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EXPERIMENT - 1

Aim : To produce a single Pixel and Paespecify Pattern on screen

```
#include <graphics.h>
#include <stdio.h>
#include <conio.h>
  void main
  {
   int gd = DETECT, gm, color;
   initgraph (&gd, &gm, "c:\\Turbo C3\\BGI");
   Putpixel (85, 35, GREEN);
   PutPixel (30, 40, RED);
   Putpixel (115, 50, YELLOW);
   Putpixel (135, 50, CYAN);
   Putpixel (45, 60, BLUE);
   Putpixel (20, 100, WHITE);
   Putpixel (200, 100, LIGHT BLUE);
   Putpixel (150, 100, LIGHT GREEN);
   Putpixel (200, 50, YELLOW);
   Putpixel (120, 70, RED);
   getch ();
   closegraph ();
  }
```

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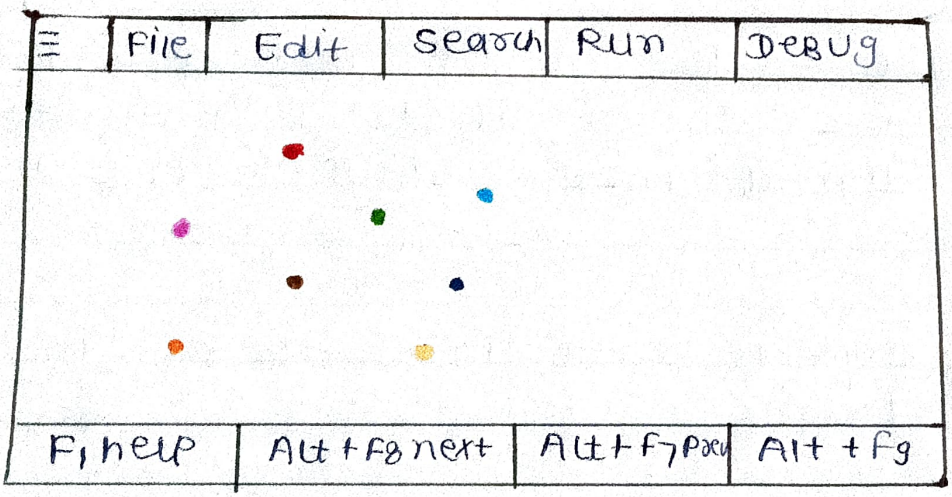
output :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EXPERIMENT-2

Aim : To draw a Straight line using DDA Algorithm.

Aim : SHG 1 & 5 : Draw a line having $(X_1 < X_2)$ using DDA Algo having Slope < 1

SHG 2 & 6 : Draw a line having $(X_1 < X_2)$ using DDA Algorithm having Slope > than 1

SHG 3 & 7 : Draw a line using $(X_1 > X_2)$ using DDA Algo. having Slope < than 1

SHG 4 : Draw a line having $(X_1 > X_2)$ using DDA Algo. having Slope > than 1

Algorithm :

1. Accept two end Point as (X_1, Y_1) and (X_2, Y_2)
2. find $dx = X_2 - X_1$ and $dy = Y_2 - Y_1$ and $M = abs(dy/dx)$
3. The deference with the greater magnitude determines the value of the Parameter size. if abs (dx) > abs (dy) then size = abs (dx) otherwise the size = abs (dy).
4. Start from the Pixel (X_1, Y_1) and determine increment or decrement which is needed to generate the next Pixel at each step.

```
#include<stdio.h>
void main()
{
int gd = DETECT, gm, i;
float x, y, dx, dy, steps;
int x0, x1, y0, y1;
initgraph(&gd, &gm, "C:\\TC\\BGI");
SetbkColor(WHITE);
x0=100, y0=200, x1=500, y1=300;
dx = (float)(x1-x0);
dy = (float)(y1-y0);
if (dx>=dy)
{
steps=dx;
}
else
{
steps = dx;
}
else
{
Steps = dy;
}
dx = dx/steps;
dy = dy/steps;
x=x0;
y=y0;
```

