Lab 23

Wheel.java

/\*\* Wheel.java

\* Lab 23, COMP160

\* draws a 2 tone wheel

\*/

package shapes;

import java.awt.\*;

public class Wheel extends Shape{

Color shade;

public Wheel(){

height = 29;

width = 29;

y = randomRange(0, 400 - height);

x = randomRange(0, 400 - width);

shade = new Color(randomRange(0,255),randomRange(0,255),randomRange(0,255));

}

/\*\* sets the colour and draws the shape\*/

public void display(Graphics g){

g.setColor(shade);

g.drawOval(x, y, width, height);

g.fillArc(x,y,width,height,0,30);

g.setColor(Color.black);

g.fillArc(x,y,width,height,30,30);

g.fillArc(x,y,width,height,90,30);

g.fillArc(x,y,width,height,150,30);

g.fillArc(x,y,width,height,210,30);

g.fillArc(x,y,width,height,270,30);

g.fillArc(x,y,width,height,330,30);

g.setColor(shade);

g.fillArc(x,y,width,height,60,30);

g.fillArc(x,y,width,height,120,30);

g.fillArc(x,y,width,height,180,30);

g.fillArc(x,y,width,height,240,30);

g.fillArc(x,y,width,height,300,30);

}

}

Swirl.java

/\*\* Swirl.java

\* Lab 23, COMP160

\* draws a swirl - a shape drawn of 4 coloured circles clustered around a small black circle, with arc highlights

\*/

package shapes;

import java.awt.\*;

public class Swirl extends Shape{

Color shade;

public Swirl(){

height = 29; //overall height, for bouncing

width = 29; //for bouncing

y = randomRange(0, 400 - height);

x = randomRange(0, 400 - width);

shade = new Color(randomRange(0,255),randomRange(0,255),randomRange(0,255));

}

/\*\* sets the colour and draws the shape\*/

public void display(Graphics g){

int w = 20; //width of 4 small ovals

int h = 20; //height of 4 small ovals

int centreX = x+15;

int centreY = y+15;

g.setColor(Color.black);

g.fillOval(centreX-4, centreY-4,8,8);

//draw 4 ovals

g.setColor(shade);

g.fillOval(centreX-w/2, y,w,h); //top

g.fillOval(centreX-w/2, centreY-(h-15),w,h);//bottom

g.fillOval(x,centreY-w/2,h,w);//left

g.fillOval(centreX-(w-15),centreY-w/2,h,w);//right

//if oval is dark, set colour to yellow for highlights

if (shade.getRed() < 80 || shade.getGreen() < 80 || shade.getBlue() < 80) g.setColor(Color.yellow);

else g.setColor(Color.black);

//draw highlights

g.fillOval(centreX-4, centreY-4,8,8);

g.drawArc(centreX-w/2, y,w,h,20,200);//top

g.drawArc(centreX-w/2, centreY-(h-15),w,h,200,200);//bottom

g.drawArc(x,centreY-w/2,h,w,110,200);//left

g.drawArc(centreX-(w-15),centreY-w/2,h,w,290,200);//right

}

}

Pig

/\*\* This pig was drawn by Thomas Verbeek, COMP103 student 2006

\* Pig.java

\* Lab 23, COMP160

\* draws a gorgeous pink pig

\*/

package shapes;

import java.awt.\*;

public class Pig extends Shape{

Color shade = new Color(255, 197, 138);

public Pig(){

height = 29;

width = 29;

y = randomRange(0, 400 - height);

x = randomRange(0, 400 - width);

}

/\*\* sets the colour and draws the shape\*/

public void display(Graphics g){

g.setColor(shade);

g.fillRect(x + 5, y + 25, 20, 7);//hind legs

g.setColor(Color.black);

g.drawRect(x + 5, y + 25, 20, 7);//hind legs outline

g.drawLine(x + 5, y + 31, x + 25, y + 31);//hind legs hooves

g.setColor(shade);

g.fillRect(x + 8, y + 28, 14, 7);//front legs foreground

g.setColor(Color.black);

g.drawRect(x + 8, y + 28, 14, 7);//front legs outline

g.drawLine(x + 15, y + 28, x + 15, y + 35);//front legs divider

g.drawLine(x + 8, y + 34, x + 22, y + 34);//front legs hooves

//face---------

g.setColor(shade);

g.fillOval(x, y, 30, 30);//face background color

g.setColor(Color.black);

g.drawOval(x, y, 30, 30);//face outline

//ears---------

//left ear

g.setColor(shade);

g.fillArc(x - 1, y - 3, 15, 15, 150, 90);//left ear

g.setColor(Color.black);

g.drawArc(x - 1, y - 3, 15, 15, 150, 90);//left ear outline arc

g.drawLine(x + 1, y, x + 6, y + 3);//left ear outline line

//right ear

g.setColor(shade);

g.fillArc(x + 17, y - 4, 15, 15, -60, 90);//right ear

g.setColor(Color.black);

