

Java AWT Tutorial

2 Parts

- Creating the graphical interface
- Defining the behavior

Used this site <http://brandt.kurowski.net/teaching/java/tutorial.html>

As well as Deitel & Deitel Small Java How To Program 6th edition

AWT - Building a graphical interface

- 2 ways
 - Write the code yourself
 - Use a graphical interface builder

We will write the code ourselves, you should know what kind of code the automatic tools build for you

AWT - Building a graphical interface

- Terminology
 - AWT – Abstract Windows Toolkit
 - GUI – Graphical User Interface

AWT - Building a graphical interface

- Creating the window
 - The first thing you need is the window your GUI application will be in
 - In Java AWT – top level windows are represented by the Frame class

AWT - Building a graphical interface

- The Frame class
 - Most common way is to use the single argument constructor
 - The argument is a String that becomes the window's title
 - The window is initially invisible, you must call the Frame's show() method which it inherits from the window class

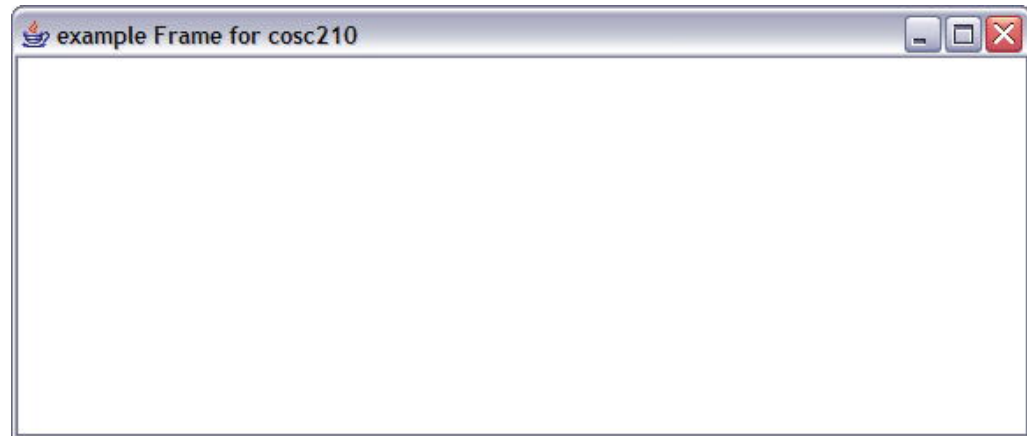
AWT - Building a graphical interface

- Adding a Frame and using the show() method

```
package com.cosc210.awt;
import java.awt.*;
public class MyApp1 {
    public static void main (String arg[]){
        Frame myFrame = new Frame("example Frame for cosc210");
        myFrame.show(); // necessary for the frame to be visible
    }
}
```



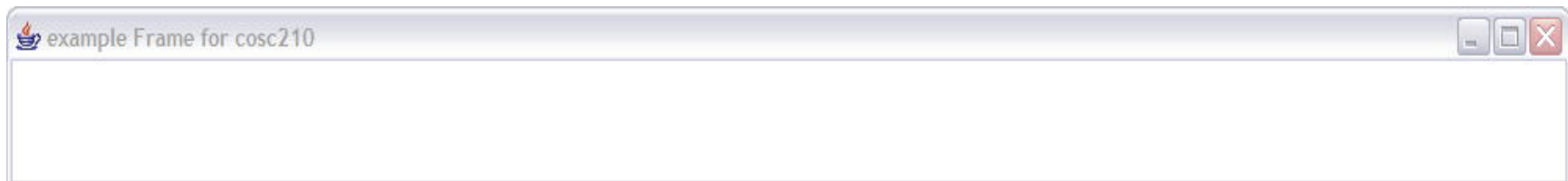
Used the mouse to drag the Window to a larger size →



AWT - Building a graphical interface

- Adding a Frame and using the show() method

```
package com.cosc210.awt;
import java.awt.*;
public class MyApp1 {
    public static void main (String arg[]){
        Frame myFrame = new Frame("example Frame for
            cosc210");
        myFrame.show();
        myFrame.setSize(1000,100);
    }
}
```



AWT - Building a graphical interface

- Adding a component
 - Each piece inside a window is a component
 - Text box, menu, scroll bar
 - some components act as containers for other components
 - Example the component Window we have already used by creating a Frame
 - Because Frame extends Window every Frame is a Window but every Window is not necessarily a Frame

AWT - Building a graphical interface

- Adding a component
- Example the component Window we have already used by creating a Frame

java.awt

Class Frame

[java.lang.Object](#)

└ [java.awt.Component](#)

└ [java.awt.Container](#)

└ [java.awt.Window](#)

└ `java.awt.Frame`

Notice: Window extends Container

Container is the generic component that

Defines how all containers work

Container is abstract – you have to choose

An implemented container to use containers

All Implemented Interfaces:

[ImageObserver](#), [MenuContainer](#), [Serializable](#), [Accessible](#)

Direct Known Subclasses:

[JFrame](#)

AWT - Building a graphical interface

- Adding a component (a static component)

– We will start with a Label

```
package com.cosc210.awt;
```

```
import java.awt.*;
```

```
public class MyApp1 {
```

```
    public static void main (String arg[]){
```

```
        Frame myFrame = new Frame("example Frame for cosc210");
```

```
        myFrame.show();
```

```
        myFrame.setSize(300,300);
```

```
        Label myLabel1 = new Label("cosc210 pass");
```

```
        myFrame.add(myLabel1);
```

```
    }
```

```
}
```



AWT - Building a graphical interface

- Adding another component (a dynamic component)
 - We will add a Choice
 - Added the following code in our main method

```
Choice choices = new Choice();
choices.add("you get an A");
choices.add("you get an B");
choices.add("you get an C");
myFrame.add(choices);
```

Notice the label has been covered up →



AWT - Building a graphical interface

- **LayoutManager class**

- There are many types of LayoutManagers
 - Each is designed to facilitate positioning components
- We will use the BorderLayout manager
 - This is the most commonly used LayoutManager for AWT
- BorderLayout divides the window into 5 areas (North, South, East, West, Center)
 - Use the containers add method with a second parameter like the following:
 - BorderLayout.NORTH
 - BorderLayout.SOUTH
 - BorderLayout.EAST
 - BorderLayout.WEST
 - BorderLayout.CENTER

AWT - Building a graphical interface

- **LayoutManager class**

- Added the following code in our main method

```
package com.cosc210.awt;
import java.awt.*;
public class MyApp1 {
public static void main (String arg[]){
    Frame myFrame = new Frame("example Frame for cosc210");
    myFrame.show();
    myFrame.setSize(300,300);

    BorderLayout myBL = new BorderLayout();
    myFrame.setLayout(myBL);

    Label myLabel1 = new Label("cosc210 pass");
    myFrame.add(myLabel1, BorderLayout.WEST);
    //myFrame.add(myLabel1);

    Choice choices = new Choice();
    choices.add("you get an A");
    choices.add("you get an B");
    choices.add("you get an C");
    //myFrame.add(choices);
    myFrame.add(choices, BorderLayout.EAST);
}
}
```