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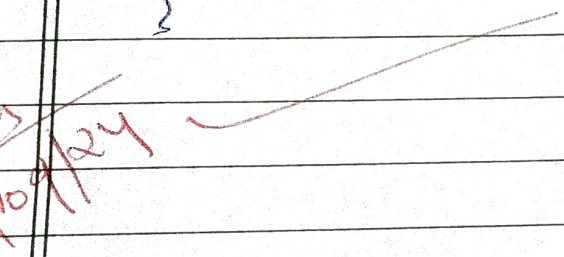
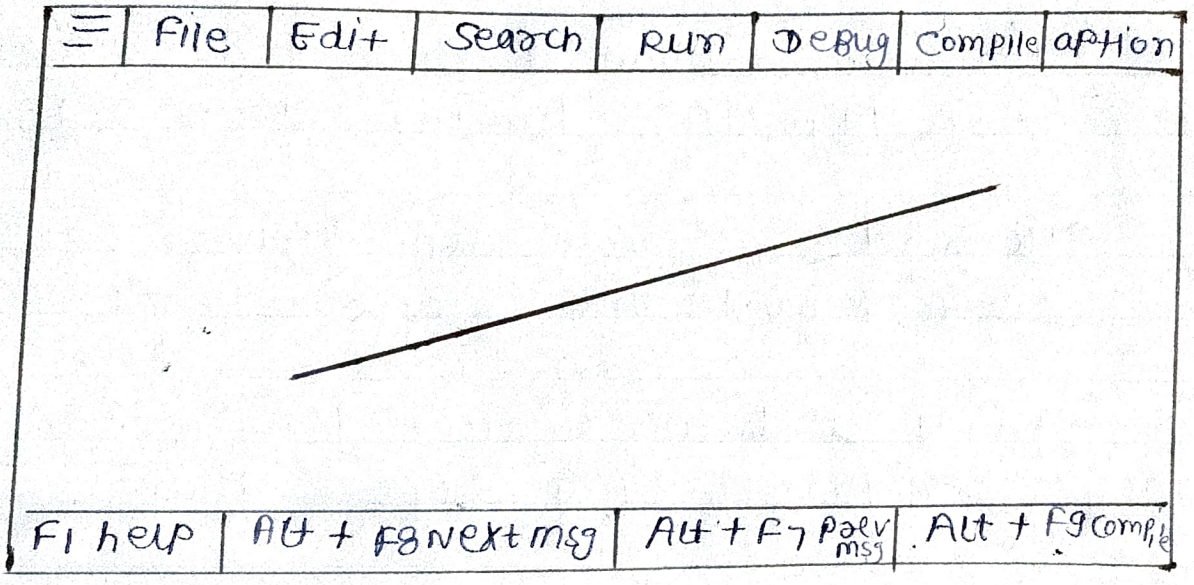
```
i=1;
while (i<=steps)
{
putpixel (x,y, Black);
 x+ = dx;
y+ = dy;
  i = i+1;
}
 getch ();
 closegraph ();
}
```



output :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PROGRAM-9

Aim : Implement of line, circle and ellipse attribute.

1. To Draw a line ⇒

```
#include <stdio.h>
#include <conio.h>
#include <graphics.h>
int main() {
int gm, = DETECT, gd, err;
initgraph (&gm, &gd, "C:\\TCBO C7\\BGI");
err = graphresult();
if (err! = grOk) {
Printf (" graphics Result %. & ", grapherrormsg (err));
getch();
exi
}
line (100, 200, 100, 100)
getch();
Closegraph();
return 0;
}
```

2. To draw a circle ⇒

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

```
int main () {
int gd = DETECT, gm;
init graph (&gd, &gm, " C:\\ TURBO C7 \\ BGI ");
circle (200, 200, 100);
getch ();
close graph ();
return 0;
}
```

3. To draw an ellipse

```
# include <stdio.h>
# include <graphics.h>
# include <conio.h>
  int main () {
  int gd = DETECT, gm;
  init graph (&gd, &gm, " C:\\ TC \\ BGI ");
  x = getmaxx () / 2
  y = getmaxy () / 2
  ellipse (x, y,
  getch ();
  closegraph ();
  return 0;
  }
```

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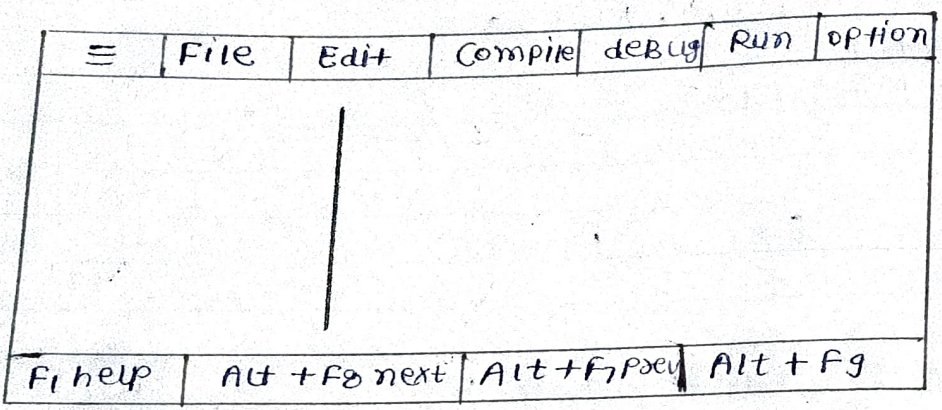
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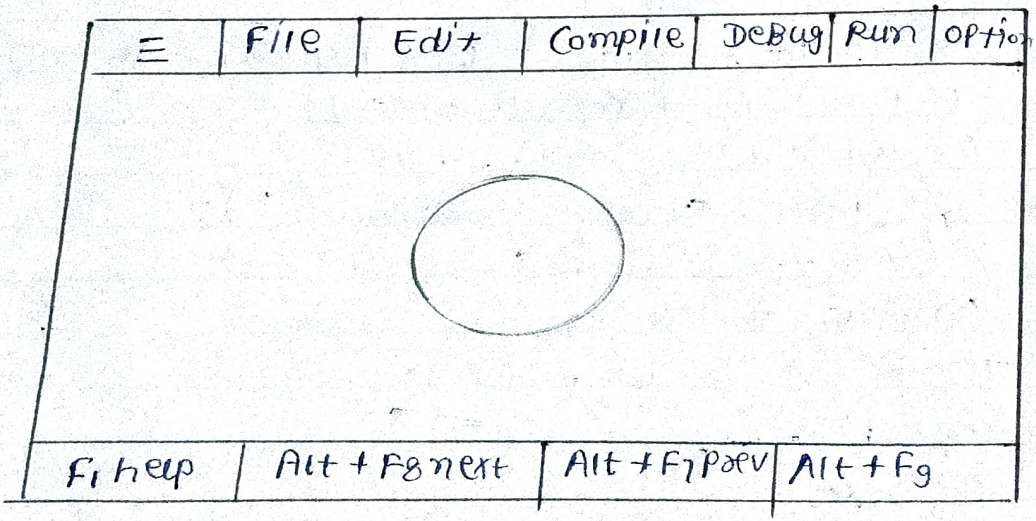
