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School of information technology and engineering

SWE 1019- Programming in JAVA

Lab assignment

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1) Design Analog clock using Swing and apply thread class to run the clock.

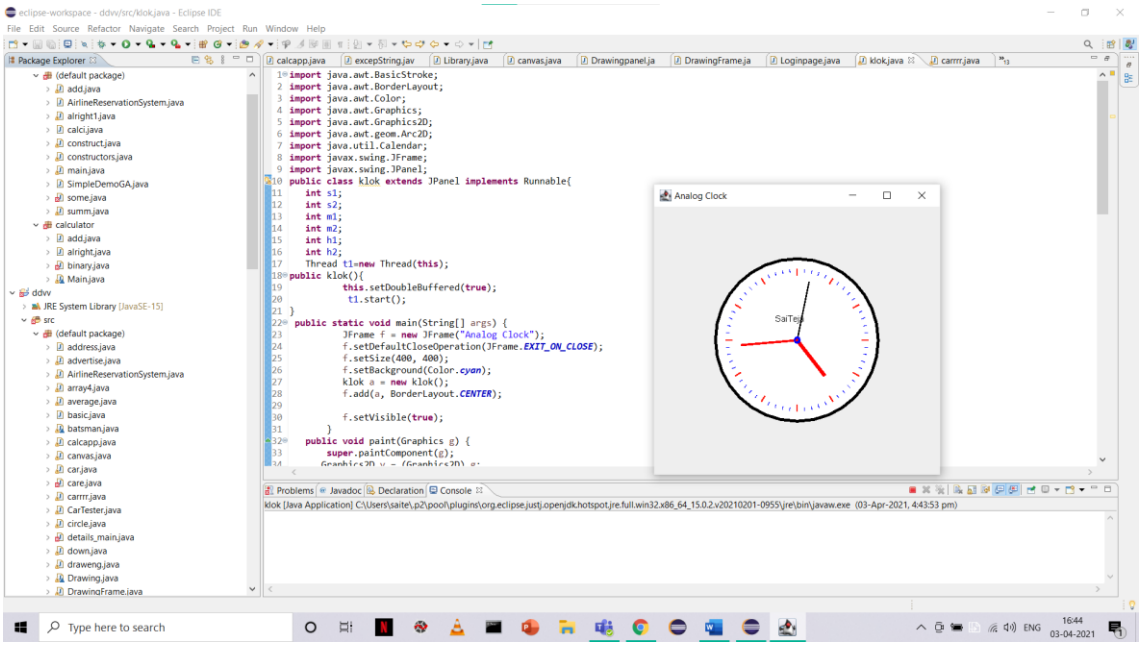
Code :

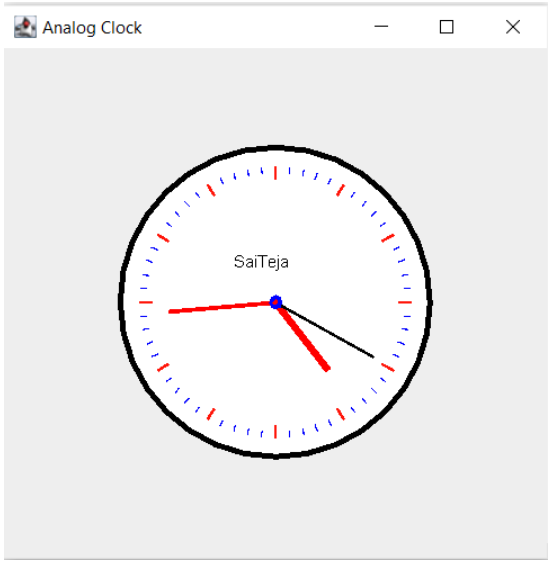
```
import java.awt.BasicStroke;
import java.awt.BorderLayout;
import java.awt.Color;
import java.awt.Graphics;
import java.awt.Graphics2D;
import java.awt.geom.Arc2D;
import java.util.Calendar;
import javax.swing.JFrame;
import javax.swing.JPanel;
public class klok extends JPanel implements Runnable{
int s1;
int s2;
int m1;
int m2;
int h1;
int h2;
Thread t1=new Thread(this);
public klok(){
this.setDoubleBuffered(true);
t1.start();
}
public static void main(String[] args) {
JFrame f = new JFrame("Analog Clock");
```

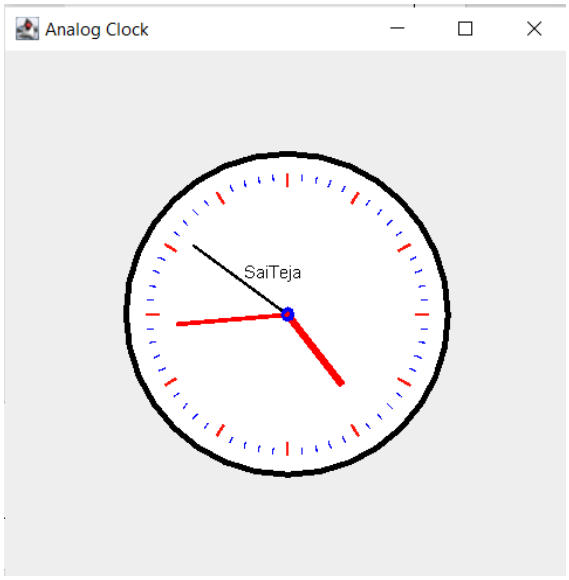
```
f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
f.setSize(400, 400);
f.setBackground(Color.cyan);
klok a = new klok();
f.add(a, BorderLayout.CENTER);
f.setVisible(true);
}
public void paint(Graphics g) {
super.paintComponent(g);
Graphics2D v = (Graphics2D) g;
v.translate(getWidth()/2, getHeight()/2);
drawClock(v);
drawHands(v);
}
public void run() {
while (true) {
try {
int s = Calendar.getInstance().get(Calendar.SECOND);
s1 = (int) (Math.cos(s*Math.PI/30-Math.PI/2)*80+0);
s2 = (int) (Math.sin(s*Math.PI/30-Math.PI/2)*80+0);
int m = Calendar.getInstance().get(Calendar.MINUTE);
m1 = (int) (Math.cos(m*Math.PI/30-Math.PI/2)*75+0);
m2 = (int) (Math.sin(m*Math.PI/30-Math.PI/2)*75+0);
int h = Calendar.getInstance().get(Calendar.HOUR_OF_DAY);
h1 = (int) (Math.cos((h*30+m/2)*Math.PI/180-Math.PI/2)*60+0);
h2 = (int) (Math.sin((h*30+m/2)*Math.PI/180-Math.PI/2)*60+0);
repaint();
Thread.sleep(500);
} catch (InterruptedException e) {
e.printStackTrace();
}
}
}
public void drawClock(Graphics2D d) {
d.setPaint(Color.white);
d.fill(new Arc2D.Double(-110,-110,220,220,0,360,Arc2D.CHORD));
d.setColor(Color.black);
d.drawString("SaiTeja", -30, -25);
d.setStroke(new BasicStroke(4.0f));
d.draw(new Arc2D.Double(-110,-110,220,220,0,360,Arc2D.CHORD));
for (int i=0;i<60;i++) {
if((i%5)!= 0){
d.setStroke(new BasicStroke(1.0f));
d.setColor(Color.blue);
d.drawLine(92,0,96,0);
}else {
d.setColor(new Color(255,22,10));
d.setStroke(new BasicStroke(2.0f));
d.drawLine(88,0,96,0);
}
d.rotate((Math.PI/180.0)*6.0);
}
}
public void drawHands(Graphics2D m) {
m.setColor(Color.RED);
m.setStroke(new BasicStroke(5.0f));
m.drawLine(0, 0, h1, h2);
m.setStroke(new BasicStroke(3.0f));
m.drawLine(0, 0, m1, m2);
```

```
m.setColor(Color.black);
m.setStroke(new BasicStroke(2.0f));
m.drawLine(0, 0, s1, s2);
m.setColor(Color.blue);
m.fillOval(-5, -5, 10, 10);
m.setColor(Color.red);
m.fillOval(-2, -2, 4, 4);
}
}
```

Output :







2.Design the given pattern using graphics methods in swing and animate the pattern with different colors.

