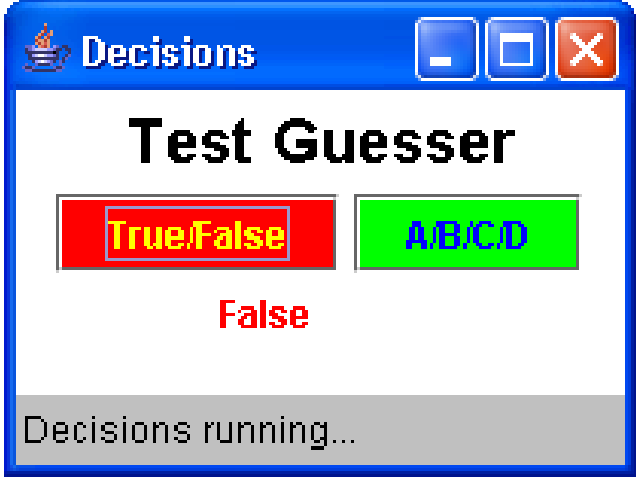
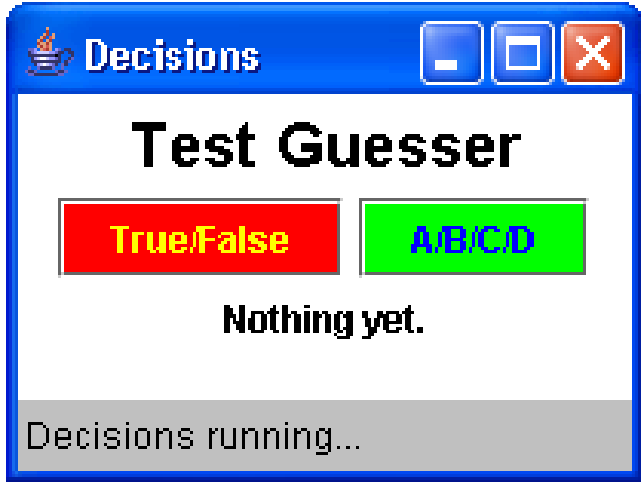


# Global Variables

Widgets that need to change must be declared outside all methods.

# What changes?



Write this card  
if you didn't  
already.

# Global variables

- We need to be able to access widgets that change in both `init` AND `actionPerformed`.
- Therefore, they need to be declared **up** a set of brackets – inside the class brackets, so that they are available everywhere.
- This position is called **global**.

JLabel output;

```
public void init ()  
{ resize (200, 100);
```

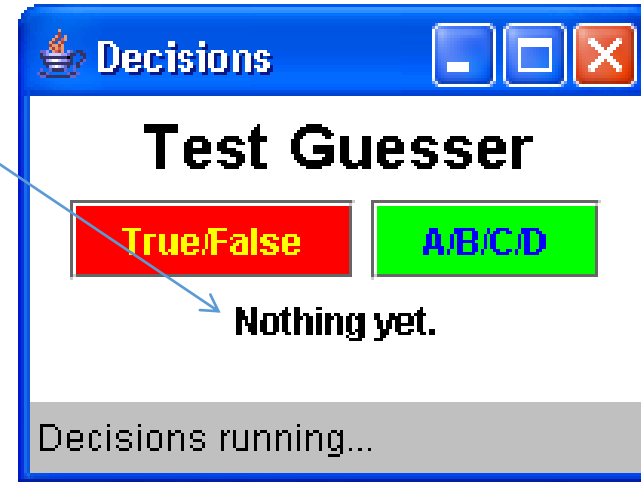
```
    JLabel title = new JLabel ("Test Guesser");  
    title.setFont (new Font ("Arial", Font.BOLD, 20));  
    add (title);
```

```
    JButton tf = new JButton ("True/False");  
    tf.setActionCommand ("opt1");  
    tf.addActionListener (this);  
    tf.setForeground (Color.yellow);  
    tf.setBackground (Color.red);  
    add (tf);
```

```
    JButton abcd = new JButton ("A/B/C/D");  
    abcd.setActionCommand ("opt2");  
    abcd.addActionListener (this);  
    abcd.setForeground (Color.blue);  
    abcd.setBackground (Color.green);  
    add (abcd);
```

```
        output = new JLabel ("Nothing yet.");  
        add (output);
```

```
    }
```



2. Change the global variable's text in actionPerformed.

(a)	Click to begin. Changes to Clicked.	Global	<code>JLabel response;</code>
		Init	<code>response = new JLabel ("_____"); add(response);</code>
		ActionPerformed	<code>response.setText ("_____");</code>
(b)	Type the answer. Changes to You are right!	Global	<code>JLabel answer;</code>
		Init	<code>_____ = new JLabel ("_____"); add(_____);</code>
		ActionPerformed	<code>answer.setText ("_____");</code>
(c)	Welcome. Changes to Computer wins!	Global	<code>JLabel greet;</code>
		Init	<code>_____ = new JLabel ("_____"); add(_____);</code>
		ActionPerformed	<code>_____.setText ("_____");</code>

