CSE 190 M Flash Sessions

Session 1

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Flash?

- Adds interactivity to webpages

- Uses a language called ActionScript 3

- Similar to Java

ActionScript?

- Object oriented like Java

- "Laid back" like PHP

- Graphically oriented rather than text oriented

Java

MyProgram.java

↓

MyProgram.class

Flash

Java

MyProgram.java

↓

MyProgram.class

Flash

MyProgram.as

↓

MyProgram.swf

Java

MyProgram.java:

```
public class MyProgram {
    public static void main(String[] args) {
        // code here
    }
}
```

ActionScript

MyProgram.as:

```
package {
    import flash.display.Sprite;

    public class MyProgram extends Sprite {
        public function MyProgram():void {
            // code here
        }
    }
}
```

ActionScript

MyProgram.as:

```
package {
    import flash.display.Sprite;

    public class MyProgram extends Sprite {
        public function MyProgram():void {
            // code here
        }
    }
}
```

Java
Graphics

```java
import java.util.Graphics;
...
Graphics g = panel.getGraphics();
g.setColor(Color);
g.drawLine(x1, y1, x1, x2);
g.drawOval(x, y, width, height);

etc...
```

ActionScript
Graphics

We also have a Graphics object! Different methods though:

AS	Description
`graphics.lineStyle(thickness,color);` `graphics.lineStyle() // no line`	Set the style for drawing lines.
`graphics.moveTo(x, y);`	Move the "paintbrush" to specified x and y pixels.
`graphics.lineTo(x, y);`	Move the "paintbrush" to specified x and y pixels, and draw a line along the way.
`graphics.beginFill(Color);` `graphics.endFill();`	Start and stop using a color to fill shapes. (Important to call `endFIll()` once you are done).
`graphics. drawCircle(x, y, radius);`	Draw a circle with current fill & border.
`graphics. drawRect(x, y, width, height);`	Draw a rectangle with current fill & border.

Java
Graphics

```java
import java.awt.*;

public class GraphicalProgram {
    public static void main(String[] args) {
        DrawingPanel panel = new DrawingPanel(200, 200);
        Graphics g = panel.getGraphics();
        g.setColor(Color.RED);
        g.drawLine(0, 0, 20, 20);
    }
}
```

ActionScript
Graphics

```
package {
    import flash.display.Sprite;

    public class MyProgram extends Sprite {
        public function MyProgram():void {
            graphics.beginFill(0xFF0000);
            graphics.drawCircle(10, 10, 40);
        }
    }
}
```

ActionScript
Graphics

```
package {
    import flash.display.Sprite;

    public class MyProgram extends Sprite {
        public function MyProgram():void {
            graphics.beginFill(0xFF0000);
            graphics.drawCircle(10, 10, 40);
        }
    }
}
```

Where is the graphics object coming from?

ActionScript
Stage color and size

```
package {
    import flash.display.Sprite;

    // set the background color to be white, and the
    // stage size to be 550 x 400
    [SWF(backgroundColor="#ffffff", width="550", height="400")];

    public class MyProgram extends Sprite {
        public function MyProgram():void {
            // code here
        }
    }
}
```

ActionScript
Variables

Declaring and assigning a variable

```
var <name>:<type> = <value>;
```

Examples

```
var count:int = 2;
var message:String = "Hello";
var x:Number = 4.3;
```

Primitive Types

```
int, void, Number, String, Boolean, ...
```

You can declare a field as private/public, like in Java.

```
private var x:Number;
```

ActionScript
Functions

Declaring a Function (like a method in Java)

```
private function <name>(<parameters>):<return type> {
    // code here
}
```

Example

```
private function multiply(x:Number, y:Number):Number {
    return x * y;
}
```

ActionScript
Arrays

Similar to `ArrayList` **in Java.**

Creating an Array

```
var a:Array = [];                      // empty array
var b:Array = new Array();             // empty array
var c:Array = [1, 2, 3];               // populated array
var d:Array = new Array(1, 2, 3);      // populated array
```

Accessing elements

```
a[0] = 1;              // set element 0 of a to 1
a[0];                  // returns element 0 of a
```

ActionScript
Arrays

AS	Description
`array.length;`	Number of elements in the array.
`array.pop();`	Removes the *last* element from an array and returns the value of that element.
`array.push(value);`	Adds value to the *end* of the array.
`array.shift();`	Removes the *first* element from an array and returns that element.
`array.unshift(value);`	Adds value to the *start* of the array.
`array.sort();`	Sort the elements in the array.

HTML Embedding

Put the following HTML code in your page:

```
<object type="application/x-shockwave-flash"
  data="MyProgram.swf"
  width="400" height="400" menu=false>
    <param name="movie" value="MyProgram.swf" menu=false />
</object>
```