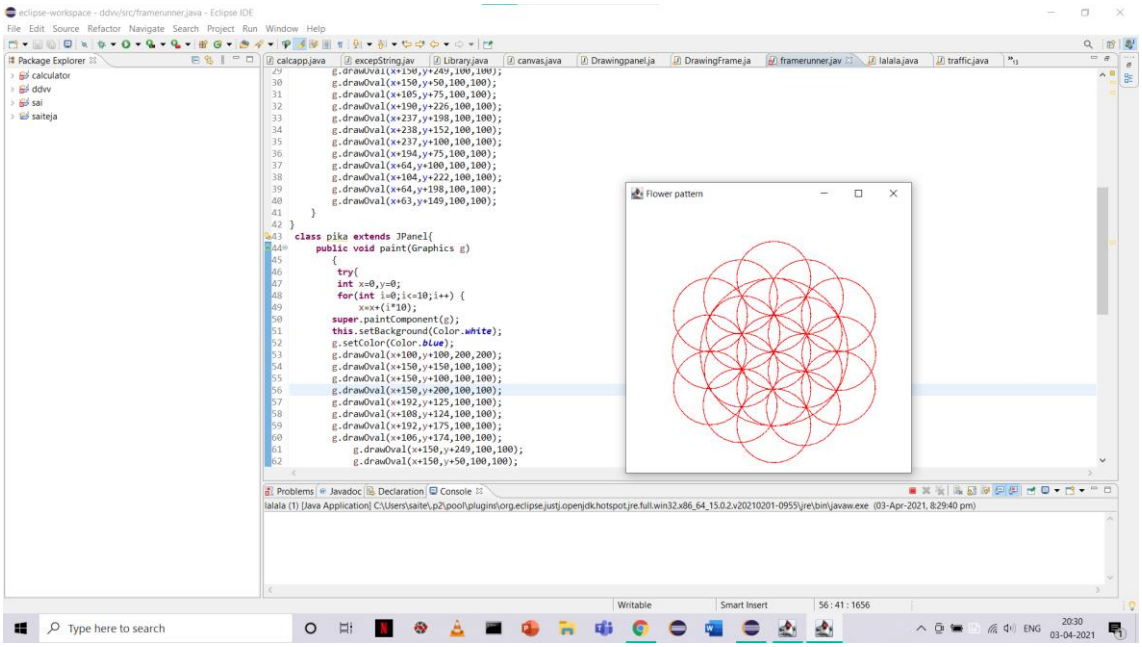
Code :

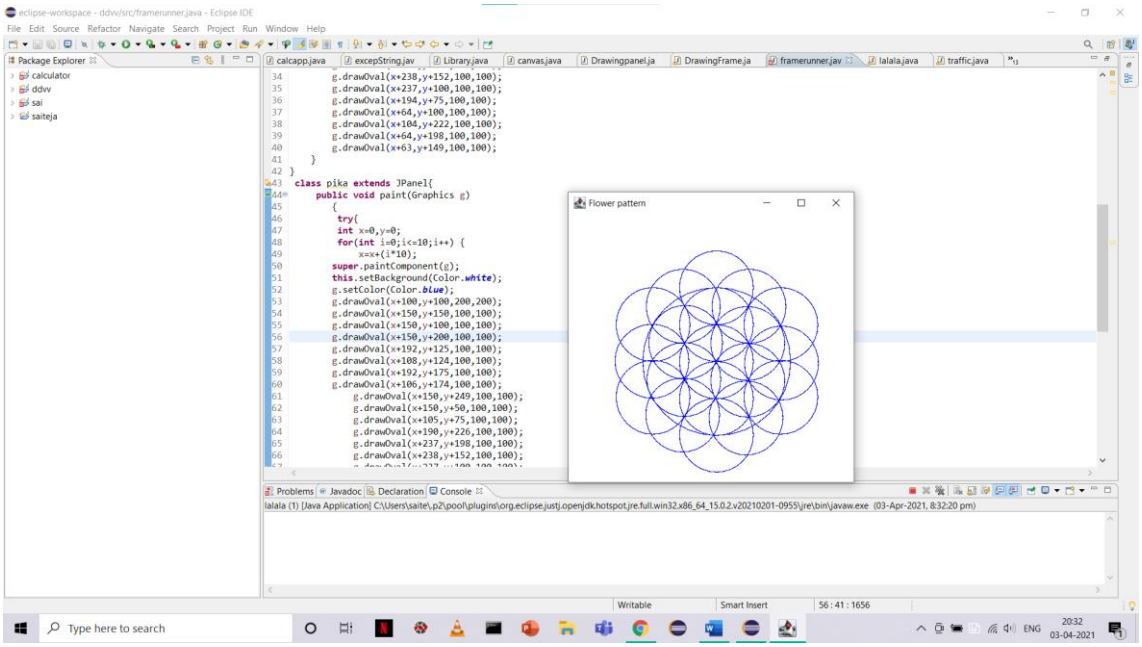
```
import java.awt.event.*;
import java.awt.*;
import javax.swing.*;
class kilo extends JPanel implements Runnable
{
int x=0,y=0;
Thread t1=new Thread(this);
public void run() {
this.setDoubleBuffered(true);
t1.start();
try{Thread.sleep(500);
}catch (Exception e) {}
}
public void paint(Graphics g)
{
super.paintComponent(g);
this.setBackground(Color.white);
g.setColor(Color.red);
g.drawOval(x+100,y+100,200,200);
g.drawOval(x+150,y+150,100,100);
g.drawOval(x+150,y+100,100,100);
g.drawOval(x+150,y+200,100,100);
g.drawOval(x+192,y+125,100,100);
g.drawOval(x+108,y+124,100,100);
g.drawOval(x+192,y+175,100,100);
g.drawOval(x+106,y+174,100,100);
g.drawOval(x+150,y+249,100,100);
g.drawOval(x+150,y+50,100,100);
g.drawOval(x+105,y+75,100,100);
g.drawOval(x+190,y+226,100,100);
g.drawOval(x+237,y+198,100,100);
g.drawOval(x+238,y+152,100,100);
g.drawOval(x+237,y+100,100,100);
g.drawOval(x+194,y+75,100,100);
```

