#include<iostream>

#include<graphics.h>

using namespace std;

class line

{

public:

int x1,y1,x2,y2;

void drawl(int,int,int,int);

void thick(int,int,int,int,int);

void dotted(int,int,int,int);

};

void line::thick(int x1,int y1,int x2,int y2,int w)

{

int i,dy,dx,xinc,yinc,step;

dx=x2-x1;

dy=y2-y1;

if(dy>=dx)

{

step=dy;

}

else

{

step=dx;

}

xinc=dx/step;

yinc=dy/step;

while(x1<=x2)

{

x1=x1+xinc+0.5;

y1=y1+yinc+0.5;

for(i=0;i<w;i++)

{

putpixel(x1+i,y1,BLUE);

}

}

}

void line::drawl(int x1,int y1,int x2,int y2)

{

int dx,dy,step,xinc,yinc;

dx=x2-x1;

dy=y2-y1;

if(dy>=dx)

{

step=dy;

}

else

{

step=dx;

}

xinc=dx/step;

yinc=dy/step;

putpixel(x1,y1,BLUE);

while(x1<=x2)

{

x1=x1+xinc+0.5;

y1=y1+yinc+0.5;

putpixel(x1,y1,BLUE);

}

}

void line::dotted(int x1,int y1,int x2,int y2)

{

int i=0,dx,dy,step,xinc,yinc;

dx=x2-x1;

dy=y2-y1;

if(dy>=dx)

{

step=dy;

}

else

{

step=dx;

}

xinc=dx/step;

yinc=dy/step;

putpixel(x1,y1,BLUE);

while(x1<=x2)

{

if(i%2==0)

{

putpixel(x1,y1,BLUE);

}

x1=x1+xinc+0.5;

y1=y1+yinc+0.5;

i++;

}

}

int main()

{

int gd =DETECT,gm,n,i,w;

initgraph(&gd,&gm,NULL);

class line p;

cout<<"\n Enter the coordinate of line:";

cin>>p.x1>>p.y1>>p.x2>>p.y2;

cout<<"\n Enter your choice 1.Thin line 2.Thick line 3.Dotted line:-";

cin>>i;

switch(i)

{

case 1: p.drawl(p.x1,p.y1,p.x2,p.y2);

break;

case 2:

cout<<"\n Enter the width:";

cin>>w;

p.thick(p.x1,p.y1,p.x2,p.y2,w);

break;

case 3:

p.dotted(p.x1,p.y1,p.x2,p.y2);

break;

default:

cout<<"\n Enter valid ";

}

getch();

closegraph();

}