```
#include<iostream.h>
#include<stdlib.h>
#include<math.h>
#include<graphics.h>
#include<dos.h>

typedef struct coordinate
{
int x,y;
char code[4];
}PT;

void drawwindow();
void drawline(PT p1,PT p2);
PT setcode(PT p);
int visibility(PT p1,PT p2);
PT resetendpt(PT p1,PT p2);

int main()
{
int gd=DETECT,v,gm;
PT p1,p2,p3,p4,ptemp;

cout<<"\nEnter x1 and y1\n";
cin>>p1.x>>p1.y;
cout<<"\nEnter x2 and y2\n";
cin>>p2.x>>p2.y;
```

```
initgraph(&gd,&gm,"C:\\TURBOC3\\BGI");
drawwindow();
delay(500);

drawline(p1,p2);
delay(500);
cleardevice();

delay(500);
p1=setcode(p1);
p2=setcode(p2);
v=visibility(p1,p2);
delay(500);

switch(v)
{
case 0: drawwindow();
delay(1000);
drawline(p1,p2);
break;
case 1: drawwindow();
delay(1000);
break;
case 2: p3=resetendpt(p1,p2);
p4=resetendpt(p2,p1);
drawwindow();
```

```
delay(1000);
drawline(p3,p4);
break;
}

delay(5000);
closegraph();
return 0;
}

void drawwindow()
{
line(150,100,450,100);
line(450,100,450,350);
line(450,350,150,350);
line(150,350,150,100);
}

void drawline(PT p1,PT p2)
{
line(p1.x,p1.y,p2.x,p2.y);
}

PT setcode(PT p)
{
PT ptemp;
```

```
if(p.y<100)
ptemp.code[0]='1';
else
ptemp.code[0]='0';

if(p.y>350)
ptemp.code[1]='1';
else
ptemp.code[1]='0';

if(p.x>450)
ptemp.code[2]='1';
else
ptemp.code[2]='0';

if(p.x<150)
ptemp.code[3]='1';
else
ptemp.code[3]='0';

ptemp.x=p.x;
ptemp.y=p.y;

return(ptemp);
}

int visibility(PT p1,PT p2)
```

```
{
int i,flag=0;

for(i=0;i<4;i++)
{
if((p1.code[i]!='0')||(p2.code[i]!='0'));
flag=2;
}
for(i=0;i<4;i++)
{
if((p1.code[i]==p2.code[i]) &&(p1.code[i]=='1'))
flag=1;
}
if(flag==0)
return(0);

if(flag==1)
return(1);

return(2);
}

PT resetendpt(PT p1,PT p2)
{
PT temp;
int x,y,i;
float m,k;
```

```
if(p1.code[3]=='1')
x=150;

if(p1.code[2]=='1')
x=450;

if((p1.code[3]=='1') || (p1.code[2]=='1'))
{
m=(float)(p2.y-p1.y)/(p2.x-p1.x);
k=(p1.y+(m*(x-p1.x)));
temp.y=k;
temp.x=x;

if(temp.y<=350 && temp.y>=100)
return (temp);
}

if(p1.code[0]=='1')
y=100;

if(p1.code[1]=='1')
y=350;

if((p1.code[0]=='1') || (p1.code[1]=='1'))
{
m=(float)(p2.y-p1.y)/(p2.x-p1.x);
k=(float)p1.x+(float)(y-p1.y)/m;
```

```
temp.x=k;
temp.y=y;

return(temp);
}
else
return(p1);
}
```