import java.util.\*;

import javax.swing.\*;

import java.awt.\*;

import java.awt.event.\*;

import java.io.\*;

import java.net.URL;

import javax.sound.sampled.\*;

public class Vietnam extends JFrame implements Runnable, KeyListener, MouseListener

{

Container con = getContentPane();

Thread t = new Thread(this);

int ban, dep, qua;

Korea f[] = new Korea[6];

Food m[] = new Food[8888];

boolean b;

Blue blue;

double r;

int c,d;

int j, l, q, v, n, bar, lab;

int pl[], ant[], mat[], thew[], al[], an[], jt[], wa[], ter[], im[], mor[], tal[], it[], de[], ll[], hoa[], bang[];

int leaf[], light[];

int la, st;

Color bark, dark;

int ammonia;

int bl, ock;

Color gear, ball, mo, re, na, mes, pu, mp, tu, be, water;

int move;

int flow, grow;

int all, won;

int sp;

Clip w;

int go;

boolean on;

public Vietnam()

{

con.setLayout(new FlowLayout());

on = true;

go = 0;

sp = 200;

won = 0;

all = 0;

grow = 100;

flow = 60;

water = new Color(200,240,220);

tu = new Color(245,250,240);

be = new Color(200,210,205);

move = 0;

mp = new Color(30,30,80);

pu = new Color(50,50,100);

mes = new Color(200,250,200);

na = new Color(150,175,150);

re = new Color(100,125,100);

mo = new Color(100,200,100);

ball = new Color(50,150,50);

gear = new Color(30,100,10);

j = 0;

ammonia = 0;

lab = 0;

bar = 0;

l = 0;

q = 0;

v = 0;

n = 0;

ban = 100;

dep = 150;

qua = 200;

for (int x = 0; x<f.length; x++){

f[x] = new Korea();

}

for(int y = 0; y<m.length; y++){

m[y] = new Food(c,d);

}

b = true;

r = 0;

blue = new Blue();

la = 150;

st = 200;

pl = new int[]{la,la+30,la+30};

ant = new int[]{st-10,st,st+30};

mat = new int[]{la+65,la+35,la+35};

thew = new int[]{la+100,la+130,la+130};

al = new int[]{la+165,la+135,la+135};

an = new int[]{la+170,la+200,la+200};

jt = new int[]{la+235,la+205,la+205};

wa = new int[]{la+220,la+250,la+250};

ter = new int[]{la+285,la+255,la+255};

im = new int[]{la+320,la+350,la+350};

mor = new int[]{la+385,la+355,la+355};

tal = new int[]{la+400,la+430,la+430};

it = new int[]{la+465,la+435,la+435};

de = new int[]{la+520,la+550,la+550};

ll = new int[]{la+585,la+555,la+555};

hoa = new int[]{la+620,la+650,la+650};

bang = new int[]{la+685,la+655,la+655};

bark = new Color(255,50,50);

dark = new Color(200,150,50);

leaf = new int[]{500,400,600};

light = new int[]{0,100,100};

bl = -1000;

ock = -500;

try{

URL url = this.getClass().getClassLoader().getResource("water.wav");

AudioInputStream audioIn = AudioSystem.getAudioInputStream(url);

w = AudioSystem.getClip();

w.open(audioIn);

}

catch(Exception e)

{

e.printStackTrace();

}

addKeyListener(this);

addMouseListener(this);

setDefaultCloseOperation(EXIT\_ON\_CLOSE);

t.start();

}

public void run()

{

try{

while(true)

{

t.sleep(67);

for (int x = 0; x<f.length; x++){

f[x].move();

}

for (int x = 0; x<f.length; x++)

{

for (int y = 0; y<m.length; y++)

{

if (f[x].getRectangle().intersects(m[y].getRectangle()))

{

if(f[x].eat()<=0){

if(f[x].getColor().equals(blue.getColor())){

if(f[x].status().equals(bark)){

f[x].orange();

go = 0;

}

else if(f[x].status().equals(dark)){

f[x].green();

all = all+1;

go = 0;

}

m[y].van();

}

}

}

}

}

if(ammonia>=20 && j == 0){

JOptionPane.showMessageDialog(null,"Game over: toxic ammonia levels killed fish.");

j = 1;

bl = 0;

ock = 500;

ban = 50;

dep = 75;

qua = 100;

ball = gear;

mo = gear;

na = re;

mes = re;

move = 1;

on = false;

}

if(flow >= 60){

flow-=3;