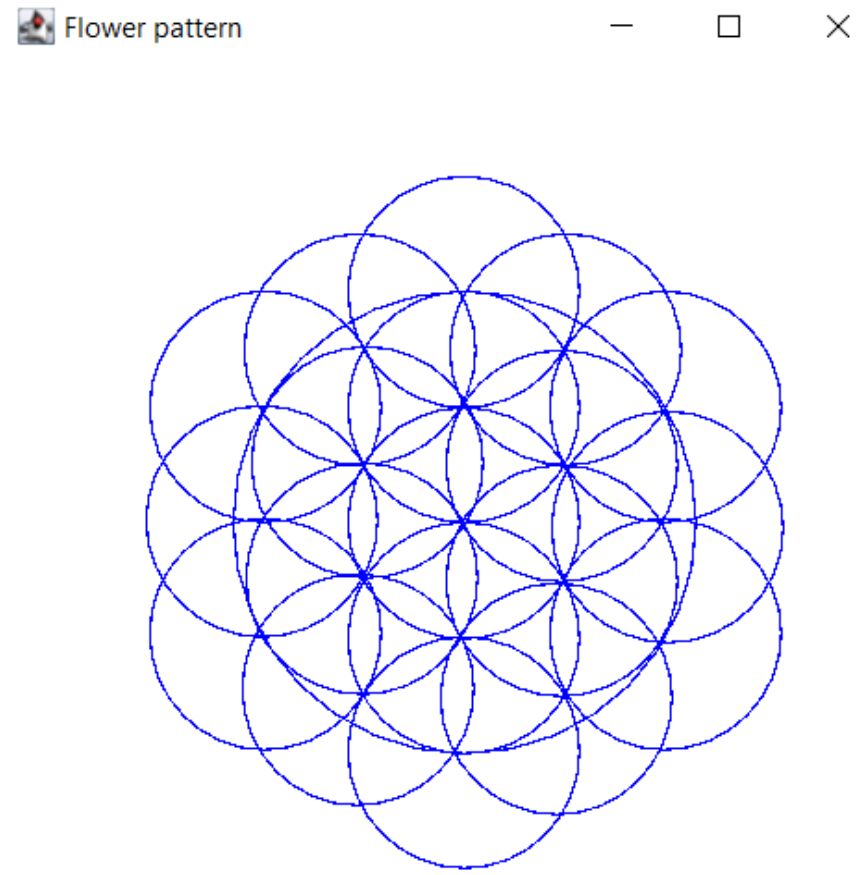
```
g.drawOval(x+64,y+100,100,100);
g.drawOval(x+104,y+222,100,100);
g.drawOval(x+64,y+198,100,100);
g.drawOval(x+63,y+149,100,100);
}
}
class pika extends JPanel{
public void mousePressed(MouseEvent e) {
int x = e.getX();
int y = e.getY();
}
public void paint(Graphics g)
{
try{
int x=0,y=0;
for(int i=0;i<=10;i++) {
x=x+(i*10);
super.paintComponent(g);
this.setBackground(Color.white);
g.setColor(Color.blue);
g.drawOval(x+100,y+100,200,200);
g.drawOval(x+150,y+150,100,100);
g.drawOval(x+150,y+100,100,100);
g.drawOval(x+150,y+200,100,100);
g.drawOval(x+192,y+125,100,100);
g.drawOval(x+108,y+124,100,100);
g.drawOval(x+192,y+175,100,100);
g.drawOval(x+106,y+174,100,100);
g.drawOval(x+150,y+249,100,100);
g.drawOval(x+150,y+50,100,100);
g.drawOval(x+105,y+75,100,100);
g.drawOval(x+190,y+226,100,100);
g.drawOval(x+237,y+198,100,100);
g.drawOval(x+238,y+152,100,100);
g.drawOval(x+237,y+100,100,100);
g.drawOval(x+194,y+75,100,100);
g.drawOval(x+64,y+100,100,100);
g.drawOval(x+104,y+222,100,100);
g.drawOval(x+64,y+198,100,100);
g.drawOval(x+63,y+149,100,100);
Thread.sleep(100);
}
}catch (Exception e) {}
repaint();
}
public void mouseDragged(MouseEvent e) {
g.setColour(Color.RED);
}
}
public class framerunner{
public static void main(String args[]) {
try{
kilo l=new kilo();
pika cc=new pika();
JFrame f=new JFrame("Flower pattern");
f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
f.setSize(1000,500);
f.setVisible(true);
f.add(l);
```

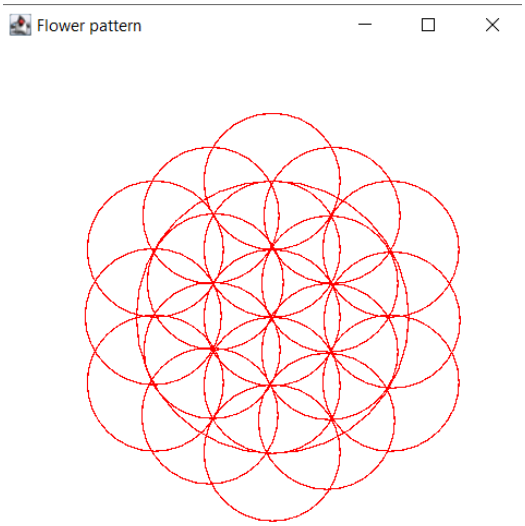
```
f.add(cc);
}catch(Exception e) {}
}
}
```

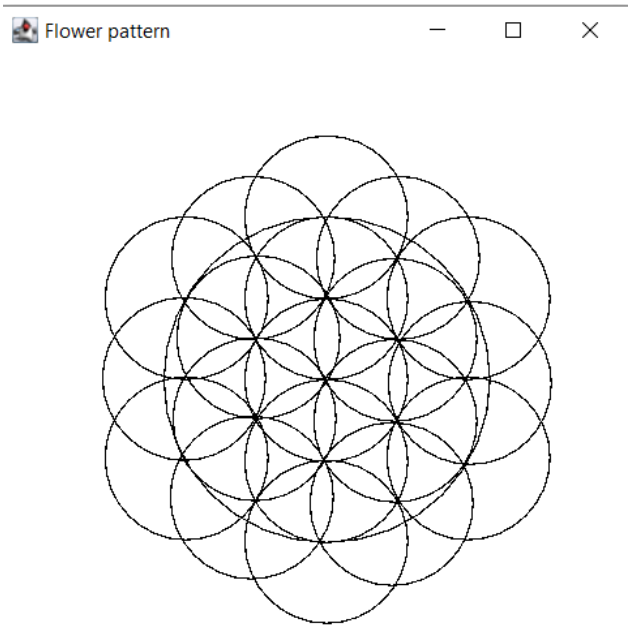
Output :

