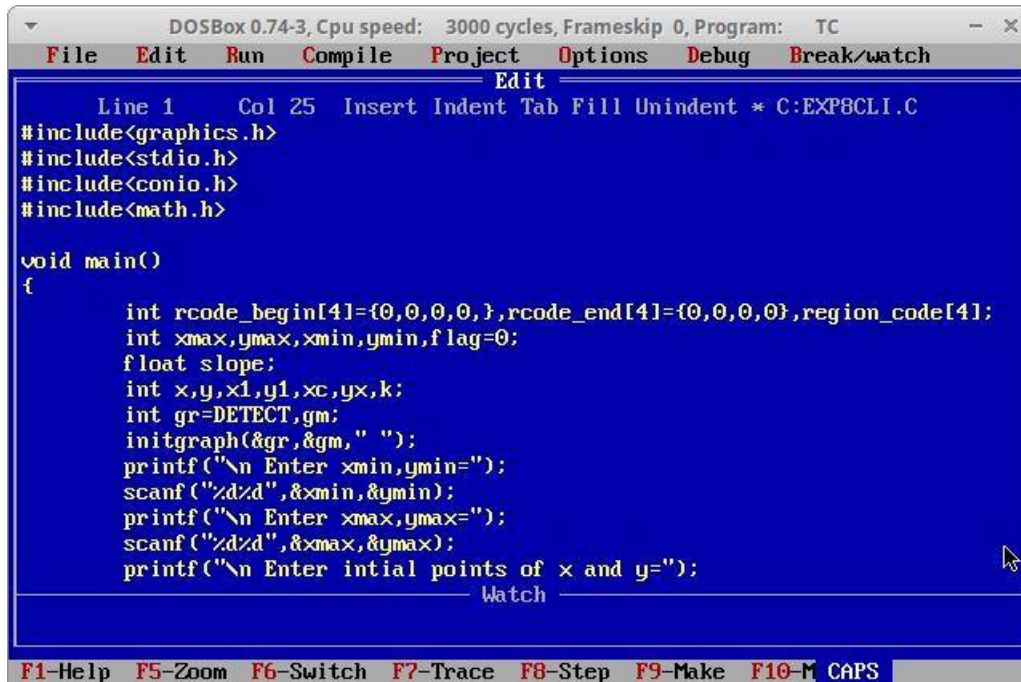
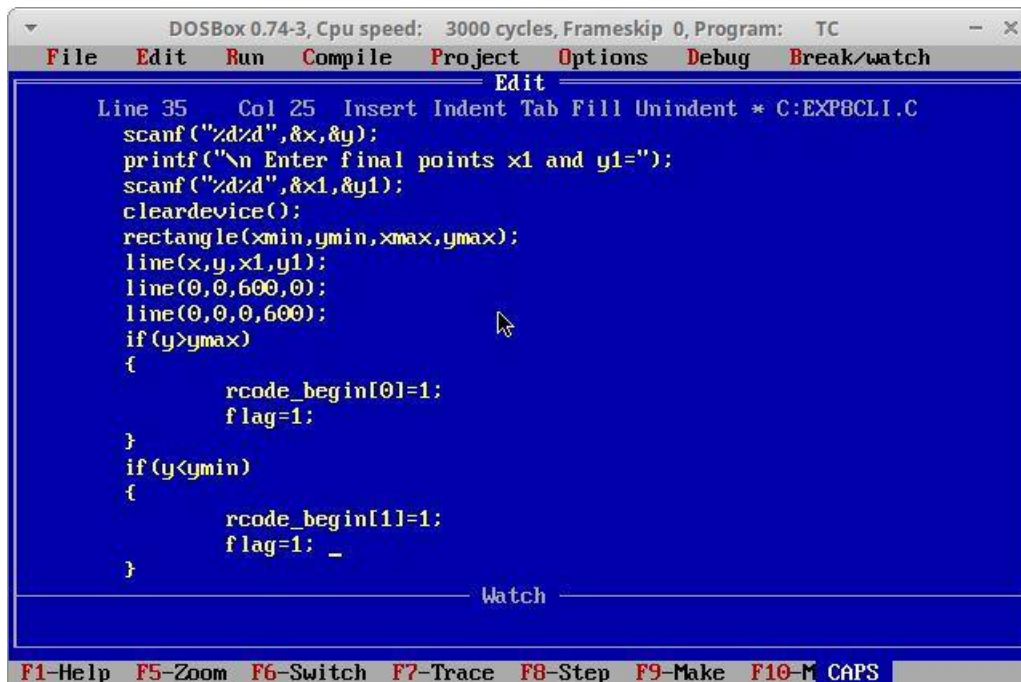