}

else if(flow<=60){

flow+=3;

}

for (int y = 0; y<m.length; y++){

if(m[y].getY()>=1000 || (m[y].getY()>=500 && (m[y].getX()<=0 || m[y].getX()>=1000))){

m[y].van();

ammonia = ammonia+1;

go = 0;

}

}

for (int y = 0; y<m.length; y++){

if(m[y].getY()<=1000 && (m[y].getY()>=500 && (m[y].getX()>=0 || m[y].getX()<=1000))){

go = 1;

}

}

if(on = true){

w.loop(Clip.LOOP\_CONTINUOUSLY);

}

if(on = false){

w.stop();

}

if(all == f.length && won == 0){

JOptionPane.showMessageDialog(null,"You won!");

won = 1;

sp = 170;

grow = 130;

st = 170;

ant = new int[]{st-10,st,st+30};

move = 1;

}

repaint();

}

}

catch(Exception e)

{

e.printStackTrace();

}

}

public void paint(Graphics gr)

{

Image i=createImage(getSize().width, getSize().height);

Graphics2D g = (Graphics2D)i.getGraphics();

g.setColor(new Color(ban,dep,qua));

g.fillRect(0,0,1000,1000);

g.setColor(new Color(200,200,200));

g.fillRect(490,100,20,330);

g.setColor(new Color(30,30,100));

g.fillPolygon(leaf,light,3);

g.fillOval(400,50,200,100);

g.setColor(new Color(250,230,240));

g.fillOval(420,70,160,60);

g.setColor(new Color(250,250,150));

g.fillOval(475,70,50,20);

g.setColor(water);

g.fillOval(bl+1070,ock+745,flow+10,70);

g.setColor(new Color(ban,dep,qua));

g.fillOval(50,250,60,60);

g.setColor(water);

g.fillRect(900,500,flow-40,80);

g.setColor(tu);

g.fillRect(20,240,20,660);

g.fillRect(40,240,60,20);

g.setColor(new Color(150,100,0));

g.fillRect(50,300,900,180);

g.setColor(new Color(100,150,200));

g.setFont(new Font("Vivaldi", Font.PLAIN,50));

g.drawString("Hit i for instructions.",320,460);

g.setColor(new Color(100,200,250));

g.setFont(new Font("Garamond",Font.PLAIN, 60));

g.drawString("Ammonia: "+ammonia+" (Must stay below 20)",105,390);

g.setColor(pu);

g.fillRect(0,850,75,150);

g.setColor(gear);

g.fillPolygon(pl,ant,3);

g.fillPolygon(mat,ant,3);

g.fillPolygon(thew,ant,3);

g.fillPolygon(al,ant,3);

g.setColor(ball);

g.fillPolygon(an,ant,3);

g.fillPolygon(jt,ant,3);

g.fillPolygon(wa,ant,3);

g.setColor(mo);

g.fillPolygon(ter,ant,3);

g.fillPolygon(im,ant,3);

g.fillPolygon(mor,ant,3);

g.fillPolygon(tal,ant,3);

g.fillPolygon(ter,ant,3);

g.setColor(ball);

g.fillPolygon(it,ant,3);

g.setColor(gear);

g.fillPolygon(de,ant,3);

g.fillPolygon(ll,ant,3);

g.fillPolygon(hoa,ant,3);

g.fillPolygon(bang,ant,3);

g.setColor(re);

g.fillRect(180,sp,5,grow);

g.fillRect(280,sp,5,grow);

g.fillRect(350,sp,5,grow);

g.setColor(na);

g.fillRect(400,sp,5,grow);

g.setColor(mes);

g.fillRect(500,sp,5,grow);

g.setColor(na);

g.fillRect(580,sp,5,grow);

g.setColor(re);

g.fillRect(700,sp,5,grow);

g.fillRect(800,sp,5,grow);

for (int x = 0; x<f.length; x++)

{

f[x].draw(g);

}

c = blue.getX()+25;

d = blue.getY();

g.dispose();

Graphics2D g3 = (Graphics2D)i.getGraphics();

for(int y = 0; y<m.length; y++){

m[y].draw(g3);

}

g3.dispose();

Graphics2D g2 = (Graphics2D)i.getGraphics();

g2.rotate(r,blue.getX()+25,blue.getY()+47);

blue.draw(g2);

g2.dispose();