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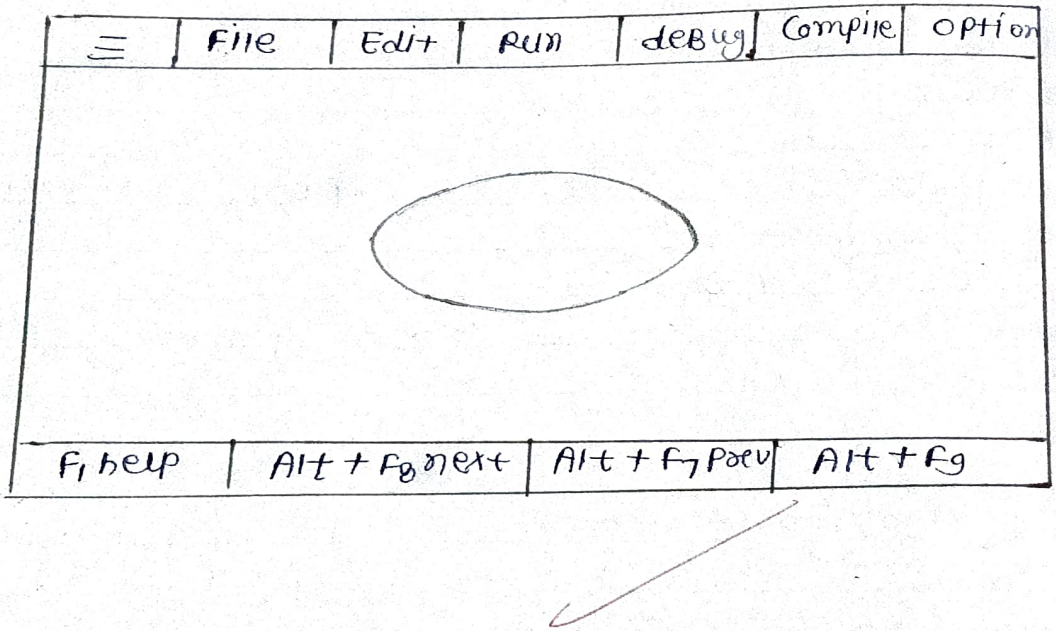
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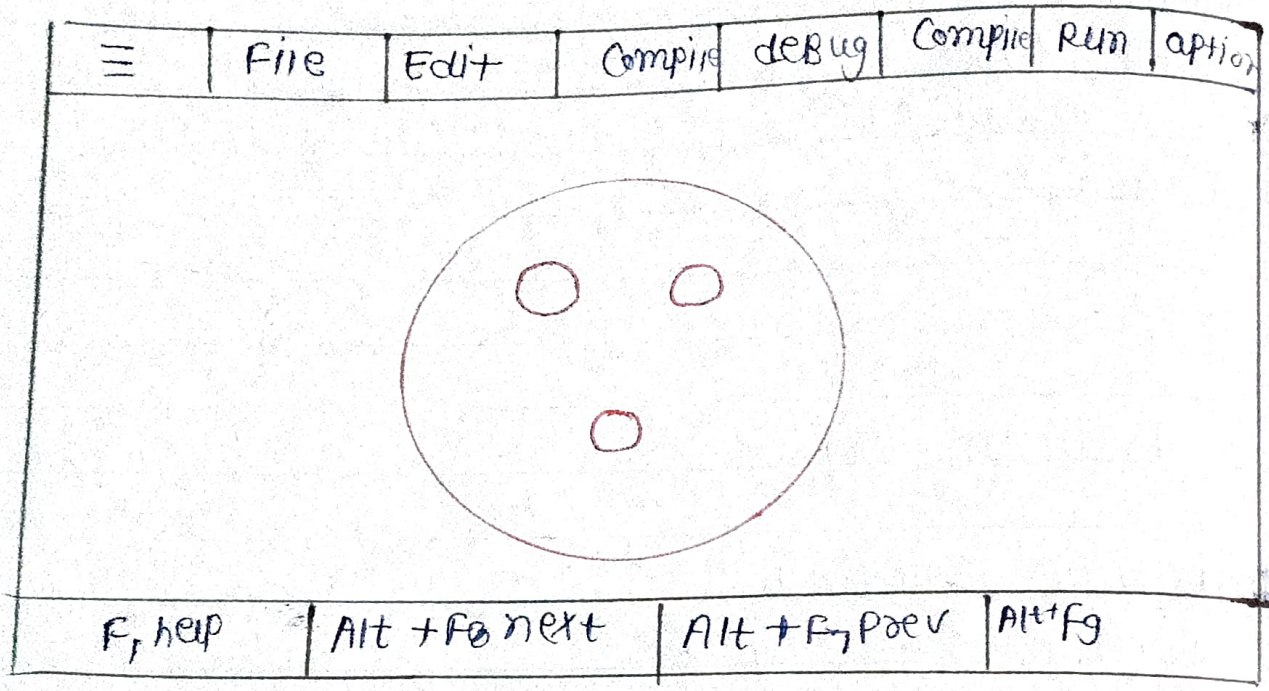
PROGRAM-5

