aside RAM to hold your information.
- Done by writing: `int a;`
- Or with widgets as: `JLabel b;`

A card for you to write:

Construction

- Prepares RAM for a complex variable like widgets
- A widget must be constructed before it can be used.
- It's keyword is **new**

A card for you to write:

Mutation

- Changes the widget's RAM
- Makes the widget look different
- It's keyword is **set**
- Some examples: setBackground, setForeground, setIcon, setFont, setPreferredSize, setActionCommand