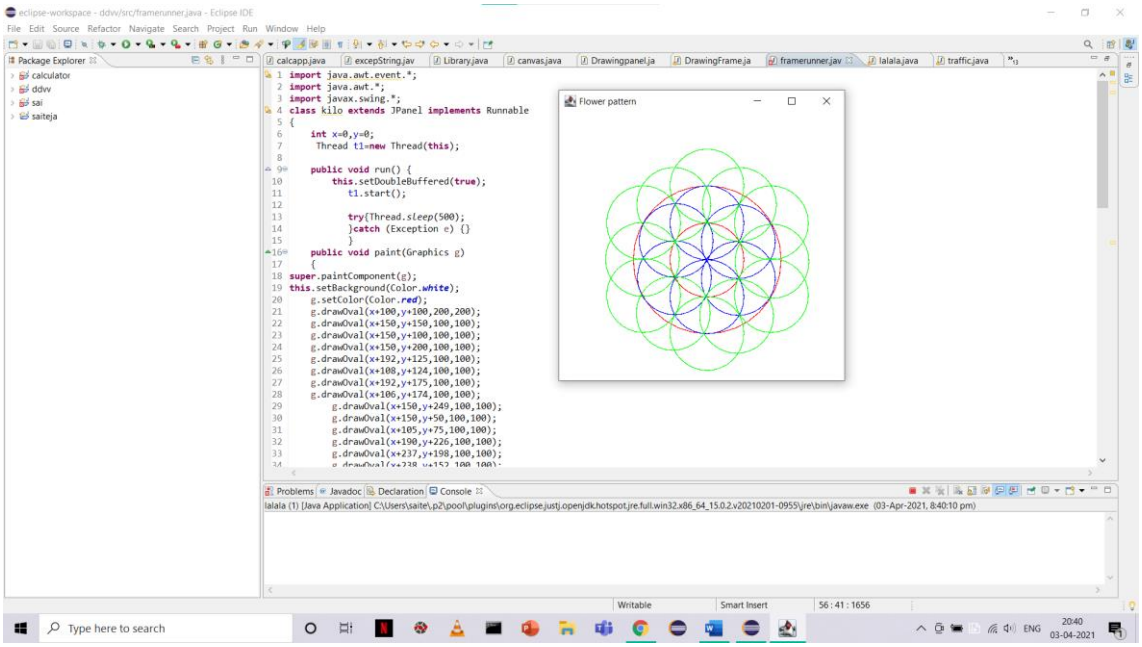





Flower pattern


Flower pattern





3.Design the pokemon picture and animate the imagewith the help of Runnable thread

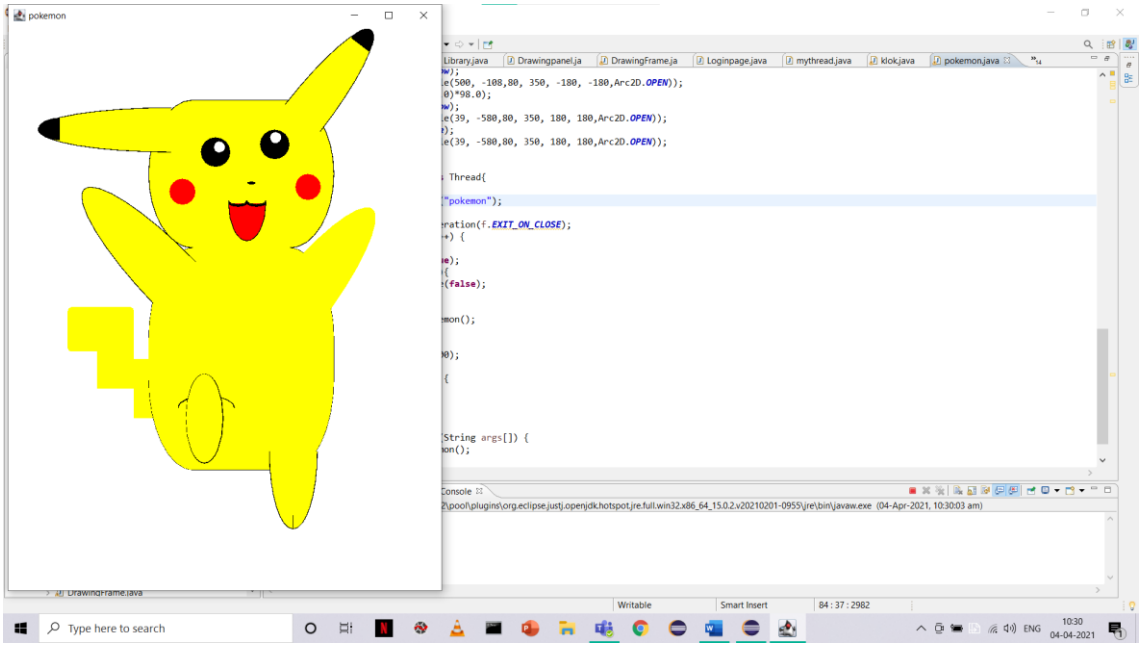
Code :

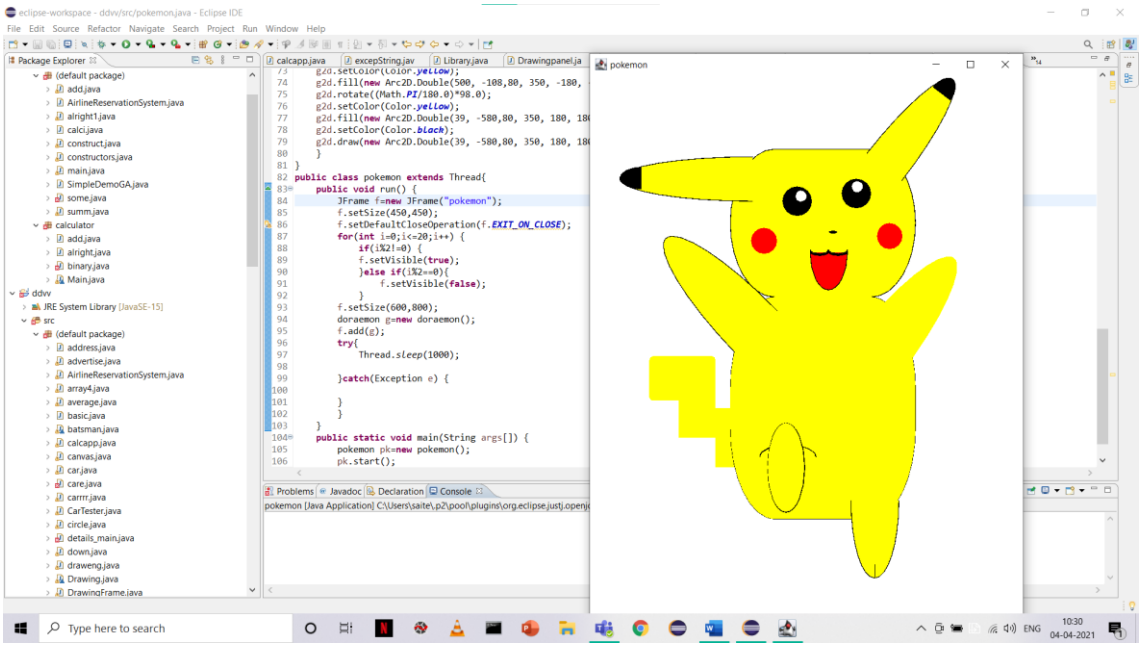
```
import java.lang.Runnable;
import java.awt.geom.AffineTransform;
import java.awt.geom.Path2D;
import java.awt.*;
import javax.swing.*;
import java.awt.geom.Arc2D;
class doraemon extends JPanel
```

