COMPUTER GRAPHICS

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PROBLEM STATEMENT :

Write a Java program to implement DDA and Bresenham algorithm. Inherit pixel class.

CODE :

**package** cgg\_final;

**import** java.awt.\*;

**import** javax.swing.JFrame;

**import** java.lang.Math;

**public** **class** Dda **extends** JFrame

{

//int x1,y1,x2,y2;

**public** **static** **void** main(String[] args)

{

Dda d=**new** Dda();

d.setSize(600,500);

d.setTitle("DDA Algorithm");

d.setVisible(**true**);

System.***out***.println("\n\tDDA Line Genaration Algorithm");

}

**public** **void** paint(Graphics g)

{

DDA\_Algorithm(000,000,400,400,g);

}

**public** **void** DDA\_Algorithm(**int** x1,**int** y1,**int** x2,**int** y2,Graphics g)

{

**int** i,dx,dy,steps;

**int** x,y,xinc,yinc;

dx=(x2-x1);

dy=(y2-y1);

**if**(Math.*abs*(dx) > Math.*abs*(dy))

steps=dx;

**else**

steps=dy;

xinc=dx/steps;

yinc=dy/steps;

x=x1;

y=y1;

g.fillOval(x,y,3,3);

**for**(i=1;i<steps;i++)

{

**try** {

Thread.*sleep*(100);

Color c=**new** Color(((2\*i)%255),Math.*abs*((255-i)%255),Math.*abs*((0+i)%255));

g.setColor(c);

} **catch** (InterruptedException e) {

// **TODO** Auto-generated catch block

e.printStackTrace();

}

x=x+xinc;

y=y+yinc;

g.fillOval(x,y,3,3);

}

}

}

**package** cgg\_final;

**import** java.awt.\*;

**import** javax.swing.JFrame;

**import** java.lang.Math;

**import** java.lang.Thread;

**import** java.util.logging.Level;

**import** java.util.logging.Logger;

**public** **class** Bresenham **extends** JFrame

{

**public** **static** **void** main(String[] args)

{

Bresenham b=**new** Bresenham();

b.setSize(600,600);

b.setTitle("Bresenham Algorithm");

b.setVisible(**true**);

System.***out***.println("Bresenham Line Drawing Algorithm");

}

**public** **void** paint(Graphics g)

{

Bresenham\_Algo(200,200,500,200,g);

Bresenham\_Algo(500, 500, 500, 200, g);

}

**public** **void** Bresenham\_Algo(**int** x1,**int** y1,**int** x2,**int** y2,Graphics g)

{

**int** s1,s2,ex,x,y,i;

**int** dx,dy,temp,p;

dx=Math.*abs*(x2-x1);

dy=Math.*abs*(y2-y1);

x=x1;

y=y1;

s1=sign(x2-x1);

s2=sign(y2-y1);

**if**(dy>dx)

{

temp=dx;

dx=dy;

dy=temp;

ex=1;

}

**else**

ex=0;

p=(2\*dy)-dx;

i=1;

g.drawOval(x,y,1,1);

**while**(i<=dx)

{

**if**(p>=0)

{

x=x+s1;

y=y+s2;

p=p+(2\*(dy-dx));

}

**else**

{

**if**(ex==1)

y=y+s2;

**else**

x=x+s1;

p=p+2\*dy;

}

i++;

**if**(x%3==0 || y%3==0)

{

**try** {

g.drawOval(x,y,1,1);

g.setColor(Color.***red***);

Thread.*sleep*(100);

} **catch** (InterruptedException ex1) {

Logger.*getLogger*(Bresenham.**class**.getName()).log(Level.***SEVERE***, **null**, ex1);

}

}

}

}

**public** **int** sign(**int** arg)

{

**if**(arg<0)

**return** -1;

**else** **if**(arg==0)

**return** 0;

**else**

**return** 1;

}

}

OUTPUT :