Aim: Implement mid point circle drawing Algorithm

```
# include <stdio.h>
# include <conio.h>
# include <graphics.h>
  Void cir (int xm, int ym, int r) {
  int x, y, dp;
  x=0, y=r, dp=1-r;
  do {
  Putpixel (xm+x, ym+y, RED);
  Putpixel (xm+y, ym+x, RED);
  Putpixel (xm-y, ym+x, RED);
  Putpixel (xm-x, ym+y, RED);
  Putpixel (xm-x, ym-y, RED);
  Putpixel (xm-y, ym-x, RED);
  Putpixel (xm+y, ym-x, RED);
  Putpixel (xm+x, ym-y, RED);
  if (dp <0) {
     dp += (2*dx+1)
  }
  else {
     y--;
    dp += (2*dx - 2dy +1);
  }
   x++;
}
while (y>x)
```

```
    getch();
}
    int main() {
    int gd = DETECT, gm;
    initgraph(&gd, &gm, "C:\\TC\\BGI");
    circle(300, 200, 80);
    circle(270, 170, 5);
    circle(330, 170, 5);
    circle(300, 230, 10);
    getch();
    closegraph();
    return 0;
}
```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PROGRAM-6

Aim: Write a program to draw ellipse using mid Point

```
#include<stdio.h>
#include<graphics.h>
#include<conio.h>
#include<dos.h>
void main(){
long x,y, x-center, y-center;
long a-sqr, b-sqr, fx, fy, d, a, b, temp1, temp2;
int g-drive = DETECT (T, g-mode);
initgraph (& sg-driver, sg-mode, " ");
Printf ("\n\n mid point ellipse algorithm ....");
Printf ("\n Enter Coordinate x & y = ");
Scanf ("\n Now enter constant a & b = ");
scanf ("%d %d", &a, &b);
x = 0;
y = b;
a-sqr = a*a;
b-sqr = b*b;
Fx = 2*b - sqr * x;
fy = 2*a - sqr * y;
Putpixel (x-center + x, y-center + y, BLUE);
Putpixel (x-center - x, y-center - y, BLUE);
Putpixel (x-center - x, y-center + y, BLUE);
if (d<0) {
    d = d + fx + b-sqr }
}
```

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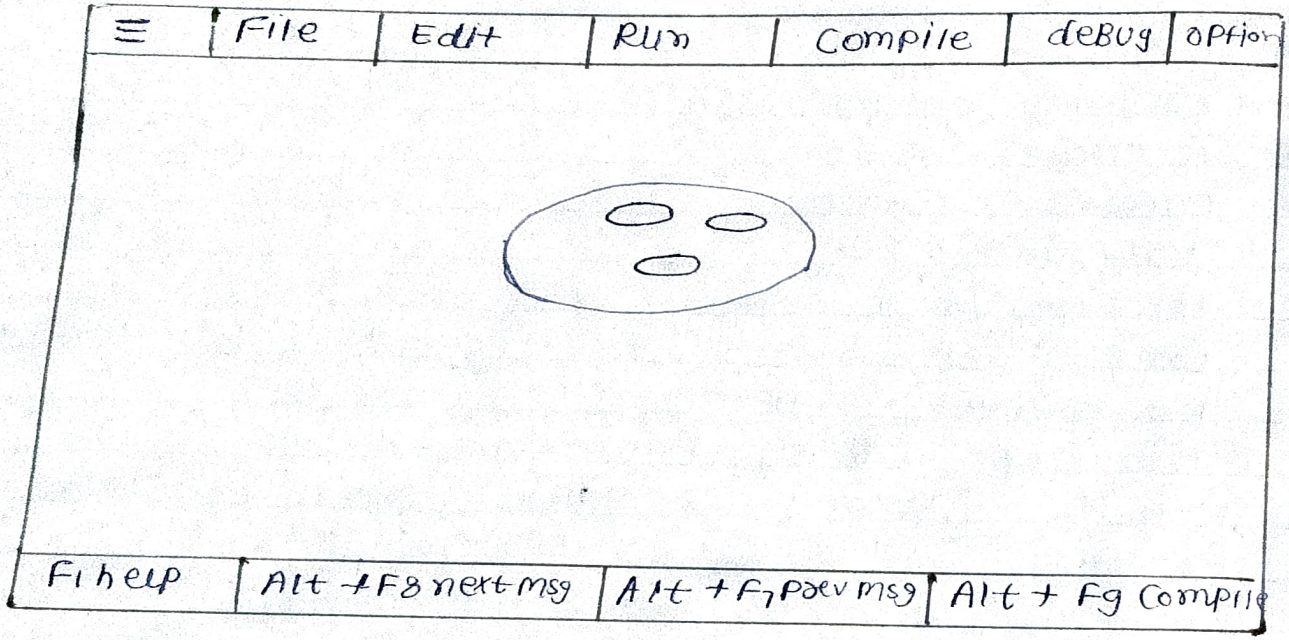
```
else {
    y = y-1
    d = d + fx + 1 + fy + b - sqr;
    fy = fy - (2*a - sqr);
}
    x = x+1;
    fx = fx + (2*b - sqr)
    delay (10);
}
while (fx < fy)
temp1 = (x + 0.5) * (x + 0.5);
temp2 = (y-1) * (y-1);
 d = b - sqr * temp1 + a - sqr * temp2 - (a - sqr * b - sqr);
do {
Putpixel (x - center + x, y - center + y, Blue);
Putpixel (x - center - x, y - center - y, Blue);
Putpixel (x - center + x, y - center - y, Blue);
Putpixel (x - center - x, y - center + y, Blue);
if (d >= 0) {
    d = d - fy + a - sqr;
else
    d = d + fx - fy + a - sqr
    fx = fx + (2*b - sqr);
}
    y = y-1;
    fy = fy - (2*a - sqr);
} while (y > 0);
    getch ();
    closegraph ();
```

output :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