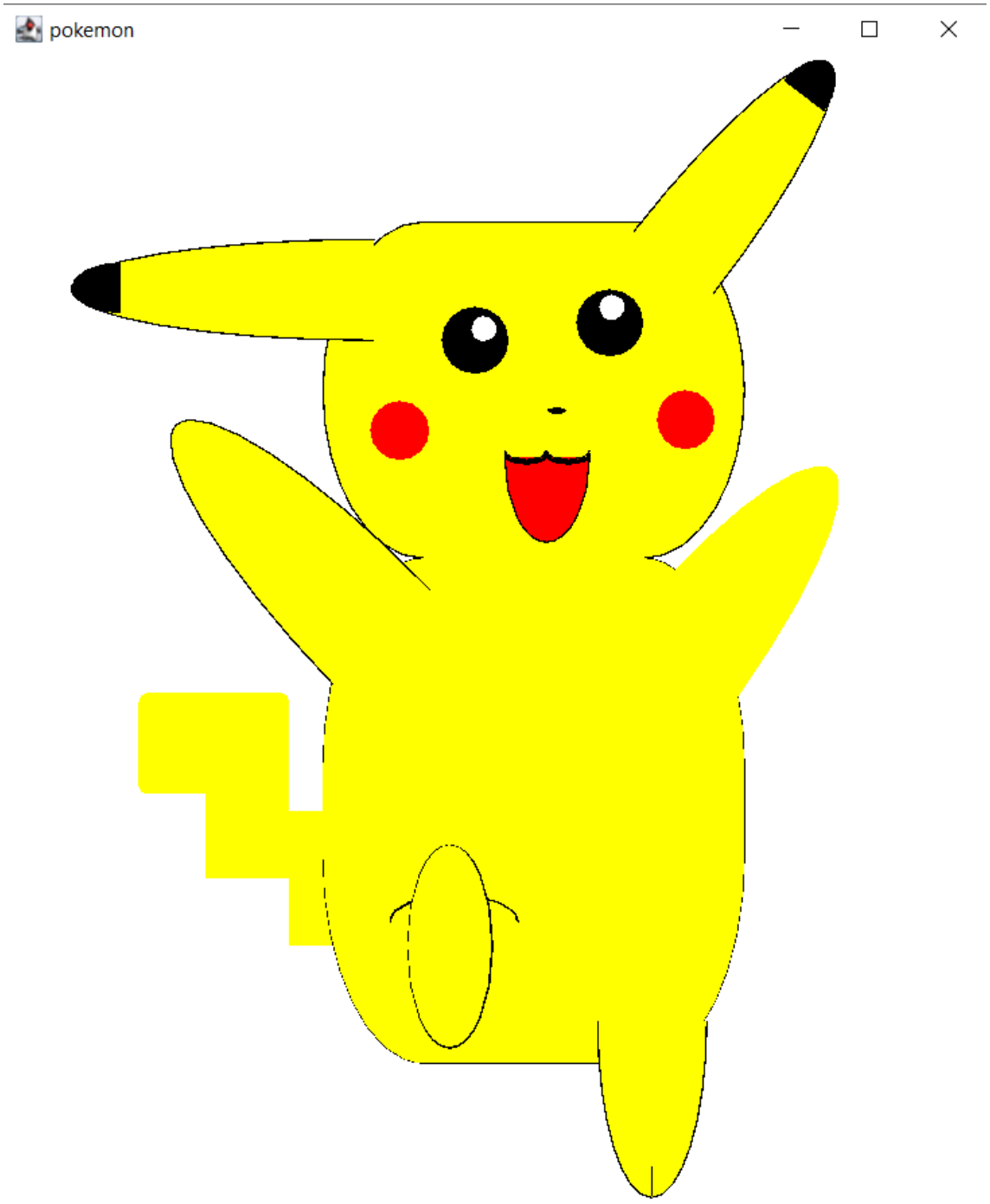
```
{
    public void paint(Graphics g)
    {
super.paintComponent(g);
this.setBackground(Color.white);
g.setColor(Color.yellow);
       g.fillRoundRect(190, 100, 250, 200, 120, 250);
       g.setColor(Color.black);
       g.drawRoundRect(190, 100, 250, 200, 120, 250);
       g.setColor(Color.yellow);
       g.fillArc(40,110,360,60,90,180);
       g.setColor(Color.black);
       g.fillArc(40,124,60,30,90,180);
       g.drawArc(40,110,360,60,90,180);
       g.setColor(Color.black);
       g.fillOval(340, 140, 40, 40);
       g.fillOval(260, 150, 40, 40);
       g.setColor(Color.white);
       g.fillOval(278, 156, 15, 15);
       g.fillOval(354, 143, 15, 15);
       g.setColor(Color.red);
       g.fillOval(218, 206, 35, 35);
       g.fillOval(388, 200, 35, 35);
       g.fillArc(298, 190, 50, 100, 180, 180);
       g.setColor(Color.black);
       g.drawArc(298, 190, 50, 100, 180, 180);
       g.drawArc(298, 234, 25, 10, 180, 180);
       g.drawArc(323, 234, 25, 10, 180, 180);
       g.drawArc(298, 233, 25, 10, 180, 180);
       g.drawArc(323, 233, 25, 10, 180, 180);
       g.drawArc(298, 232, 25, 10, 180, 180);
       g.drawArc(323, 232, 25, 10, 180, 180);
       g.drawArc(298, 231, 25, 10, 180, 180);
       g.drawArc(323, 231, 25, 10, 180, 180);
       g.fillOval(323, 210,12,4);
       g.setColor(Color.yellow);
       g.fillRect(170, 500, 80, 30);
       g.fillRect(170, 480, 30, 50);
       g.fillRect(120, 450, 80, 40);
       g.fillRoundRect(120, 410, 50, 80,10,10);
       g.fillRoundRect(80, 380, 90, 60,10,10);
       g.setColor(Color.black);
       g.drawRoundRect(190, 300, 250, 300, 120, 250);
       g.setColor(Color.yellow);
       g.fillRoundRect(190, 300, 250, 300, 120, 250);
       g.setColor(Color.black);
       g.drawArc(230, 500, 75, 30, -180, -180);
       g.drawArc(230, 500, 76, 31, -180, -180);
       g.drawOval(240, 470, 50, 120);
       g.drawOval(240, 470, 51, 121);
       g.setColor(Color.yellow);
       g.fillOval(240, 470, 50, 120);
       g.fillArc(353, 470, 65, 210, 180, 180);
       g.setColor(Color.black);
       g.drawArc(353, 470, 65, 210, 180, 180);
       g.drawLine(385, 678, 385, 661);
       g.drawLine(385, 678, 385, 661);
       g.drawLine(385, 678, 385, 661);
       Graphics2D g2d = (Graphics2D)g;
```

```
        g2d.rotate((Math.PI/180.0)*38.0);
        g2d.setColor(Color.yellow);
        g2d.fill(new Arc2D.Double(360, -298,60, 300, -180, -180,Arc2D.OPEN));
        g2d.setColor(Color.black);
    g2d.draw(new Arc2D.Double(360, -298,60, 300, -180, -180,Arc2D.OPEN));
    g2d.fill(new Arc2D.Double(375, -298,30, 50, -180, -180,Arc2D.OPEN));
    g2d.setColor(Color.yellow);
    g2d.fill(new Arc2D.Double(500, -108,80, 350, -180, -180,Arc2D.OPEN));
    g2d.rotate((Math.PI/180.0)*98.0);
    g2d.setColor(Color.yellow);
    g2d.fill(new Arc2D.Double(39, -580,80, 350, 180, 180,Arc2D.OPEN));
    g2d.setColor(Color.black);
    g2d.draw(new Arc2D.Double(39, -580,80, 350, 180, 180,Arc2D.OPEN));
    }
}
public class pokemon extends Thread{
    public void run() {
       JFrame f=new JFrame("MICKEY MOUSE");
              f.setSize(450,450);
              f.setDefaultCloseOperation(f.EXIT_ON_CLOSE);
              for(int i=0;i<=10;i++) {
                     if(i%2!=0) {
                     f.setVisible(true);
                     }else if(i%2==0){
                            f.setVisible(false);
                     }
              f.setSize(750,750);
              doraemon g=new doraemon();
              f.add(g);
              try{
                     Thread.sleep(1000);

              }catch(Exception e) {

              }
              }
    }
    public static void main(String args[]) {
       pokemon pk=new pokemon();
       pk.start();
    }
}
```

