Program for DDA Line Drawing Algorithm in C

```
#include <graphics.h>
#include <stdio.h>
#include <math.h>
#include <dos.h>

void main( )
{
float x,y,x1,y1,x2,y2,dx,dy,step;
int i,gd=DETECT,gm;

initgraph(&gd,&gm,"c:\\turboc3\\bgi");

printf("Enter the value of x1 and y1 : ");
scanf("%f%f",&x1,&y1);
printf("Enter the value of x2 and y2: ");
scanf("%f%f",&x2,&y2);

dx=abs(x2-x1);
dy=abs(y2-y1);

if(dx>=dy)
step=dx;
else
step=dy;

dx=dx/step;
dy=dy/step;

x=x1;
y=y1;

i=1;
while(i<=step)
{
putpixel(x,y,5);
x=x+dx;
y=y+dy;
i=i+1;
delay(100);
}

closegraph();
}
```

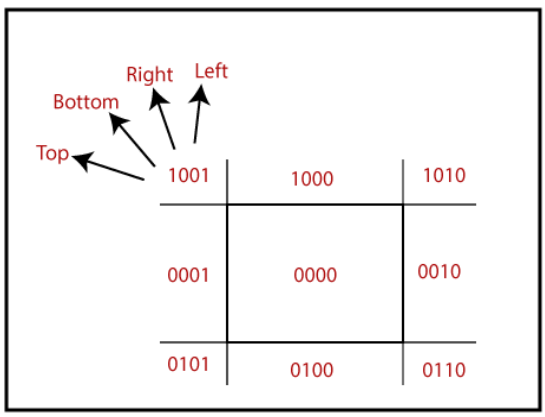
Program in C to implement scaling of a triangle

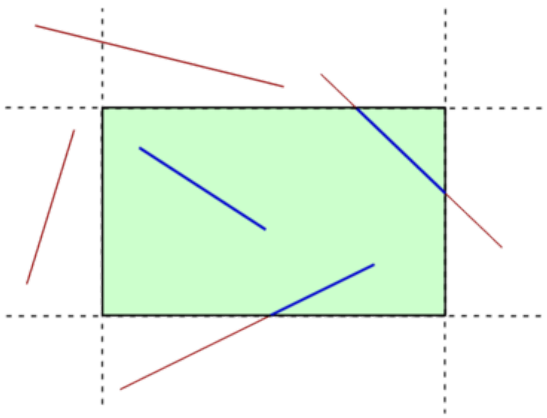
```
include<stdio.h>

#include<conio.h>
#include<graphics.h>
#include<process.h>
#include<math.h>


int x1,y1,x2,y2,x3,y3,mx,my;
void draw();
void scale();
void main()
{
int gd=DETECT,gm;
int c;
initgraph(&gd,&gm," ");
printf("Enter the 1st point for the triangle:");
scanf("%d%d",&x1,&y1);
printf("Enter the 2nd point for the triangle:");
scanf("%d%d",&x2,&y2);
printf("Enter the 3rd point for the triangle:");
scanf("%d%d",&x3,&y3);
draw();
scale();
}

void draw()
{
line(x1,y1,x2,y2);
line(x2,y2,x3,y3);
line(x3,y3,x1,y1);
}
void scale()
{
int x,y,a1,a2,a3,b1,b2,b3;
int mx,my;
printf("Enter the scalling coordinates");
scanf("%d%d",&x,&y);
mx=(x1+x2+x3)/3;
my=(y1+y2+y3)/3;
cleardevice();
a1=mx+(x1-mx)*x;
b1=my+(y1-my)*y;
```

```
a2=mx+(x2-mx)*x;
b2=my+(y2-my)*y;
a3=mx+(x3-mx)*x;
b3=my+(y3-my)*y;
line(a1,b1,a2,b2);
line(a2,b2,a3,b3);
line(a3,b3,a1,b1);
draw();
getch();
}
```

Line Clipping:

In computer graphics line clipping is the process of removing lines or portion of lines outside an area of interest. Any line or part thereof which is outside the viewing area is removed.





Polygon Clipping:

Polygon clipping is a process in which we only consider the part which is inside the window. we will remove or clip the part that is outside the window.