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AIM: To implement applets in java

THEORY:

- Applet

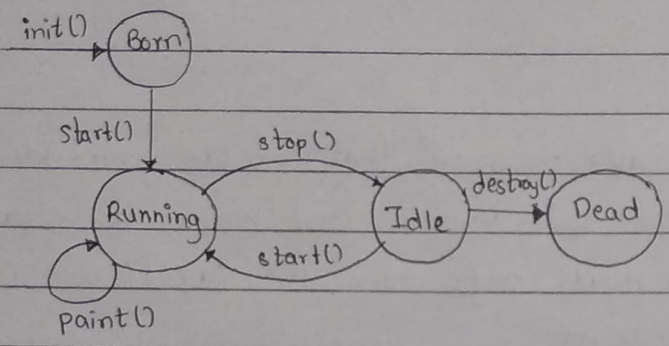
An applet is a Java program that can be embedded into a web page. It runs inside the web browser and works at client side. An applet is embedded in an HTML page using the APPLET or OBJECT tag and hosted on a web server.
Applets are used to make the website more dynamic and entertaining.

1) All applets are sub-classes (directly or indirectly) of java.applet.Applet class.
2) Applets are not stand-alone programs. Instead they run within either a web browser or an applet viewer. JDK provides a standard applet viewer tool called applet viewer.
3) In general, execution of applet does not begin at main() method.
4) Output of an applet window is not performed by System.out.println(). Rather it is handled with various AWT methods, such as drawString().

- Difference between Application and Applet

Java Application	Java Applet
1) Applications are just like Java programs that can execute independently without using the web browser.	1) Applets are small Java programs that are designed to be included with HTML web document. They require web browser.
2) They require a main function for execution.	2) They do not require a main function.
3) They can execute programs from the local system	3) They cannot execute programs from local system.

- Life cycle of an applet



There are five methods of an applet life cycle, and they are:

i) init(): ~~The~~ ii) start() iii) paint() iv) stop() v) destroy()

When an applet begins, the following methods are called, in this sequence:

i) init()
ii) start()
iii) paint()

When an applet terminates, the following method calling takes place:

i) stop()
ii) destory().

i) init(): The init() method is the first method to be called. This is where you should initialize variables. This method can be called only once during run time.

ii) start(): The start() method is called after init(). It is also called to restart() an applet after it has been stopped. Every time the browser is loaded or refreshed, the start() method is invoked. It is also invoked when the applet is maximized, restored, or moving from one tab to another in the browser. It is in an inactive state until init() is invoked.

iii) paint() : The paint() method belongs to the Graphics class in Java. It is used to draw shapes like circle, square, etc. in the applet. It is executed after start() method and when the browser is or applet windows are resized.

iv) stop() : The stop() method stops the execution of the applet. The stop() method is invoked whenever the applet is stopped, minimized or moving to other tabs. When we go back to that window, the start() method is invoked again.

v) destroy() : The destroy() method destroys the applet after its work is done. It is invoked when the applet window is closed or tab is closed. It removes applet object from memory and is executed only once. We cannot start the applet once it is destroyed.

CONCLUSION

Errors encountered:

1) error : cannot find symbol
g.setColor(color.black);

Solution Correct syntax : g.setColor(Color.black);;

2) error : class, interface, or enum expected
<applet code="Signal" width=700 heigth=500>

Solution Correction: Comment those lines
/* <applet code="Signal" width=700 heigth=500>
</applet>
*/

