**EXP NO 4 : MIDPOINT ELLIPSE ALGO**

#include<stdio.h>

#include<graphics.h>

int main()

{

long x,y,x\_center,y\_center;

long a\_sqr,b\_sqr,fx,fy,d,a,b,tmp1,tmp2;

int g\_driver=DETECT,g\_mode;

initgraph(&g\_driver,&g\_mode,"");

printf("\*MID POINT ELLIPSE\*");

printf("\n Enter coordinate x = ");

scanf("%ld",&x\_center);

printf(" Enter coordinate y = ");

scanf("%ld",&y\_center);

printf("\n Now Enter constants a =");

scanf("%ld",&a,&b);

printf(" Now Enter constants b =");

scanf("%ld",&b);

x=0;

y=b;

a\_sqr=a\*a;

b\_sqr=b\*b;

fx=2\*b\_sqr\*x;

fy=2\*a\_sqr\*y;

d=b\_sqr-(a\_sqr\*b) + (a\_sqr\*0.25);

do

{

putpixel(x\_center+x,y\_center+y,1);

putpixel(x\_center-x,y\_center-y,1);

putpixel(x\_center+x,y\_center-y,1);

putpixel(x\_center-x,y\_center+y,1);

if(d<0)

{

d=d+fx+b\_sqr;

}

else

{

y=y-1;

d=d+fx+-fy+b\_sqr;

fy=fy-(2\*a\_sqr);

}

x=x+1;

fx=fx+(2\*b\_sqr);

delay(10);

}

while(fx<fy);

tmp1=(x+0.5)\*(x+0.5);

tmp2=(y-1)\*(y-1);

d=b\_sqr\*tmp1+a\_sqr\*tmp2-(a\_sqr\*b\_sqr);

do

{

putpixel(x\_center+x,y\_center+y,1);

putpixel(x\_center-x,y\_center-y,1);

putpixel(x\_center+x,y\_center-y,1);

putpixel(x\_center-x,y\_center+y,1);

if(d>=0)

d=d-fy+a\_sqr;

else

{

x=x+1;

d=d+fx-fy+a\_sqr;

fx=fx+(2\*b\_sqr);

}

y=y-1;

fy=fy-(2\*a\_sqr);

}

while (y>0);

getch();

closegraph();

}