Cohen-Sutherland line clipping



```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: TC
File Edit Run Compile Project Options Debug Break/watch
Edit
Line 1 Col 25 Insert Indent Tab Fill Unindent * C:\EXP8CLI.C
#include<graphics.h>
#include<stdio.h>
#include<conio.h>
#include<math.h>

void main()
{
    int rcode_begin[4]={0,0,0,0},rcode_end[4]={0,0,0,0},region_code[4];
    int xmax,ymax,xmin,ymin,flag=0;
    float slope;
    int x,y,x1,y1,xc,yc,k;
    int gr=DETECT,gm;
    initgraph(&gr,&gm," ");
    printf("\n Enter xmin,ymin=");
    scanf("%d%d",&xmin,&ymin);
    printf("\n Enter xmax,ymax=");
    scanf("%d%d",&xmax,&ymax);
    printf("\n Enter initial points of x and y=");
    Watch
```



```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: TC
File Edit Run Compile Project Options Debug Break/watch
Edit
Line 35 Col 25 Insert Indent Tab Fill Unindent * C:\EXP8CLI.C
scanf("%d%d",&x,&y);
printf("\n Enter final points x1 and y1=");
scanf("%d%d",&x1,&y1);
cleardevice();
rectangle(xmin,ymin,xmax,ymax);
line(x,y,x1,y1);
line(0,0,600,0);
line(0,0,0,600);
if(y>ymax)
{
    rcode_begin[0]=1;
    flag=1;
}
if(y<ymin)
{
    rcode_begin[1]=1;
    flag=1;
}
Watch
```

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: TC

File Edit Run Compile Project Options Debug Break/watch

Edit

Line 53 Col 25 Insert Indent Tab Fill Unindent * C:EXP8CLI.C

```
if(x>xmax)
{
    rcode_begin[3]=1;
    flag=1;
}
if(x<xmin)
{
    rcode_begin[3]=1;
    flag=1;
}
if(y1>ymax)
{
    rcode_end[0]=1;
    flag=1;
}
if(y1<ymin)
{
    rcode_end[1]=1;
```

Watch

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-M CAPS

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: TC

File Edit Run Compile Project Options Debug Break/watch

Edit

Line 72 Col 25 Insert Indent Tab Fill Unindent * C:EXP8CLI.C

```
}
if(x1>xmax)
{
    rcode_end[2]=1;
    flag=1;
}
if(x1<xmin)
{
    rcode_end[3]=1;
    flag=1;
}
if(flag==0)
{
    printf("\n Line is completely outside the window");
}
else
{
    slope=(float)(y1-y)/(x1-x);
```

Watch

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-M CAPS

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: TC

File Edit Run Compile Project Options Debug Break/watch

Edit

```
Line 90 Col 25 Insert Indent Tab Fill Unindent * C:EXP8CLI.C
if(rcode_begin[2]==0 && rcode_begin[3]==1)
{
    y=y+(float) (xmin-x)*slope;
    x=xmin;
}
if(rcode_begin[2]==0 && rcode_begin[3]==0)
{
    y=y+(float) (xmax-x)*slope;
    xmax=x;
}
if(rcode_begin[0]==1 && rcode_begin[1]==0)
{
    x=x+(float) (ymax-y)/slope;
    y=ymax;
}
if(rcode_begin[0]==0 && rcode_end[1]==1)
{
    x=x+(float) (ymin-y)/slope;
    Watch
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-M CAPS

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: TC

File Edit Run Compile Project Options Debug Break/watch

Edit