LAB 11: APPLET IN JAVA

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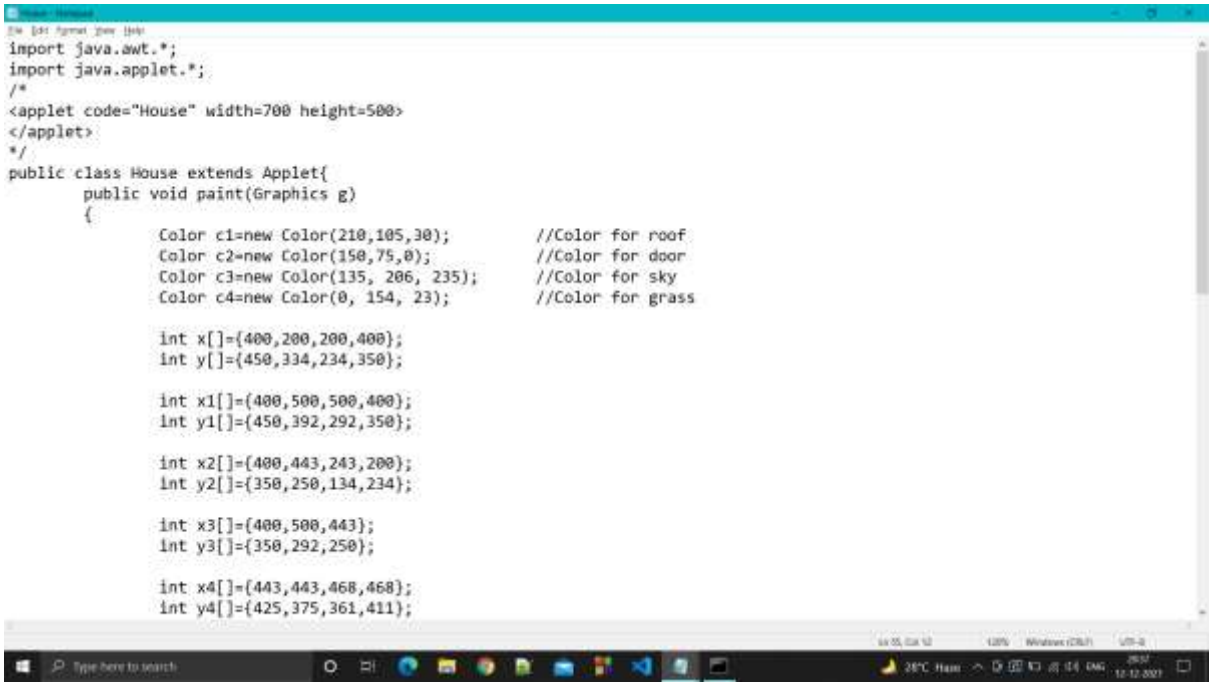
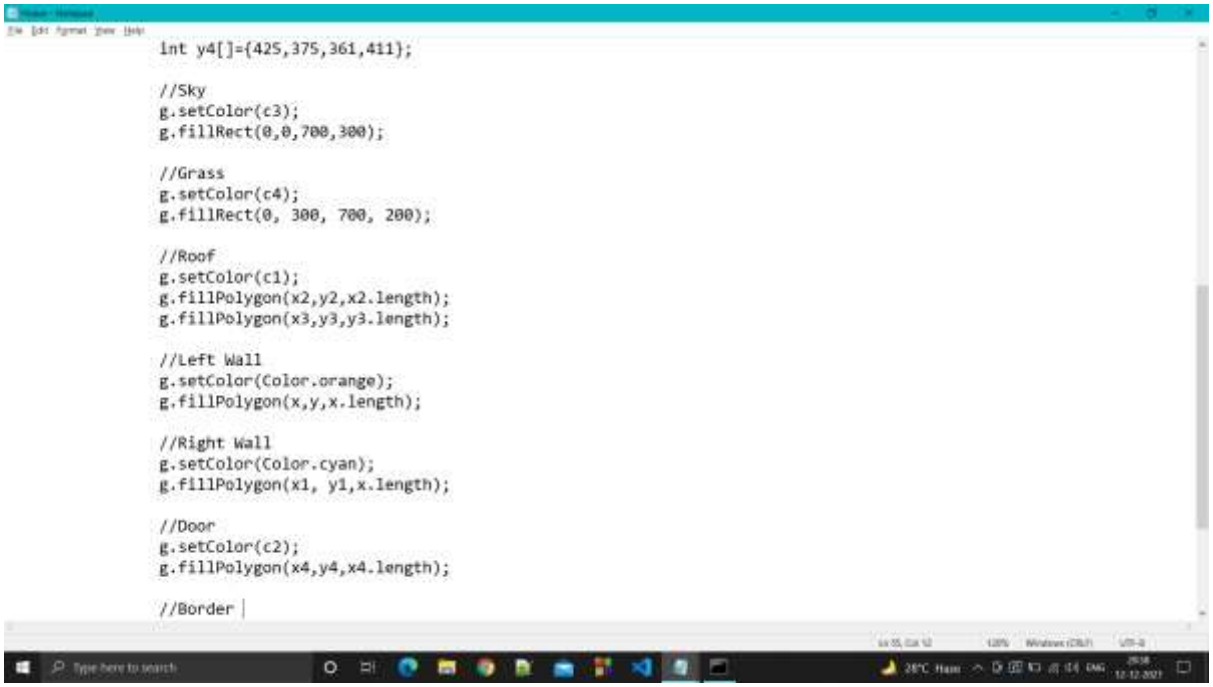
Write a program to display (any two) a) house b) traffic Signal c) Joker Face in Applets.

a)House

CODE:



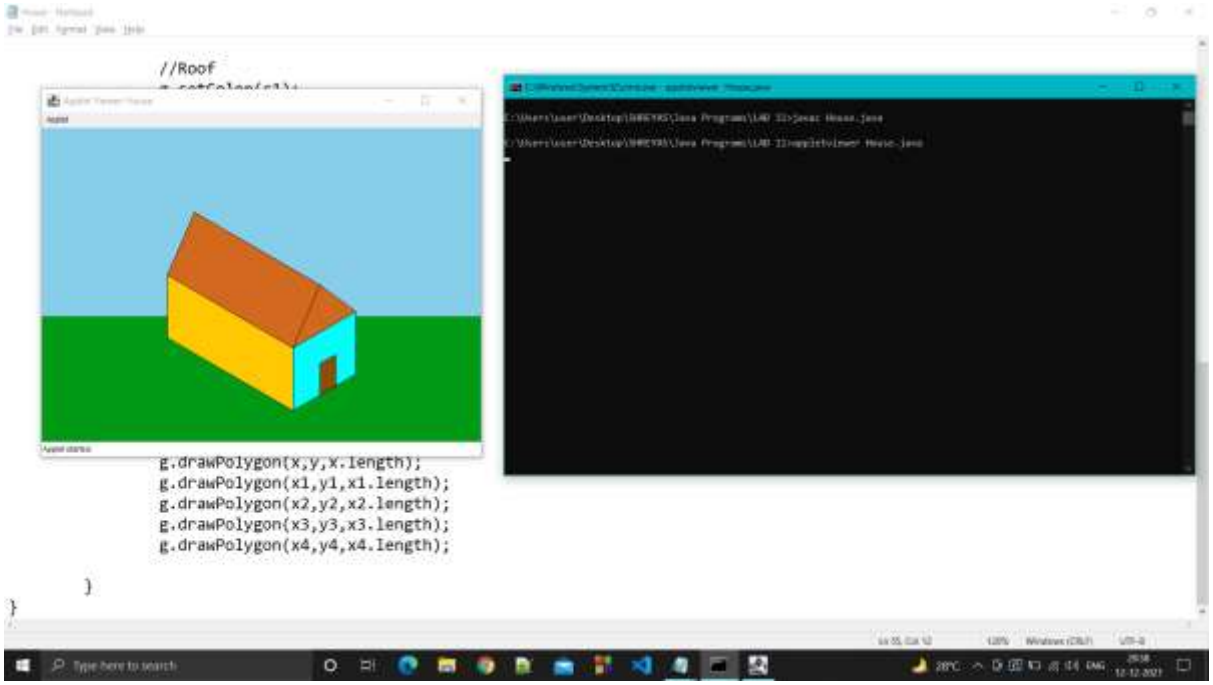
```
import java.awt.*;
import java.applet.*;
/*
<applet code="House" width=700 height=500>
</applet>
*/
public class House extends Applet{
	public void paint(Graphics g)
	{
		Color c1=new Color(210,105,30);		//Color for roof
		Color c2=new Color(150,75,0);		//Color for door
		Color c3=new Color(135, 206, 235);	//Color for sky
		Color c4=new Color(0, 154, 23);		//Color for grass

		int x[]={400,200,200,400};
		int y[]={450,334,234,350};

		int x1[]={400,500,500,400};
		int y1[]={450,392,292,350};

		int x2[]={400,443,243,200};
		int y2[]={350,250,134,234};

		int x3[]={400,500,443};
		int y3[]={350,292,250};

		int x4[]={443,443,468,468};
		int y4[]={425,375,361,411};
```



```
		int y4[]={425,375,361,411};

		//Sky
		g.setColor(c3);
		g.fillRect(0,0,700,300);

		//Grass
		g.setColor(c4);
		g.fillRect(0, 300, 700, 200);

		//Roof
		g.setColor(c1);
		g.fillPolygon(x2,y2,x2.length);
		g.fillPolygon(x3,y3,y3.length);

		//Left Wall
		g.setColor(Color.orange);
		g.fillPolygon(x,y,x.length);

		//Right Wall
		g.setColor(Color.cyan);
		g.fillPolygon(x1, y1,x.length);

		//Door
		g.setColor(c2);
		g.fillPolygon(x4,y4,x4.length);

		//Border
```