Output :


pokemon
Type here to search
ENG
10:30
04-04-2021


eclipse-workspace - ddvv/src/pokemon.java - Eclipse IDE
pokemon
Type here to search
ENG
10:30
04-04-2021


pokemon

4.Design the traffic road signal and animate the car according to the road signal by applying thread.

a)Using awt and swing

b)Using Applet(using button controls(stop,go,move)

Using awt and swing

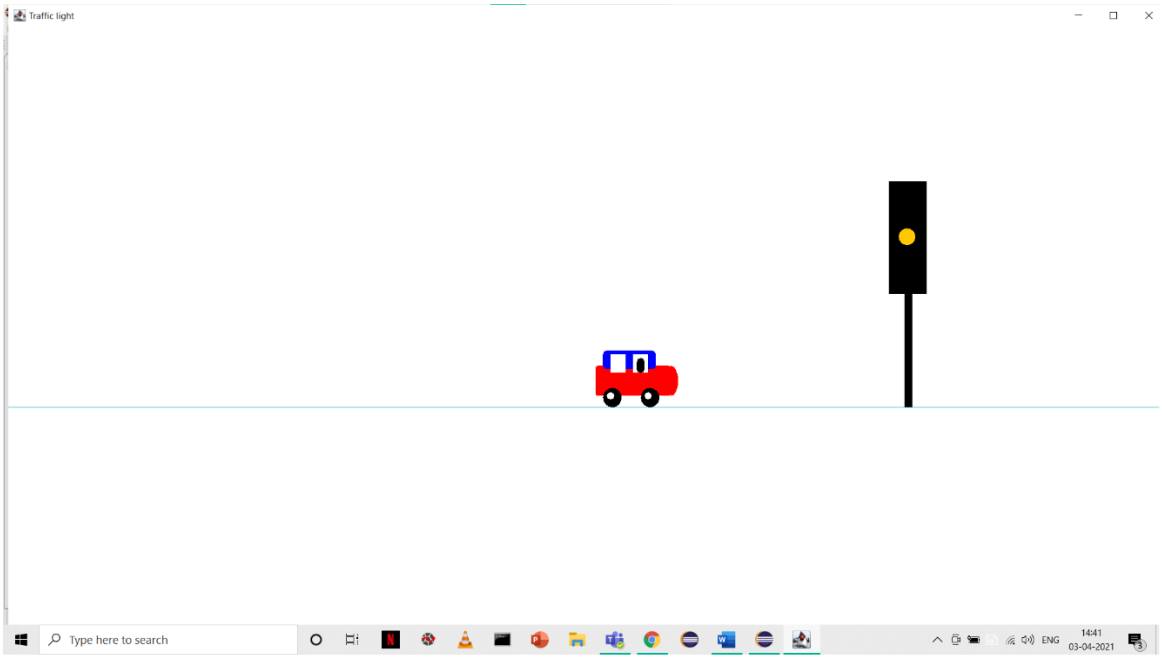
a) Code :

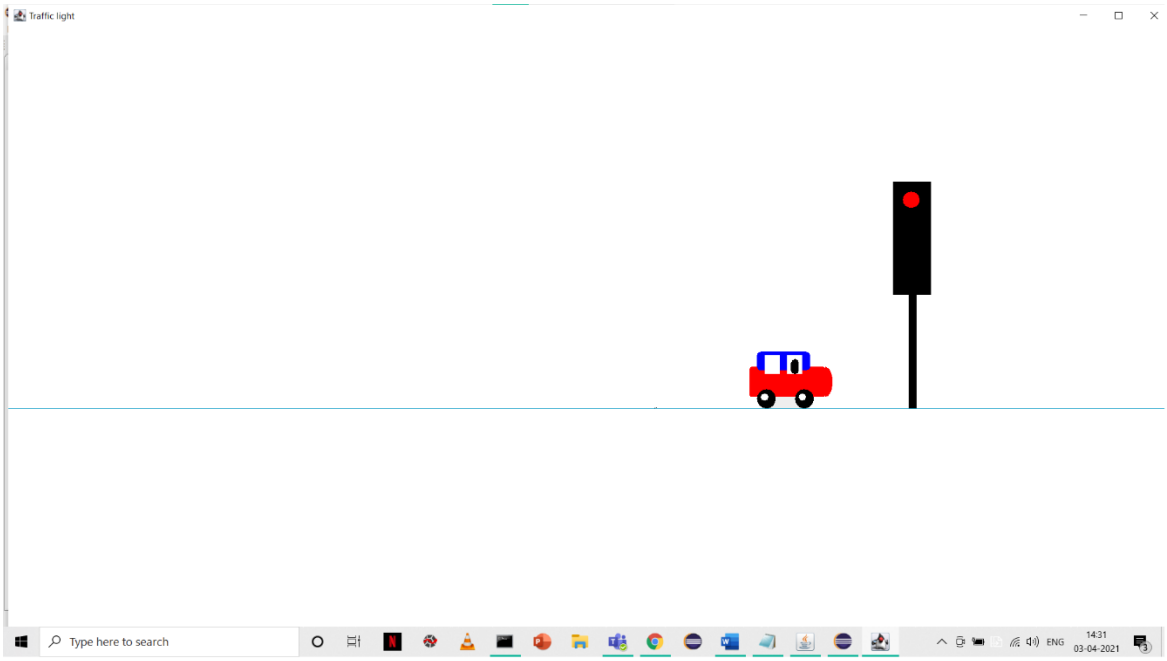
```
import javax.swing.*;
import java.awt.*;
import javax.swing.*;
import java.awt.event.*;
public class carrrr extends JFrame{
public static void main(String args[]) {
JFrame f=new JFrame("Traffic light");
f.setVisible(true);
f.setSize(1680,1280);
f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
Car c=new Car();
f.add(c);
Cari lol=new Cari();
f.add(lol);
}
}
class Car extends JPanel{
public void paint(Graphics g){
super.paintComponent(g);
this.setBackground(Color.white);
try {
g.setColor(Color.black);
g.fillRect(70, 100, 50, 150);
g.fillRect(91, 250,10, 150);
}catch(Exception e) {}
g.setColor(Color.RED);
g.fillOval(83, 118, 22, 22);
```