```
Line 105 Col 25 Insert Indent Tab Fill Unindent * C:EXP8CLI.C
if(rcode_begin[0]==0 && rcode_end[1]==1)
{
    x=x+(float) (ymin-y)/slope;
    y=ymin;
}
if(rcode_end[2]==0 && rcode_end[3]==1)
{
    y1=y1+(float) (xmin-x1)*slope;
    x1=xmin;
}
if(rcode_end[2]==1 && rcode_end[3]==0)
{
    y1=y1+(float) (xmax-x1)*slope;
    x1=xmax;
}
if(rcode_end[0]==1 && rcode_end[1]==0)
{
    x1=x1+(float) (ymax-y1)/slope;
    Watch
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-M CAPS

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: TC

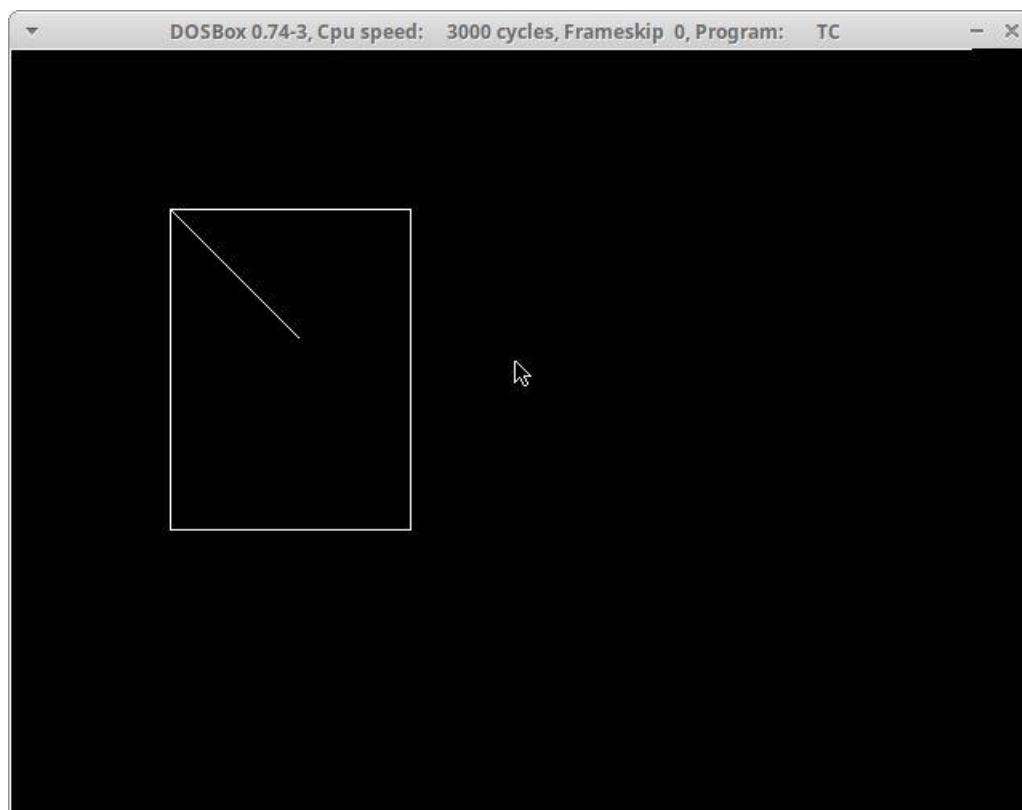
File Edit Run Compile Project Options Debug Break/watch