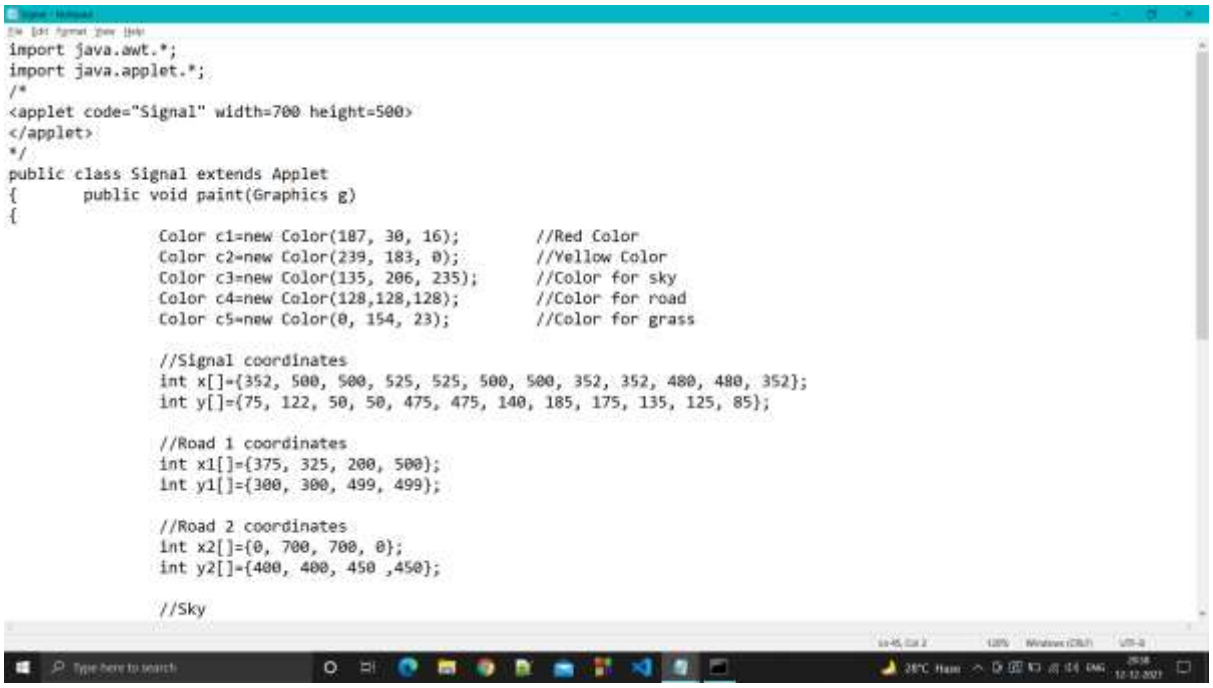
```
        //Roof
        g.setColor(c1);
        g.fillPolygon(x2,y2,x2.length);
        g.fillPolygon(x3,y3,y3.length);

        //Left Wall
        g.setColor(Color.orange);
        g.fillPolygon(x,y,x.length);

        //Right Wall
        g.setColor(Color.cyan);
        g.fillPolygon(x1, y1,x.length);

        //Door
        g.setColor(c2);
        g.fillPolygon(x4,y4,x4.length);

        //Border
        g.setColor(Color.black);
        g.drawPolygon(x,y,x.length);
        g.drawPolygon(x1,y1,x1.length);
        g.drawPolygon(x2,y2,x2.length);
        g.drawPolygon(x3,y3,x3.length);
        g.drawPolygon(x4,y4,x4.length);

    }
}
```