g.drawArc(x + 17, y - 4, 15, 15, -60, 90);//right ear outline arc

g.drawLine(x + 24, y + 4, x + 30, y - 1);//right ear outline line

//eyes---------

g.fillOval(x + 10, y + 9, 4, 4);//left eye

g.fillOval(x + 17, y + 9, 4, 4);//right eye

g.setColor(Color.white);

g.fillOval(x + 10, y + 9, 1, 1);//left eye twinkle

g.fillOval(x + 17, y + 9, 1, 1);//right eye twinkle

//snout--------

g.setColor(Color.black);

g.drawOval(x + 7, y + 13, 16, 10);//snout outline

g.fillOval(x + 12, y + 16, 2, 3);//left nostril

g.fillOval(x + 16, y + 16, 2, 3);//right nostril

}

}

Star.java

/\*\* Star.java

\* Lab 23, COMP160

\* draws a star

\*/

package shapes;

import java.awt.\*;

public class Star extends Shape{

Color shade;

public Star(){

width = 30;

height = 30;

y = randomRange(0, 400 - height);

x = randomRange(0, 400 - width);

shade = new Color(randomRange(0,255),randomRange(0,255),randomRange(0,255));

}

/\*\* sets the colour and draws the shape\*/

public void display(Graphics g){

int countX = 0;

int countY = 0;

int [] xPoints = {x + width/2, x + width, x + width/2, x};

int [] yPoints ={y, y + height/2, y + height, y + height/2};

// left triangle

int [] xPLT = {x + 11, x + 24, x + 11};

int [] yPLT ={y + 6, y +15, y + 24};

// right triangle

int [] xPRT = {x + 6, x +19, x + 19};

int [] yPRT ={y + 15, y + 6, y + 24};

g.setColor(shade);

g.fillPolygon(xPoints, yPoints, 4);

g.setColor(Color.white);

g.fillPolygon(xPLT, yPLT, 3);

g.fillPolygon(xPRT, yPRT, 3);

g.setColor(Color.black);

g.fillOval(x + 11, y + 11, 8, 8);

}

}

Tardis.java

package shapes;

import java.awt.\*;

/\*\* Makes the Doctor's time machine

\* Tardis.java extends Shape

\* Tegan Garland

\* COMP 160 October 2012

\*/

public class Tardis extends Shape {

/\*\* Constructor \*/

public Tardis(){

width = 30;

height = 50;

x = super.randomRange(13, 400);

y = super.randomRange(0,400-height);

}

/\*\* draws the Tardis to the screen \*/

public void display (Graphics g){

g.setColor(Color.blue);

g.fillRect(x,y,width,height); //main body

g.setColor(Color.black);

g.drawRect(x,y,width, height);

g.setColor(Color.blue);

g.fillArc(x-6, y-25, width+12,30,210,120);//roof

g.fillRect(x-3, y-3, width+6, 3);//police box

g.fillRect(x-3, y+50, width+6, 6); //lintel

g.setColor(Color.white);

g.fillRect(x+5, y+4, 7, 10); // left window

g.fillRect(x+18, y+4, 7, 10); // right window

g.fillRect(x+7, y+22, 3, 5); //sign

g.setColor(Color.black);

g.drawRect(x+4, y+19, 7, 10); //top left panel

g.drawRect(x+17, y+19, 7, 10); //top right panel

g.drawRect(x+4, y+34, 7, 10); //bottom left panel

g.drawRect(x+17, y+34, 7, 10); //bottom right panel

g.drawRect(x+5, y+4, 7, 10); // left window outline

g.drawRect(x+18, y+4, 7, 10); // right window outline

g.drawRect(x-3, y+50, width+6, 6); // lintel outline

g.drawRect(x-3, y-3, width+6, 3); //police box outline

g.drawLine(x-2, y-3, x+15, y-10); //roof outline

g.drawLine(x+15, y-10, x+34, y-3); // roof outline

g.setColor(Color.white);

g.fillRect(x+12, y-15, 6, 8); //light

g.setColor(Color.black);

g.drawRect(x+12, y-15, 6, 8); //light outline

}

/\*\* moves the shape by moveX and moveY. if it hits the edge of the JPanel, it reverses direction \*/

public void move(){

x += moveX;

y += moveY;

if (x <= 0 || x >= 400 - width){

moveX = -moveX;

}

if (y <= 0 || y >= 400 - height){

moveY = -moveY;

}

}

}

Pikachu

package shapes;

import java.awt.\*;

/\*\* Pikachu.java

\* COMP160 October 2013

\* Jelena Rakonjac

\* An attempt at making a disembodied Pikachu head shape

\*/

public class Pikachu extends Shape{

public Pikachu () {

width = 30;

height = width;

x = randomRange(0, 400 - width);

y = randomRange(15, 400 - height);

}

public void display (Graphics g){

//head base

g.setColor(Color.yellow);

g.fillOval(x, y, width, height);

//left ear base

int [] xLeft = {x + 1, x + 5, x - 5};

int [] yLeft = {y + 10, y + 5, y - 10};

g.fillPolygon(xLeft, yLeft, 3);

//right ear base

int [] xRight = {x + 29, x + 25, x + 35};

int [] yRight = {y + 10, y + 5, y - 10};

g.fillPolygon(xRight, yRight, 3);

//left ear tip

int [] xLeftTip = {x - 3, x - 1, x - 5};

int [] yLeftTip = {y - 2, y - 4, y - 10};

g.setColor(Color.black);

g.fillPolygon(xLeftTip, yLeftTip, 3);

//right ear tip

int [] xRightTip = {x + 33, x + 31, x + 35};

int [] yRightTip = {y - 2, y - 4, y - 10};

g.fillPolygon(xRightTip, yRightTip, 3);

//nose

int [] xNose = {x + 13, x + 17, x + 15};

int [] yNose = {y + 16, y + 16, y + 18};

g.fillPolygon(xNose, yNose, 3);

//mouth

g.drawArc(x + 11, y + 18, 4, 4, 180, 180);

g.drawArc(x + 15, y + 18, 4, 4, 180, 180);

//eyes

g.fillOval(x + 5, y + 7, 7, 7); //left

g.fillOval(x + 17, y + 7, 7, 7); //right

g.setColor(Color.white);

g.fillOval(x + 6, y + 8, 3, 3); //left

g.fillOval(x + 18, y + 8, 3, 3); //right

//cheeks

g.setColor(Color.red);

g.fillOval(x + 1, y + 15, 8, 8); //left cheek

g.fillOval(x + 21, y + 15, 8, 8); //right cheek

//outline

g.setColor(Color.black);

g.drawLine(x + 1, y + 10, x - 5, y - 10); //left ear left side

g.drawLine(x + 4, y + 4, x - 5, y - 10); //left ear right side

g.drawLine(x + 29, y + 10, x + 35, y - 10); //right ear right side

g.drawLine(x + 25, y + 4, x + 35, y - 10); //right ear left side

g.drawArc(x, y, width, height, 160, 220); //bottom face outline

g.drawArc(x, y, width, height, 45, 90); //top face outline

}

/\*\*changes the location at which the shape would be drawn every time it is called and its color if it touches the edge of the panel\*/

public void move (){

final int EARWIDTH = 5;

final int EARHEIGHT = 10;

y += moveY;

x += moveX;

if (x < EARWIDTH || x + width > 400 - EARWIDTH) {

moveX = -moveX;

}

if (y < EARHEIGHT || y + height > 400) {

moveY = -moveY;

}

}

}

Cartman

package shapes;

import java.awt.\*;

/\*\* \* Cartman.java created by Charlie Leeming

\*/

public class Cartman extends Shape{

/\*\*Cartman constructor\*/

public Cartman(){

width = 50;

height = 40;

x = randomRange(0, 400 - width);

y = randomRange(0, 400 - height);

}//Cartman

/\*\*Draws Cartman and changes his expression depending on his Y axis movement\*/

public void display (Graphics g){

//head base

g.setColor(new Color(255, 209, 204));

g.fillOval(x, y, width, height);

g.setColor(Color.black);

g.drawOval(x, y, width, height);

//eyes

if(moveY<0){

g.setColor(Color.white);

g.fillOval(x+13, y+11, 12, 16);//left

g.fillOval(x+25, y+11, 12, 16);//right

g.setColor(Color.black);

g.drawOval(x+13, y+11, 12, 16);//left outline

g.drawOval(x+25, y+11, 12, 16);//right outline

g.fillOval(x+18, y+17, 3, 3);//left pupil

g.fillOval(x+29, y+17, 3, 3);//right pupil

} else{

g.setColor(Color.black);

g.drawLine(x+13, y+16, x+24, y+19);

g.drawLine(x+13, y+22, x+24, y+19);

g.drawLine(x+37, y+16, x+26, y+19);

g.drawLine(x+37, y+22, x+26, y+19);

}

//mouth

if(moveY<0){

g.drawArc(x+20, y+26, 10, 6, 190, 160);

} else{

g.fillOval(x+20, y+26, 10, 8);

}

//chin

g.drawArc(x+10, y+27, 30, 10, 190, 160);

//hat

g.setColor(Color.yellow);

g.fillArc(x+5, y+6, 40, 8, 200, -220);//lining

g.fillOval(x+20, y-8, 10, 10);//puff

g.setColor(Color.black);

g.drawOval(x+20, y-8, 10, 10);//outline puff

g.setColor(Color.cyan);

g.fillArc(x+3, y-1, 44, 20, 190, -200);//main hat

g.setColor(Color.black);

g.drawArc(x+3, y-1, 44, 20, 190, -200);//outline hat

}//display

/\*\*Moves X and Y position of Cartman\*/

public void move(){

if(x >= 400-width || x <= 0){

moveX = -moveX;

}

if(y >= 400-height || y-8 <= 0){

moveY = -moveY;

}//bounce

x += moveX;

y += moveY;

}//move

}