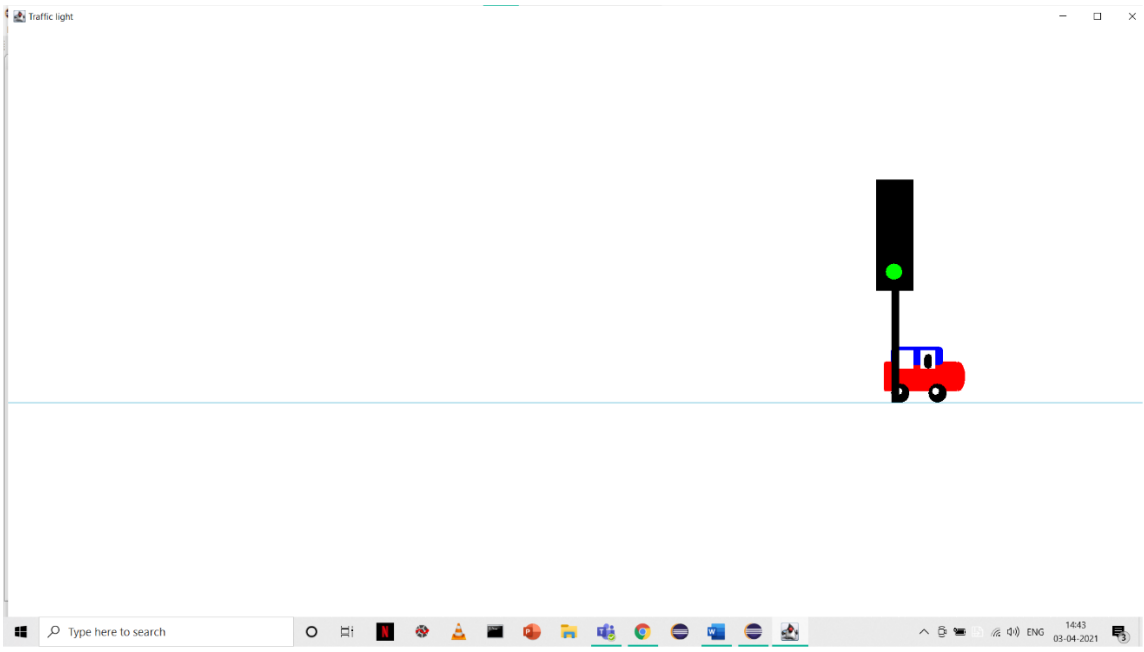
```
g.setColor(Color.orange);
g.fillOval(83, 168, 22, 22);
g.setColor(Color.green);
g.fillOval(83, 218, 22, 22);
}
}
class  Cari extends JPanel implements ActionListener{
int x=780;
int y=430;
int z;
int t1,t2;
Button b1, b2;
String msg=" ";
synchronized void  slep(){
try{
Thread.sleep(1000);
}
catch(Exception ex){
}
}
public void ineet(){
t1=0;
t2=1;
x=80;
y=30;
z=getWidth();
setLayout(new FlowLayout(FlowLayout.CENTER));
}
public void start(){
}
public void actionPerformed(ActionEvent e){
String s=e.getActionCommand();
if(x>=100&&x<=900){
msg="Forward";
repaint();
```

```
}
else if(x>900){
msg="  ";
repaint();
}
}
public synchronized void paint(Graphics g){
setBackground(Color.white);
z=getWidth();
Color c1=new Color(20,160,200);
g.setColor(c1);
g.drawLine(0,y+75,z,y+75);
g.setColor(Color.red);
g.fillRoundRect(x,y+20,100,40,5,5);
g.fillArc(x+90,y+20,20,40,270,180);
g.setColor(Color.BLUE);
g.fillRoundRect(x+10,y,70,25,10,10);
g.setColor(Color.white);
g.fillRect(x+20,y+5,20,25);
g.fillRect(x+50,y+5,20,25);
g.setColor(Color.black);
g.fillRoundRect(x+55,y+10,10,20,10,10);
g.fillOval(x+10,y+50,25,25);
g.fillOval(x+60,y+50,25,25);
g.setColor(Color.white);
g.fillOval(x+15,y+55,10,10);
g.fillOval(x+65,y+55,10,10);
g.setColor(Color.black);
g.fillRect(1170, 205, 50, 150);
g.fillRect(1191, 355,10, 150);
g.setColor(Color.RED);
g.fillOval(1183, 218, 22, 22);
g.setColor(Color.orange);
g.fillOval(1183, 268, 22, 22);
g.setColor(Color.green);
```

```
g.fillOval(1183, 318, 22, 22);
x=x+100;
slep();
if(msg.equals("Forward")){
if(x+120<z){
x=x+60;
repaint();
}
}
}
}
```







b)Using Applet :

Code :

```
import java.applet.*;

import java.awt.*;

import java.awt.event.*;

public class Car extends Applet implements ActionListener{

int x=1080;

int y=330;

int z=getWidth();

int t1,t2;
```

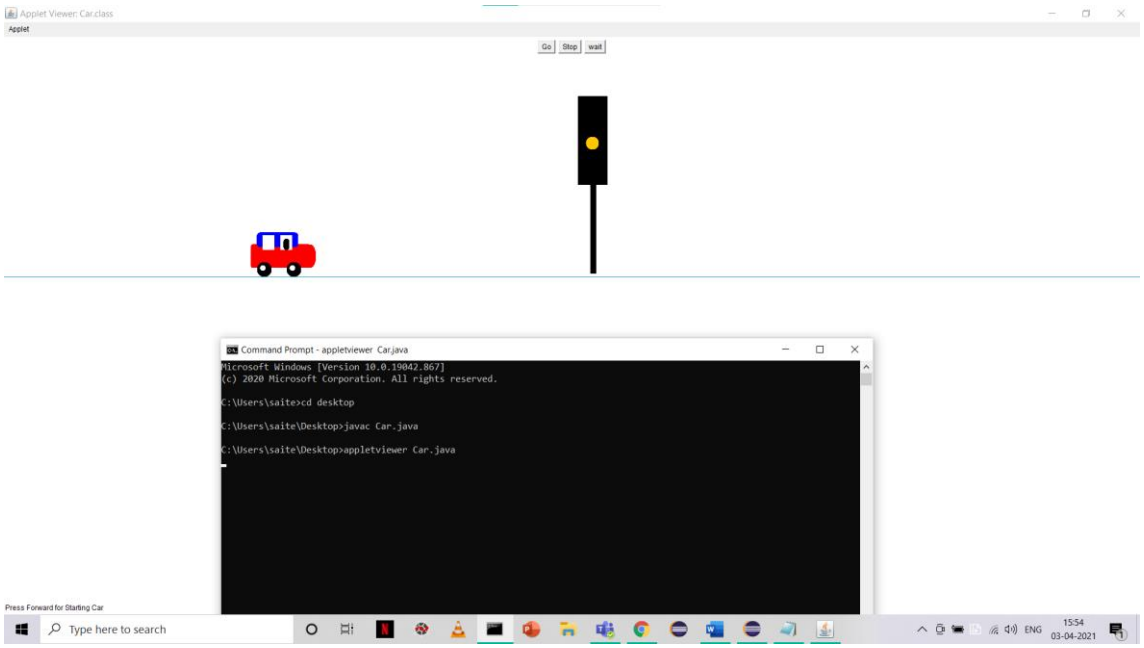
```
Button b1, b2,b3;
String msg=" ";
void slep(){
try{
Thread.sleep(100);
}
catch(Exception ex){
}
}
public void init(){
t1=0;
t2=1;
x=80;
y=330;
setLayout(new FlowLayout(FlowLayout.CENTER));
Label l=new Label("webeduclick");
b1=new Button("stop");
b2=new Button("Wait");
b3=new Button("Go");
add(b1);
add(b2);
add(b3);
b1.addActionListener(this);
b2.addActionListener(this);
}
public void start(){
}
public void actionPerformed(ActionEvent e){
String s=e.getActionCommand();
if(s.equals("Go")){
msg="Go";
repaint();
}
else if(s.equals("Stop")){
msg="  ";
repaint();
}
```