Edit

```
Line 122 Col 25 Insert Indent Tab Fill Unindent * C:\EXP8CLI.C
    x1=x1+(float) (ymax-y1)/slope;
    y1=ymax;
}
if(rcode_end[0]==0 && rcode_end[1]==1)
{
    x1=x1+(float) (ymin-y1)/slope;
    y1=ymin;
}
}
delay(1000);
clearviewport();
rectangle(xmin,ymin,xmax,ymax);
line(0,0,600,0);
line(0,0,0,600);
setcolor(WHITE);
line(x,y,x1,y1);
getch();
closegraph();
```

Watch

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-M CAPS



Liang-Barsky Line clipping

```
File Edit Search Run Compile Debug Project Options Window
LIANG.C
#include<stdio.h>
#include<graphics.h>
#include<math.h>

void main()
{
int i,gd=DETECT,gm;
int x1,y1,x2,y2,xmin,xmax,ymin,ymax,xx1,xx2,yy1,yy2,dx,dy;
float t1,t2,p[4],q[4],temp;
x1=120;
y1=120;
x2=300;
y2=300;
xmin=100;
ymin=100;
xmax=250;
ymax=250;
initgraph(&gd,&gm,"c:\\turbo3\\bgi");
rectangle(xmin,ymin,xmax,ymax);
dx=x2-x1;
```

```
File Edit Search Run Compile Debug Project Options Window Help
LIANG.C
dx=x2-x1;
dy=y2-y1;
p[0]=-dx;
p[1]=dx;
p[2]=-dy;
p[3]=dy;
q[0]=x1-xmin;
q[1]=xmax-x1;
q[2]=y1-ymin;
q[3]=ymax-y1;
for(i=0;i<4;i++)
{
if(p[i]==0)
{
printf("line is parallel to one of the clipping boundary");
if(q[i]>=0)
{
if(i<2)
{
if(y1<ymin)
{
4:18
F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu
```



```
File Edit Search Run Compile Debug Project Options Window Help
LIANG.C 1=[+]
{
printf("line is parallel to one of the clipping boundary");
if(q[i]>=0)
{
if(i<2)
{
if(y1<ymin)
{
y1=ymin;
}
if(y2>ymax)
{
y2=ymax;
}
line(x1,y1,x2,y2);
}
if(i>1)
{
if(x1<xmin)
{
x1=xmin;
}
}
}
}
* 31:78
```

F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu

```
File Edit Search Run Compile Debug Project Options Window Help
LIANG.C 1=[+]
if(x1<xmin)
{
x1=xmin;
}
if(x2>xmax)
{
x2=xmax;
}
line(x1,y1,x2,y2);
}
}
}
}
t1=0;
t2=1;
for(i=0;i<4;i++)
{
temp=q[i]/p[i];
if(p[i]<0)
{
if(t1<=temp)
{
}
}
}
}
* 31:78
```

F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu

```
for(i=0;i<4;i++)
{
temp=q[i]/p[i];
if(p[i]<0)
{
if(t1<=temp)
t1=temp;
}
else
{
if(t2>temp)
t2=temp;
}
}
if(t1<t2)
{
xx1 = x1 + t1 * p[1];
xx2 = x1 + t2 * p[1];
yy1 = y1 + t1 * p[3];
yy2 = y1 + t2 * p[3];
line(xx1,yy1,xx2,yy2);
}
* 86:41 *
```

```
File Edit Search Run Compile Debug Project Options Window Help
LIANG.C 1=[+]
t2=temp;
}
}
if(t1<t2)
{
xx1 = x1 + t1 * p[1];
xx2 = x1 + t2 * p[1];
yy1 = y1 + t1 * p[3];
yy2 = y1 + t2 * p[3];
line(xx1,yy1,xx2,yy2);
}
delay(5000);
closegraph();
}
* 86:41 *
```

F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu

