Practical 4

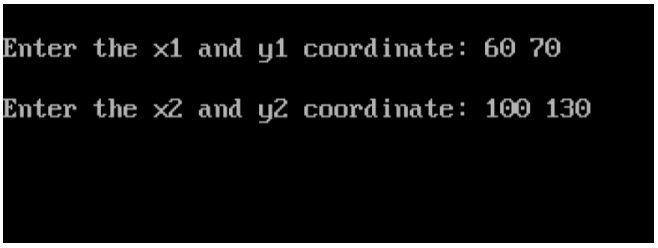
a. Develop the program for DDA Line drawing algorithm.

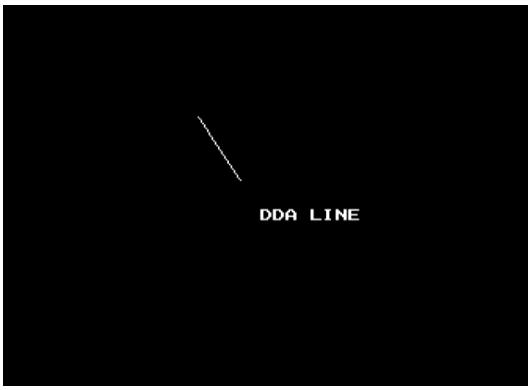
CODE:

```
#include<stdio.h>
#include<conio.h>
#include<graphics.h>
#include<math.h>
#include<dos.h>
void main()
{
	int gd=DETECT,gm;
	float x1,y1,x2,y2,i,dx,dy,m;
	printf("\nEnter the x1 and y1 coordinate: ");
	scanf("%f%f",&x1,&y1);
	printf("\nEnter the x2 and y2 coordinate: ");
	scanf("%f%f",&x2,&y2);
	m=(y2-y1)/(x2-x1);
	initgraph(&gd,&gm,"C:\\TC\\BGI");
	for(i=x1;i<=x2;i++)
	{
		if(m<1)
		{
			dx=x1+1;
			dy=y1+m;
		}
		else if(m>1)
		{
			dx=x1+(1/m);
			dy=y1+1;
		}
		else
		{
			dx=x1+1;
			dy=y1+1;
		}
		abs(dx);
		abs(dy);
		putpixel(dx,dy,15);
		x1=dx;
		y1=dy;
		delay(50);
	}
```

```
        outtextxy(x2,y2,"DDA LINE");
        getch();
        closegraph();}
```

OUTPUT:





b. Develop the program forBresenham's Line drawing algorithm.

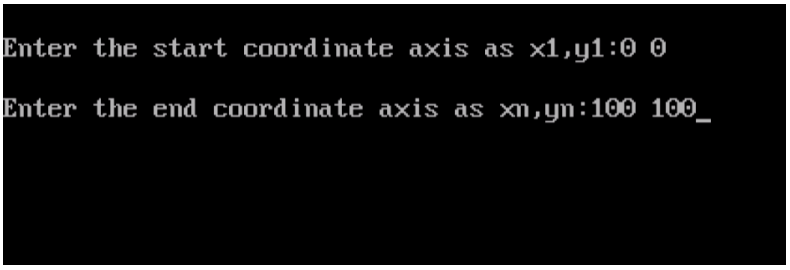
CODE:

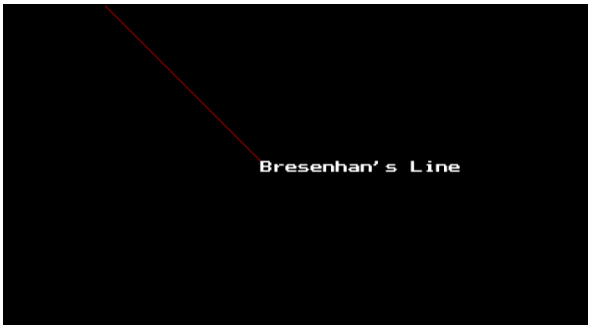
```
#include<graphics.h>
#include<conio.h>
#include<stdio.h>
void main()
{
        int gd=DETECT,gm;
        float x1,y1,xn,yn,dx,dy,di,ds,dt,m;
        printf("\nEnter the start coordinate axis as x1,y1:");
        scanf("%f%f",&x1,&y1);
        printf("\nEnter the end coordinate axis as xn,yn:");
        scanf("%f%f",&xn,&yn);
        initgraph(&gd,&gm,"C:\\TC\\BGI");
        dx=xn-x1;
        dy=yn-y1;
        m=dy/dx;
        if(m<1)
```

```
{
        di=2*dy-dx;
        ds=2*dy;
        dt=2*(dy-dx);
        putpixel(x1,y1,WHITE);
        while(x1<xn)
        {
                x1=x1+1;
                if(di<0)
                di=di+ds;
                else
                {
                        y1=y1+1;
                        di=di+dt;
                }
        putpixel(x1,y1,CYAN);
        }
}
else if(m>1)
{
        di=2*dx-dy;
        ds=2*dx;
        dt=2*(dx-dy);
        putpixel(x1,y1,BROWN);
        while(x1<xn)
        {
                y1=y1+1;
                if(di<0)
                di=di+ds;
                else
                {
                        x1=x1+1;
                        di=di+dt;
                }
                putpixel(x1,y1,BLUE);
        }
}
else
{
while(x1<xn){
x1=x1+1;
y1=y1+1;
putpixel(x1,y1,RED);}
```

```
}
outtextxy(xn,xn,"Bresenhan's Line");
getch();
closegraph();
}
```

OUTPUT:





PRACTICAL 6

6A WRITE A PROGRAM TO IMPLEMENT 2D SCALING

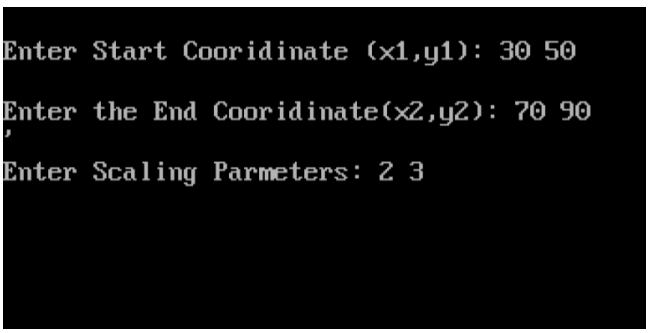
A1 WRITE A PROGRAM TO SCALE 2D LINE

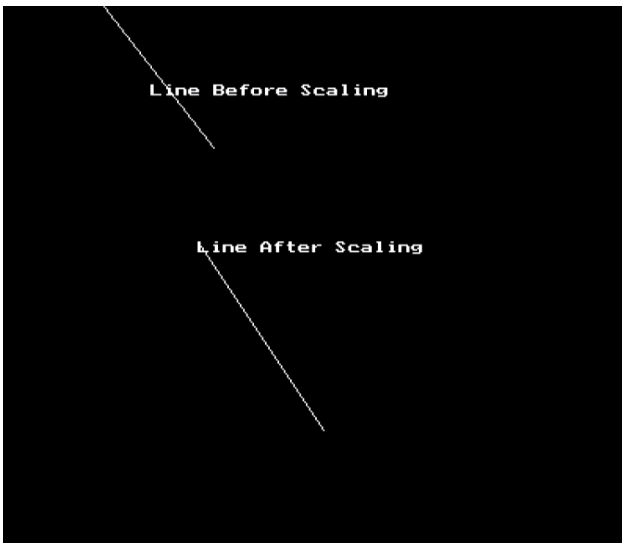
CODE:

```
#include<conio.h>
#include<stdio.h>
#include<graphics.h>
void main()
{
        float x1,x2,y1,y2,sx,sy;
        int gd=DETECT,gm;
        printf("\nEnter Start Cooridinate (x1,y1): ");
        scanf("%f%f",&x1,&y1);
        printf("\nEnter the End Cooridinate(x2,y2): ");
        scanf("%f%f",&x2,&y2);
        printf("'\nEnter Scaling Parmeters: ");
        scanf("%f%f",&sx,&sy);
        initgraph(&gd,&gm,"C:\\TC\\BGI");
        line(x1,y2,x2,y2);

        outtextxy(x1,y1,"Line Before Scaling");
        x1=x1*sx;
        y1=y1*sy;
        x2=x2*sx;
        y2=y2*sy;
        line(x1,y1,x2,y2);
        outtextxy(x1,y1,"Line After Scaling");
        getch();
        closegraph();
}
```