Graphics2D g4 = (Graphics2D)i.getGraphics();

g4.setColor(new Color(100,100,100));

g4.fillRect(0,480,1000,20);

g4.setColor(new Color(ban,dep,qua));

g4.fillRect(bl,ock,1000,500);

g4.setColor(new Color(50,50,50));

g4.fillOval(bl+420,ock-430,160,60);

g4.setColor(be);

g4.fillRect(bl+20,ock-260,20,660);

g4.fillRect(bl+40,ock-260,60,20);

g4.setColor(mp);

g4.fillRect(bl,ock+350,75,150);

g4.setColor(new Color(50,50,50));

g4.fillRect(bl,ock-20,1000,20);

g4.setColor(new Color(70,50,0));

g4.fillRect(bl+50,ock-200,900,180);

g4.dispose();

gr.drawImage(i, 0, 0, this);

}

public static void main(String[] args)

{

Vietnam frame = new Vietnam();

frame.setSize(1000,1000);

frame.setVisible(true);

}

public void update(Graphics g)

{

paint(g);

}

public void keyReleased(KeyEvent k){

if(move == 0){

if(k.getKeyCode() == 73){

JOptionPane.showMessageDialog(null,"Feed the fish in this aquaponics system according to color by aiming pellets at them and turning their bars green.");

JOptionPane.showMessageDialog(null,"Click on the container to change color. Use arrow keys to move. r rotates to the left. t rotates to the right. s releases food.");

JOptionPane.showMessageDialog(null, "You can only drop more food after the previous pellet has been eaten or goes beyond feeding range.");

JOptionPane.showMessageDialog(null,"Food of the wrong color or food not dropped in the right place will not be eaten, which will increase ammonia levels.");

JOptionPane.showMessageDialog(null,"Too much ammonia will kill the fish and shut down the system!");

JOptionPane.showMessageDialog(null,"Feeding all fish will not produce too much ammonia, but fish health will be improved, and plants can grow through nutrient absorption..");

}

}

if(go == 0){

if(k.getKeyCode() == 83){

q = blue.getX();

v = blue.getY();

m[l].fall(q+10,v,r);

l++;

n = 1;

}

}

}

public void keyPressed(KeyEvent k){

if(move == 0){

if(k.getKeyCode() == 37){

blue.left();

}

if(k.getKeyCode() == 38){

blue.up();

}

if(k.getKeyCode() == 39){

blue.right();

}

if(k.getKeyCode() == 40){

blue.down();

}

if(k.getKeyCode() == 82){

if (r >= -3.14){

r-=0.195;

}

else if(r<-3.14){

r = 3.14;

}

}

else if(k.getKeyCode() == 84){

if(r <= 3.14){

r+=0.195;

}

else if(r>3.14){

r = -3.14;

}

}

}

}

public void keyTyped(KeyEvent k){}

public void mouseClicked(MouseEvent m){

if(move == 0){

if(blue.getRectangle().contains(m.getPoint())){

blue.change(lab);

lab++;

if(lab>=3){

lab = 0;

}

}

}

}

public void mousePressed(MouseEvent m){}

public void mouseReleased(MouseEvent m){}

public void mouseEntered(MouseEvent m){}

public void mouseExited(MouseEvent m){}

}

import java.util.\*;

import javax.swing.\*;

import java.awt.\*;

import java.awt.event.\*;

import java.io.\*;

import java.net.URL;

import javax.sound.sampled.\*;

public class Korea

{

int x, y, q;

Rectangle r;

Random ran;

Random ra;

boolean b;

int ta[];

int i[];

int l[];

int fi[];

int nd[];

int low[];

Color c, d, p;

int f, j, s;

int e;

public Korea()

{

ran = new Random();

ra = new Random();

x = ran.nextInt(1000);

y = ran.nextInt(429)+551;

r = new Rectangle(x,y,175,100);

b = true;

q = ran.nextInt(10)+10;

s = ra.nextInt(3);

if(s == 0){

c = new Color(250,200,50);

d = new Color(250,230,100);

}

if(s == 1){

c = new Color(200,50,250);

d = new Color(230,100,80);

}

if(s == 2){

c = new Color(50,250,200);

d = new Color(80,230,100);

}

ta = new int[] {x+50,x+75,x+100};

i = new int[]{y+25,y-25,y+25};

l = new int[]{y+25,y+75,y+25};

fi = new int[]{x+10,x+60,x+55};

nd = new int[]{y+10,y-20,y+5};

low = new int[]{y+40,y+70,y+45};

f = x+10;

j = x+10;

p = new Color(255,50,50);

e = 0;

}

public void draw(Graphics2D g){

g.setColor(p);

g.fillRect(x,y-40,75,15);

g.setColor(d);

nd = new int[]{y+10,y-20,y+5};

i = new int[]{y+25,y-25,y+25};

l = new int[]{y+25,y+75,y+25};

g.fillPolygon(ta,i,3);

g.fillPolygon(ta,l,3);

g.fillPolygon(fi,nd,3);

g.fillPolygon(fi,low,3);

g.setColor(c);

g.fillOval(x,y,75,50);

g.setColor(d);

g.fillOval(f,y+10,15,15);

g.setColor(Color.black);

g.fillOval(j,y+14,7,7);

}

public void move(){

if(x<=900 && b == true){

x+=q;

ta = new int[] {x+25,x-50,x-25};

fi = new int[]{x+65,x+15,x+20};

f = x+50;

j = x+54;

}

else if(x>900)

{

x-=q;

b = false;

ta = new int[] {x+50,x+125,x+100};

fi = new int[]{x+10,x+60,x+55};

f = x+10;

j = x+14;

}

else if (x>=0 && b == false){

x-=q;

ta = new int[] {x+50,x+125,x+100};

fi = new int[]{x+10,x+60,x+55};

f = x+10;

j = x+14;

}

else if(x<0){

x+=q;

b = true;

ta = new int[] {x+25,x-50,x-25};

fi = new int[]{x+65,x+15,x+20};

f = x+50;

j = x+54;

}

}

public int getX(){

return x;

}

public int getY(){

return y;

}

public Rectangle getRectangle(){

return new Rectangle(x-50,y,150,75);

}

public void change(){

c = new Color(200,150,50);

}

public Color getColor(){

return c;

}

public Color status(){

return p;

}

public void orange(){

p = new Color(200,150,50);

}

public void green(){

p = new Color(25,150,50);

e = 1;

}

public int eat(){

return e;

}

}

import java.util.\*;

import javax.swing.\*;

import java.awt.\*;

import java.awt.event.\*;

import java.io.\*;

import java.net.URL;

import javax.sound.sampled.\*;

public class Blue

{

int x, y, s;

Color c, d;

public Blue()

{

x = 900;

y = 405;

c = new Color(250,200,50);

d = new Color(250,230,100);

s = 5;

}

public void draw(Graphics2D g){

g.setColor(c);

g.fillRect(x,y,50,75);

g.setColor(d);

g.fillRect(x,y+20,50,35);

g.setColor(Color.black);

g.drawString("FISH",x+12,y+35);

g.drawString("FOOD",x+10,y+48);

}

public void right(){

if(x<950){

x+=s;

}

}

public void left(){

if(x>0){

x-=s;

}

}

public void up(){

if(y>0){

y-=s;

}

}

public void down(){

if(y<400){

y+=s;

}

}

public int getX(){

return x;

}

public int getY(){

return y;

}

public void change(int v){

if(v == 0){

c = new Color(250,200,50);

d = new Color(250,230,100);

}

if(v == 1){

c = new Color(200,50,250);

d = new Color(230,100,80);

}

if(v == 2){

c = new Color(50,250,200);

d = new Color(80,230,100);

}

}

public Rectangle getRectangle(){

return new Rectangle(x,y,50,75);

}

public Color getColor(){

return c;

}

}

import java.util.\*;

import javax.swing.\*;

import java.awt.\*;

import java.awt.event.\*;

import java.io.\*;

import java.net.URL;

import javax.sound.sampled.\*;

public class Food

{

int x, y;

double q, u;

Color a;

boolean visible;

double rotate;

public Food(int c, int d)

{

x = c;

y = d;

q = 10;

u = 10;

a = new Color(200,150,150);

}

public void draw(Graphics2D g){

g.setColor(a);

g.fillOval(x,y,10,10);

move();

}

public void move()

{

x+=q;

y-=u;

if(x <= -500 || x >= 1500 || y <= -500 || y >= 1500){

q = 0;

u = 0;

visible = false;

}

}

public void fall(int j, int b, double ro){

x = j;

y = b;

rotate = ro;

u = (double)(30\*Math.cos(ro));

q = (double)(30\*Math.sin(ro));

if(x<=0 || x>=1000 || y<=0 || y>=1000){

q = 0;

u = 0;

rotate = 0;

}

}

public Rectangle getRectangle(){

return new Rectangle(x,y,5,5);

}

public int getX(){

return x;

}

public int getY(){

return y;

}

public void van(){

x = -100;

y = -100;

q = 0;

u = 0;

}

}