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JAVA ASSIGNMENT

***Question1:***

***The house picture uses rectangles, lines, and ovals. The Java Graphics object has methods for drawing each of these. The area of the picture is 350 pixels wide, 250 pixels high. Artists use the sketch to help them transfer their ideas to canvas. We will use the sketch to transfer our ideas into a program. The location of objects in terms of X Y coordinates can be read off the graph paper.***

SOLUTION:

import javax.swing.\*;

import java.awt.\*;

/\*<applet code="HousePicture" width=500 Height=500> </applet>\*/

class HousePanel extends JPanel

{

final int width = 350, height = 250;

final int houseX = 50, houseY = 100, houseW = 150, houseH = 100 ;

final int doorX = 120, doorY = 150, doorW = 20, doorH = 50 ;

final int lWindX = 75, lWindY = 140, lWindW = 25, lWindH = 40 ;

final int rWindX = 160, rWindY = 140, rWindW = 25, rWindH = 40 ;

final int trunkX = 260, trunkY = 65, trunkW = 10, trunkH =100;

final int doorX =houseX+houseW/2-doorW/2; //tree leaves

final int treeX=200,treeY=10,treeW=125,treeH=55;

final int L1X1=0, L1Y1=140, L1X2=25, L1Y2=115;

final int L2X1=L1X2, L2Y1=L1Y2, L2X2=houseX, L2Y2=145;

final int L3X1=houseX+houseW,L3Y1=135, L3X2=245, L3Y2= 130;

final int L4X1=L3X2, L4Y1=L3Y2, L4X2=trunkX, L4Y2=145;

final int L5X1=trunkX+trunkW, L5Y1=L4Y2, L5X2=width, L5Y2= 110;

final int roof1X1=houseX,roof1Y1=houseY;

final int roof1X2=houseX+houseW/2,roof1Y2=75;

final int roof2X1=roof1X2,roof2Y1=roof1Y2;

final int roof2X2=houseX+houseW,roof2Y2=houseY;

public HousePanel()

{

setPreferredSize( new Dimension( width, height) );

setBackground( Color.WHITE);

}

public void paintComponent ( Graphics gr )

{

super.paintComponent( gr );

gr.setColor( Color.ORANGE ); // there is no Color brown

gr.drawRect( houseX , houseY , houseW, houseH); // house

gr.drawRect( doorX , doorY , doorW , doorH ); // door

gr.drawRect( lWindX , lWindY , lWindW, lWindH); // lwind

gr.drawRect( rWindX , rWindY , rWindW, rWindH); // rwind

gr.drawRect( trunkX , trunkY , trunkW, trunkH); //trunk gr.drawLine(roof1X1,roof1Y1,roof1X2,roof1Y2); gr.drawLine(roof2X1,roof2Y1,roof2X2,roof2Y2);

gr.setColor(Color.green);

gr.drawOval(treeX,treeY,treeW,treeH);

gr.drawLine(L1X1,L1Y1,L1X2,L1Y2);//line1

gr.drawLine(L2X1,L2Y1,L2X2,L2Y2);//line2

gr.drawLine(L3X1,L3Y1,L3X2,L3Y2);//line3

gr.drawLine(L4X1,L4Y1,L4X2,L4Y2);//line4

gr.drawLine(L5X1,L5Y1,L5X2,L5Y2);//line5

}

}

public class HousePicture

{

public static void main ( String[] args )

{

JFrame frame = new JFrame( "House Picture: Complete" ); frame.setDefaultCloseOperation( JFrame.EXIT\_ON\_CLOSE ); frame.getContentPane().add( new HousePanel() );

frame.pack();

frame.setVisible( true );

}

}

***Question2:***

***Write an program that displays a set of three concentric filled circles of different colors centered in the program's drawing area.***

SOLUTION:

import java.applet.\*;

import java.awt.\*;

public class ConCir extends Applet

{

public void init()

{

setBackground(Color.yellow);

}

public void paint(Graphics g)

{

g.setColor(Color.red);

int rad=25;

int dia=50;

for(int i=0;i<5;i++)

{

g.drawOval(250-(i\*rad),250-(i\*rad),(i+1)\*dia,(i+1)\*dia);

}

}

}

/\* <applet code=Concentric.class width=500 height=500>

</applet> \*/

**Question 3:**

***Draw a quadrilateral that connects the center points of the four edges of the program. You might want a filled quadrilateral instead of just lines. To do that, use fillPolygon(int[] xPoints, int[] yPoints, int nPoints) and drawPolygon(int[] xPoints, int[] yPoints, int nPoints) where X coordinates of each vertex are put in xPoints and the corresponding Y coordinates are in Ypoints. The number of vertices are in nPoints. For example, a triangle that fills the upper left half of a 100 by 200 panel could be drawn with int[] xPoints = [ 0, 0, 199]; int[] yPoints = [ 99, 0, 0 ]; gr.fillPolygon( xPoints, yPoints, 3 );***

SOLUTION:

import java.awt.\*;

import javax.applet.\*;

/\*<applet code=Quadri width=300 height=300> </applet> \*/

public class Quadri extends Applet

{

public void paint(Graphics g)

{

int x[] = { 150, 300, 150, 0};

int y[] = { 0, 150, 300, 150 };

int num=4;

g.setColor(Color.blue);

g.fillPolygon(xpoints,ypoints,num);

}

}

public class Quadri2 extends Applet

{

public void paint(Graphics g)

{

int x[] = { 150, 300, 150, 0};

int y[] = { 0, 150, 300, 150 };

int num=4;

g.setColor(Color.blue);

g.fillPolygon(xpoints,ypoints,num);

}

}

***Question4:***

***Draw N nested rectangles, where each rectangle is spaced 5 pixels from its neighbors, no matter what the size of the program. N is an integer variable that depends on the size of the program. The larger the program, the more rectangles are drawn. You will need to use a loop for this.***

SOLUTION:

import java.awt.\*;

import java.applet.\*;

/\*<applet code="Rectangle" width=300 Height=300> </applet> \*/

public class Rectangle extends Applet

{

public void paint (Graphics g)

{

g.setColor(Color.red);

int y,x,w,h;

y=0;x=0;w=295;h=295;

while(w>=5&&h>=5)

{

g.drawRect(y,x,w,h);

x=x+5;

y=y+5;

w=w-10;

h=h-10;

}

}

}