2. Change the global variable's text in actionPerformed.

(a)	Click to begin. Changes to Clicked.	Global	JLabel response;
		Init	response = new JLabel(" <i>Click to begin</i> "); add(response);
		ActionPerformed	response.setText("_____");
(b)	Type the answer. Changes to You are right!	Global	JLabel answer;
		Init	_____ = new JLabel("_____"); add(_____);
		ActionPerformed	answer.setText("_____");
(c)	Welcome. Changes to Computer wins!	Global	JLabel greet;
		Init	_____ = new JLabel("_____"); add(_____);
		ActionPerformed	_____.setText("_____");

2. Change the global variable's text in actionPerformed.



(a)	Click to begin. Changes to Clicked.	Global	JLabel response;
		Init	response = new JLabel (" <i>Click to begin</i> "); add (response) ;
		ActionPerformed	response.setText (" <i>Clicked</i> ");
(b)	Type the answer. Changes to You are right!	Global	JLabel answer;
		Init	_____ = new JLabel (" _____ "); add ( _____ );
		ActionPerformed	answer.setText (" _____ ");
(c)	Welcome. Changes to Computer wins!	Global	JLabel greet;
		Init	_____ = new JLabel (" _____ "); add ( _____ );
		ActionPerformed	_____.setText (" _____ ");

2. Change the global variable's text in actionPerformed.

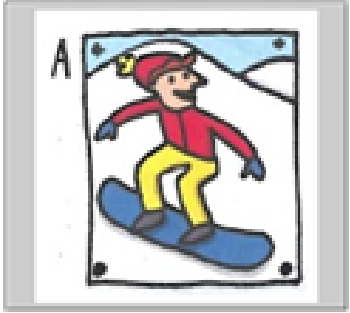

(a)	Click to begin. Changes to Clicked.	Global	JLabel response;
		Init	response = new JLabel (" <i>Click to begin</i> "); add (response) ;
		ActionPerformed	response.setText (" <i>Clicked</i> ");
(b)	Type the answer. Changes to You are right!	Global	JLabel answer;
		Init	_____ = new JLabel (" _____ "); add ( _____ );
		ActionPerformed	answer.setText (" _____ ");
(c)	Welcome. Changes to Computer wins!	Global	JLabel greet;
		Init	_____ = new JLabel (" _____ "); add ( _____ );
		ActionPerformed	_____.setText (" _____ ");





### 3. Take these local widgets and make them global.

(a)	 A square icon with a grey border showing a snowboarder in a red jacket and yellow pants riding a blue snowboard on a snowy slope. The letter 'A' is in the top-left corner.	<p>Global:</p> <pre>_____ ;</pre> <p>Local in init: (make one change)</p> <pre>JButton a = new JButton (createImageIcon ("sb.jpg")) ; a.setActionCommand ("snow") ; a.addActionListener (this) ; add (a) ;</pre>
(b)	 A black rectangular button with the text "Click me" in white.	<p>Global:</p> <pre>_____ ;</pre> <p>Local in init: (make one change)</p> <pre>JButton x = new JButton ("_____") ; x.setBackground (Color.black) ; x.setForeground (Color.white) ; x.addActionListener (this) ; x.setActionCommand ("click") ; add (____) ;</pre>

3. Take these local widgets and make them global.

(a)		<p>Global: <u>  <i>JButton</i>  </u> <u>  <i>a</i>  </u> ;</p> <p>Local in init: (make one change) JButton a = new JButton (createImageIcon ("sb.jpg")) ; a.setActionCommand ("snow") ; a.addActionListener (this) ; add (a) ;</p>
(b)		<p>Global: _____ ;</p> <p>Local in init: (make one change) JButton x = new JButton ("_____") ; x.setBackground (Color.black) ; x.setForeground (Color.white) ; x.addActionListener (this) ; x.setActionCommand ("click") ; add (____) ;</p>

### 3. Take these local widgets and make them global.

(a)		Global: <u>    <i>JButton</i>    </u> <u>    <i>a</i>    </u> ;  Local in init: (make one change) <del>JButton</del> a = new JButton (createImageIcon ("sb.jpg")); a.setActionCommand ("snow"); a.addActionListener (this); add (a);
(b)		Global: _____ <i>i</i> ;  Local in init: (make one change) JButton x = new JButton ("_____"); x.setBackground (Color.black); x.setForeground (Color.white); x.addActionListener (this); x.setActionCommand ("click"); add (____);

Birds

Look carefully at this picture. When done, press next.

Which bird is missing?  

Birds running...

Birds

Try to remember which bird flew away.

Which bird is missing?  

Birds running...

What needs to be global?

Birds

Look carefully at this picture. When done, press next.

Tufted greenwing  
Blue bobtail  
Songstrel  
Long bill  
Purple puffling  
Golden flufftail  
Red breasted pip  
Twig wobbler

Which bird is missing?  

Birds running...

1 Birds

Try to remember which bird flew away.

2  
3

Which bird is missing?  

Birds running...