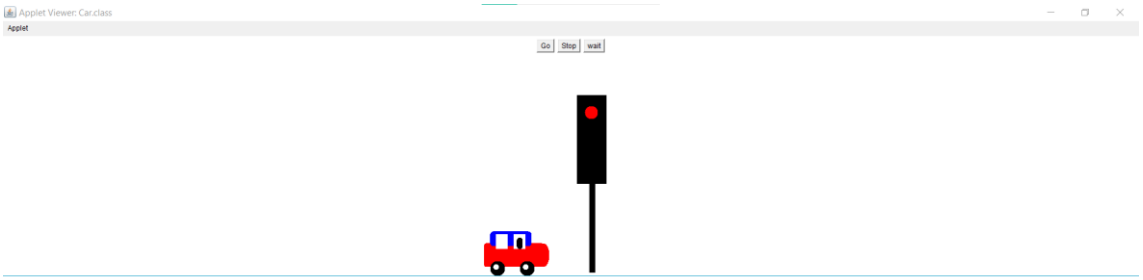
```
}
public void paint(Graphics g){
setBackground(Color.white);
z=getWidth();
Color c1=new Color(20,160,200);
Color c2=new Color(200,60,200);
g.setColor(c1);
g.drawLine(0,y+75,z,y+75);
g.setColor(Color.red);
g.fillRoundRect(x,y+20,100,40,5,5);
g.fillArc(x+90,y+20,20,40,270,180);
g.setColor(Color.BLUE);
g.fillRoundRect(x+10,y,70,25,10,10);
g.setColor(Color.white);
g.fillRect(x+20,y+5,20,25);
g.fillRect(x+50,y+5,20,25);
g.setColor(Color.black);
g.fillRoundRect(x+55,y+10,10,20,10,10);
g.fillOval(x+10,y+50,25,25);
g.fillOval(x+60,y+50,25,25);
g.setColor(Color.white);
g.fillOval(x+15,y+55,10,10);
g.fillOval(x+65,y+55,10,10);
g.setColor(Color.black);
g.fillRect(970, 100, 50, 150);
g.fillRect(991, 250,10, 150);
g.setColor(Color.RED);
g.fillOval(983, 118, 22, 22);
g.setColor(Color.orange);
g.fillOval(983, 168, 22, 22);
g.setColor(Color.green);
g.fillOval(983, 218, 22, 22);
x=x+10;
slep();
if(msg=”Stop”){
g.setColor(Color.RED);
g.fillOval(983, 118, 22, 22);
```

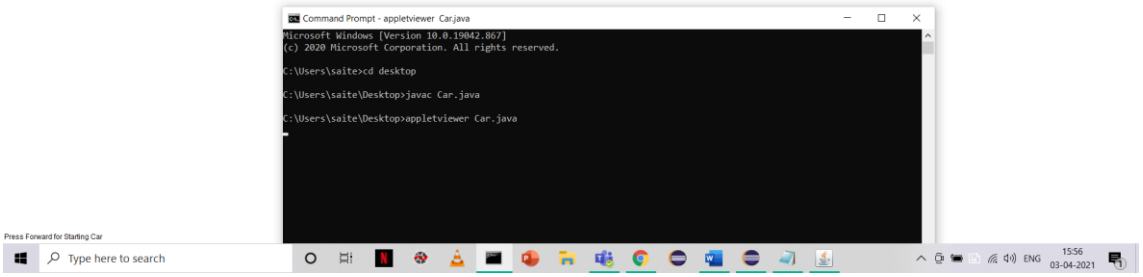
```
}else if (msg=”Go”){
g.setColor(Color.green);
g.fillOval(983, 218, 22, 22);
}else if(msg=”wait”){
g.setColor(Color.orange);
g.fillOval(983, 168, 22, 22);
}
if(msg.equals("Go")){
if(x+120<z){
x=x+1;
showStatus("Press Forward for Starting Car");
repaint();
}
}
}
}
/*
<applet code="Car.class" width="300" height="300">
</applet>
*/
```

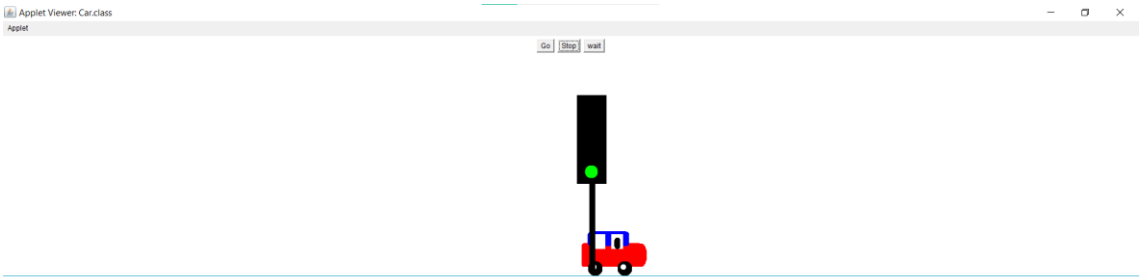
Output : (Run by using inbuilt “appletviewer” in JDK(command prompt JVM)

Command: “javac Car.java” and “appletviewer Car.java”

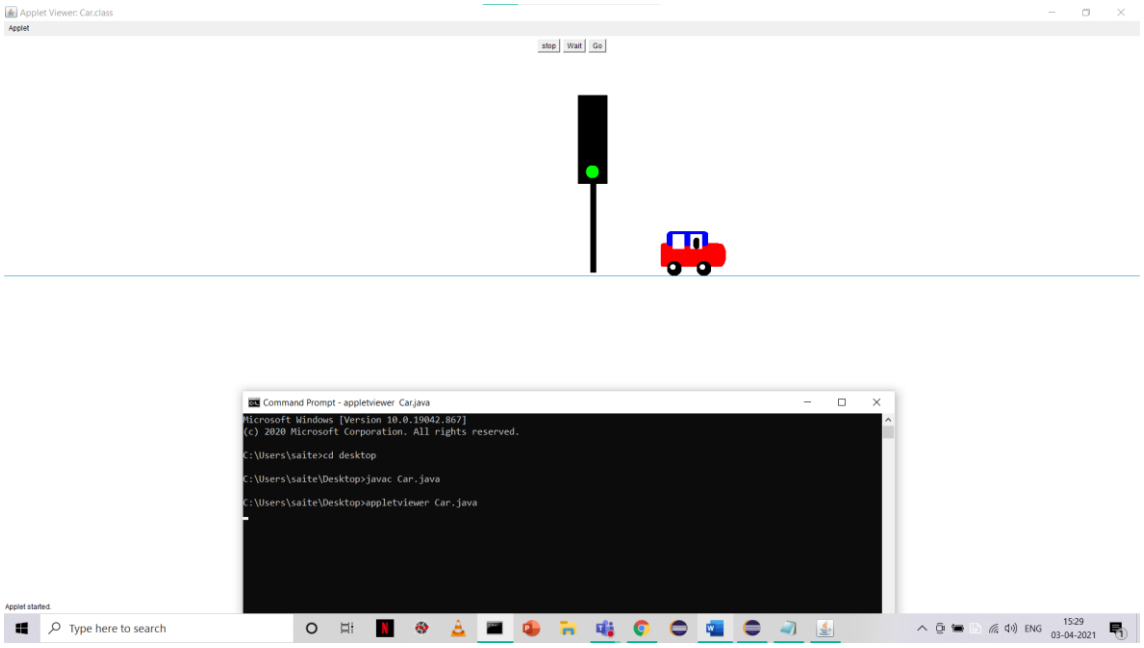



Applet Viewer: Car.class
Applet
Go
Stop
wait


Command Prompt - appletviewer Car.java
Microsoft Windows [Version 10.0.19042.867]
(c) 2020 Microsoft Corporation. All rights reserved.
C:\Users\saite>cd desktop
C:\Users\saite\Desktop>javac Car.java
C:\Users\saite\Desktop>appletviewer Car.java
Press Forward for Starting Car
Type here to search
ENG
15:56
03-04-2021


Applet Viewer: Car.class
Applet
Go
Stop
wait


Press Forward for Starting Car
Type here to search
ENG
15:57
03-04-2021



Button controls :

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Thank you