5

```java
/*
 * Chris Tjon
 * CIS163AA Homework Week 9 - Monster 2 Inheritance Problem - Wed 4pm
 *
 */

import java.awt.*;
import java.applet.Applet;
import java.awt.event.*;

//import monster.Monster;

public class MonsterController extends Applet implements ActionListener{

    Monster oscar; //declare variable to hold the object you will instantiate
    Monster elmo;
    Monster2 fred;
    Button runRightButton;
    Button runLeftButton;
    Button changeEyeColorButton;
    Button angryButton;
    Button resetButton;
    Button puffUpButton;
    boolean angryPressed = false;
    boolean puffUpPressed = false;
    boolean resetPressed = false;
    boolean runRightPressed = false;
    boolean runLeftPressed = false;
    boolean changeEyeColorPressed = false;

   public void init() {
        runRightButton = new Button("Run right");
        add(runRightButton);
        runRightButton.addActionListener(this);

        runLeftButton = new Button("Run left");
        add(runLeftButton);
        runLeftButton.addActionListener(this);

        changeEyeColorButton = new Button("Change Eye Color");
        add(changeEyeColorButton);
        changeEyeColorButton.addActionListener(this);

        angryButton = new Button("Angry");
        add(angryButton);
        angryButton.addActionListener(this);

        puffUpButton = new Button("Puff Up");
        add(puffUpButton);
        puffUpButton.addActionListener(this);

        resetButton = new Button("Reset");
        add(resetButton);
    resetButton.addActionListener(this);
```

ok

```
    fred = new Monster2(50, 50, 75);

    /*  new instantiates (creates) the object from your class pattern.
        At the time your object is instantiated, java runs it's
        constructor
        method, passing it the parameters in parentheses. */

    oscar = new Monster(50, 50, 125);
    /*oscar now exists and you can execute his methods,
               *making him do tricks - such as displaying and growling
              */
   elmo = new Monster(); //Instantiate another monster using default

}
public void paint(Graphics g) {


    elmo.display(g);
    if (runRightPressed)
    {
        oscar.runRight(g);
        runRightPressed = false;
    }
    else if (runLeftPressed)
    {
        oscar.runLeft(g);
        runLeftPressed = false;
    }
    else if (changeEyeColorPressed)
    {
        oscar.changeEyeColor(g);
        changeEyeColorPressed = false;
    }
    else if (angryPressed)
    {
        fred.becomeAngry(g);
        angryPressed = false;
        fred.display(g); // displays fred
    }
    else if (puffUpPressed)
    {
        fred.puffUp(g);
        puffUpPressed = false;
        fred.display(g); // displays fred
    }
    else if (resetPressed)
    {
        fred.reset(g, 50, 50, 75);
        resetPressed = false;
        fred.display(g); // displays fred
    }
```

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        else
        {
            oscar.display(g); // displays oscar
            oscar.growl(g); // makes oscar growl
        }
        repaint();
    }

    public void actionPerformed(ActionEvent e) {
        if (e.getSource() == runRightButton)
        {
            runRightPressed = true;
        }
        else if (e.getSource() == runLeftButton)
        {
            runLeftPressed = true;
        }
        else if (e.getSource() == changeEyeColorButton)
        {
            changeEyeColorPressed = true;
        }
        else if (e.getSource() == angryButton)
        {
            angryPressed = true;
        }
        else if (e.getSource() == puffUpButton)
        {
            puffUpPressed = true;
        }
        else if (e.getSource() == resetButton)
        {
            resetPressed = true;
        }

    }

}
```

```
import java.awt.Color;
import java.awt.Graphics;

/*
 * Created on Mar 29, 2005
 *
 * TODO To change the template for this generated file go to
 * Window - Preferences - Java - Code Style - Code Templates
 */

/**
 * @author chris
 *
 * TODO To change the template for this generated type comment go to
 * Window - Preferences - Java - Code Style - Code Templates
 */
public class Monster2 extends Monster OK
{
    public Monster2()
    {
        super();
    }

    public Monster2(int desiredXCoord, int desiredYCoord, int desiredSize)
    {
        super(desiredXCoord, desiredYCoord, desiredSize);      OK
    }

    public void reset(Graphics g, int desiredXCoord, int desiredYCoord, int
 desiredSize)
    {
        x = desiredXCoord;
        y = desiredYCoord;
        size = desiredSize;
        eyeColor = Color.red;
        bodyColor = Color.black;
    }

    public void becomeAngry(Graphics g)
    {
        eyeColor = Color.black;
        bodyColor = Color.red;
        display(g);
        for (int i = 0; i < 999999999; i++);
        eyeColor = Color.red;
        bodyColor = Color.black;
        display(g);
    }

    public void puffUp(Graphics g)
    {
        size = size * 2;
        display(g);
        for (int i = 0; i < 999999999; i++);
        eyeColor = Color.white;
        bodyColor = Color.white;
        display(g);
        eyeColor = Color.red;
        bodyColor = Color.black;
        size = size / 2;
    }
}
```

```
/*use this Base Monster Class in your inheritance assignment*/

import java.awt.* ;// awt needed because monster must display self

public class Monster {  //Monster is the Class name, taken from

        protected int x;
        protected int y;
        protected int size; //in pixels
        protected Color eyeColor;  //data type of color variable is the Color
class.
        protected Color bodyColor;

        //Constructor Methods

        Monster(int desiredXCoord, int desiredYCoord, int desiredSize) {
            x = desiredXCoord;
            y = desiredYCoord;
            size = desiredSize;
            eyeColor = Color.red;  //I decided not to allow the user to set the
colors
            bodyColor = Color.black;
        }

        //Overloaded constructor, default constructor
        Monster() {
            x = 30;
            y = 200;
            size = 50;
            eyeColor = Color.red;
            bodyColor = Color.black;
        }

        public void display(Graphics g) {
            // BODY
            g.setColor(bodyColor);
            int monsterWidth = size;
            int monsterHeight = size * 2 / 3;
            g.fillOval(x, y, monsterWidth, monsterHeight);

            // EYES
            g.setColor(eyeColor);
            int eyeWidth = monsterWidth / 10;
            int eyeHeight = eyeWidth * 2 / 3;
            int eye1X = x + monsterWidth / 6;
            int eye1Y = y + monsterHeight / 3;
            g.fillOval( eye1X, eye1Y, eyeWidth, eyeHeight );
            int eye2X = eye1X + monsterWidth / 2;
            int eye2Y = eye1Y;
            g.fillOval( eye2X, eye2Y, eyeWidth, eyeHeight );
        }
        public void runRight(Graphics g) {
            x += 20;
            display(g);
        }

        public void runLeft(Graphics g) {
            x -= 20;
            display(g);
        }

        public void growl(Graphics g) {
            g.setColor(Color.blue);
            g.drawString("Grrrrrr", x, y - 15);
        }

        public void changeEyeColor(Graphics g) {
            //colors are a combination of red, green, and blue
            int iRed = (int)(Math.random() * 200);
            int iGreen = (int)(Math.random() * 200);
            int iBlue = (int)(Math.random() * 200);

            //instantiate the object newEyeColor
            Color newEyeColor = new Color(iRed, iGreen, iBlue);

            eyeColor = newEyeColor;

            display(g);

        }


}
```