OUTPUT:

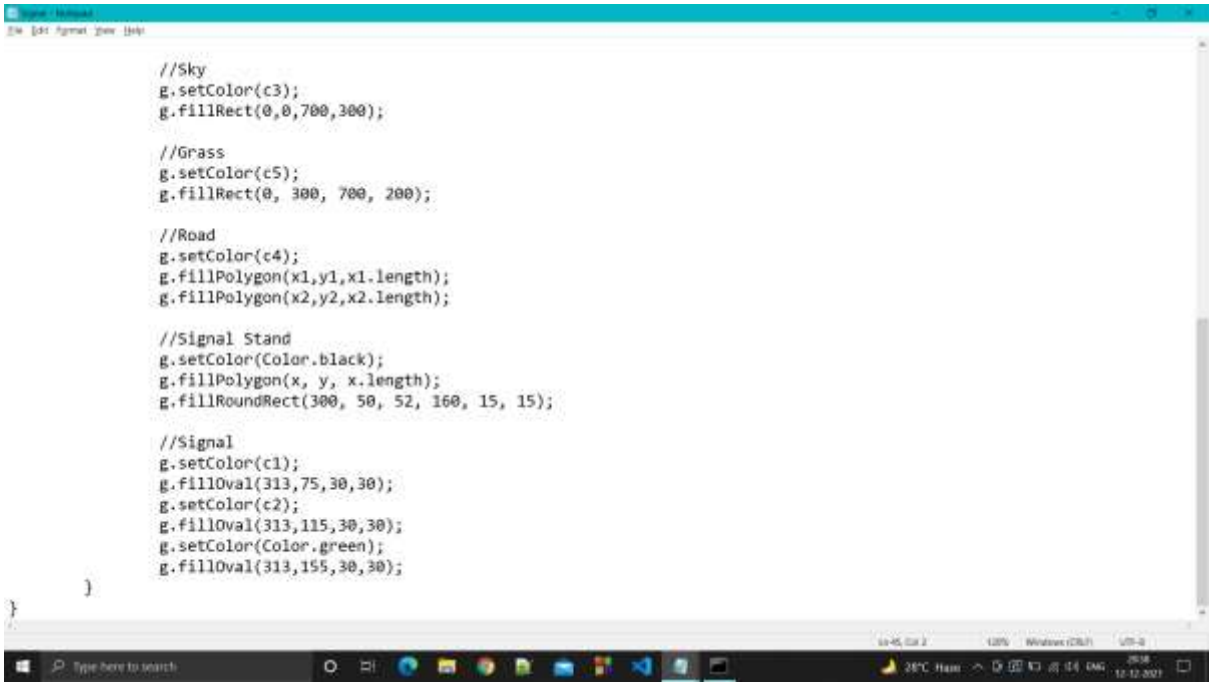


b) Traffic Signal

CODE:

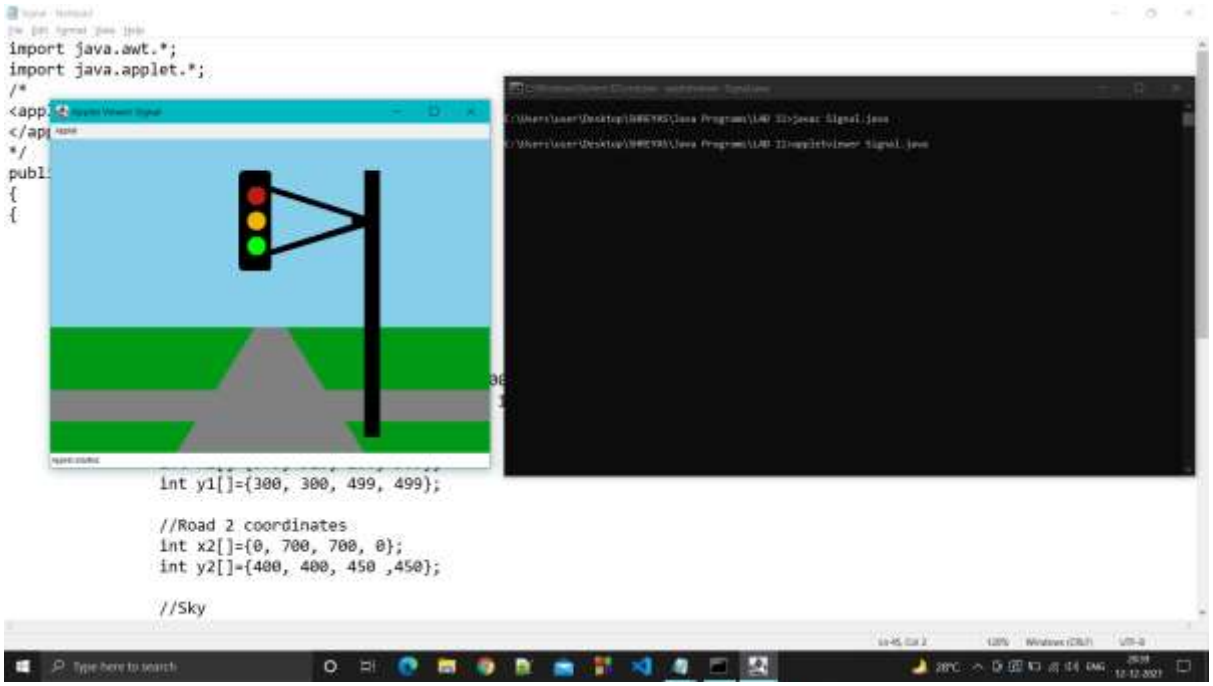


```
import java.awt.*;
import java.applet.*;
/*
<applet code="Signal" width=700 height=500>
</applet>
*/
public class Signal extends Applet
{       public void paint(Graphics g)
{
                Color c1=new Color(187, 30, 16);        //Red Color
                Color c2=new Color(239, 183, 0);        //Yellow Color
                Color c3=new Color(135, 206, 235);      //Color for sky
                Color c4=new Color(128,128,128);        //Color for road
                Color c5=new Color(0, 154, 23);         //Color for grass

                //Signal coordinates
                int x[]={352, 500, 500, 525, 525, 500, 500, 352, 352, 480, 480, 352};
                int y[]={75, 122, 50, 50, 475, 475, 140, 185, 175, 135, 125, 85};

                //Road 1 coordinates
                int x1[]={375, 325, 200, 500};
                int y1[]={300, 300, 499, 499};

                //Road 2 coordinates
                int x2[]={0, 700, 700, 0};
                int y2[]={400, 400, 450 ,450};

                //Sky
```



```
                //Sky
                g.setColor(c3);
                g.fillRect(0,0,700,300);

                //Grass
                g.setColor(c5);
                g.fillRect(0, 300, 700, 200);

                //Road
                g.setColor(c4);
                g.fillPolygon(x1,y1,x1.length);
                g.fillPolygon(x2,y2,x2.length);

                //Signal Stand
                g.setColor(Color.black);
                g.fillPolygon(x, y, x.length);
                g.fillRoundRect(300, 50, 52, 160, 15, 15);

                //Signal
                g.setColor(c1);
                g.fillOval(313,75,30,30);
                g.setColor(c2);
                g.fillOval(313,115,30,30);
                g.setColor(Color.green);
                g.fillOval(313,155,30,30);
        }
}
```

OUTPUT


import java.awt.*;
import java.applet.*;
/*
*/
int y1[]={300, 300, 499, 499};
//Road 2 coordinates
int x2[]={0, 700, 700, 0};
int y2[]={400, 400, 450 ,450};
//Sky