OUTPUT:





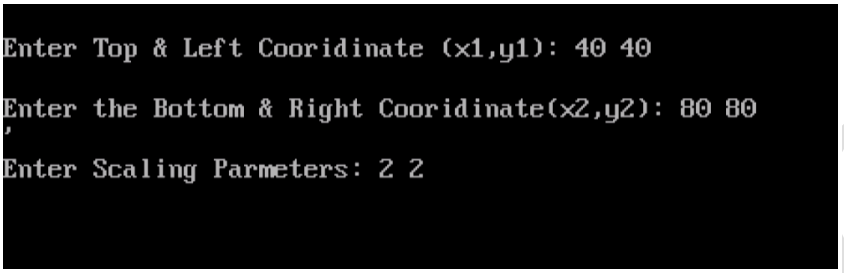
A2 WRITE A PROGRAM TO SCALE 2D SQUARE

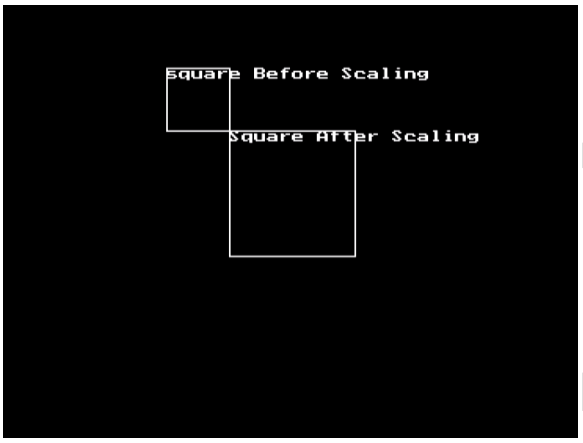
CODE:

```
#include<conio.h>
#include<stdio.h>
#include<graphics.h>
void main()
{
        float x1,x2,y1,y2,sx,sy;
        int gd=DETECT,gm;
        printf("\nEnter Top & Left Cooridinate (x1,y1): ");
        scanf("%f%f",&x1,&y1);
        printf("\nEnter the Bottom & Right Cooridinate(x2,y2): ");
        scanf("%f%f",&x2,&y2);
        printf("'\nEnter Scaling Parmeters: ");
        scanf("%f%f",&sx,&sy);
        initgraph(&gd,&gm,"C:\\TURBOC3\\BGI");
        rectangle(x1,y1,x2,y2);
        outtextxy(x1,y1,"Square Before Scaling");
        x1=x1*sx;
        y1=y1*sy;
        x2=x2*sx;
        y2=y2*sy;
        rectangle(x1,y1,x2,y2);
```

```
        outtextxy(x1,y1,"Square After Scaling");
        getch();
        closegraph();
}
```

OUTPUT:





6B: WRITE A PROGRAM TO IMPLEMENT 2D Translation

B1 WRITE A PROGRAM TO IMPLEMENT 2D Translation on a line

CODE:

```
#include<stdio.h>
#include<conio.h>
#include<graphics.h>
void main()
{
        int gd=DETECT,gm;
        float Tx,Ty,x1,y1,x2,y2;
        printf("Enter the coordinates(x1,y1):");
```

```
        scanf("%f%f",&x1,&y1);
        printf("Enter the second coordinations(x1,y2)");
        scanf("%f%f",&x2,&y2);
        printf("Enter the translation parameter(Tx,Ty)");
        scanf("%f%f",&Tx,&Ty);
        initgraph(&gd,&gm,"C:\\TC\\BGI");
        line(x1,y1,x2,y2);
        outtextxy(x1,y1,"Before Translation");
        x1=x1+Tx;
        y1=y1+Ty;
        x2=y2+Tx;
        y2=y2+Ty;
        line(x1,y1,x2,y2);
        outtextxy(x2,y2,"After Translation");
        getch();
        closegraph();
}
```

OUTPUT: