

Name - Laxmikant S Babaleshwar
Class - SE -AI&DS- C1
Roll No - 20

//Program 3 To draw Pattern by using DDA Line drawing & Bresenham circle drawing algorithm

```
#include<graphics.h>
void drawCircle(int xc, int yc, int x, int y)
{
    putpixel(xc+x, yc+y, WHITE);
    putpixel(xc-x, yc+y, WHITE);
    putpixel(xc+x, yc-y, WHITE);
    putpixel(xc-x, yc-y, WHITE);
    putpixel(xc+y, yc+x, WHITE);
    putpixel(xc-y, yc+x, WHITE);
    putpixel(xc+y, yc-x, WHITE);
    putpixel(xc-y, yc-x, WHITE);
}
void circleBres(int xc, int yc, int r)
{
    int x = 0, y = r;
    int d = 3 - 2 * r;
    drawCircle(xc, yc, x, y);
    while (y >= x)
    {
        x++;
        if (d > 0)
        {
            y--;
            d = d + 4 * (x - y) + 10;
        }
        else
            d = d + 4 * x + 6;
        drawCircle(xc, yc, x, y);
        delay(10);
    }
}
void dda(int x0,int y0,int x1,int y1)
{
    int i;
    float x, y,dx,dy,steps,xin,yin;
    dx = (float)(x1 - x0);
    dy = (float)(y1 - y0);
    if(dx>=dy)
```

```

    {
        steps = dx;
    }
    else
    {
        steps = dy;
    }
    xin = dx/steps;
    yin = dy/steps;
    x = x0;
    y = y0;
    for(int i=1; i<=steps;i++)
    {
        putpixel(x, y, WHITE);
        x =x + xin;
        y =y + yin;
    }
}
int main()
{
    int xc = 100, yc = 70, r = 30;
    int xc1 = 100, yc1 = 70, r1 = 60;
    int x1 = 50 , y1 = 100, x2 = 150, y2 = 100,x3= 100, y3=10;
    int gd = DETECT, gm;
    initgraph(&gd, &gm, NULL);
    circleBres(xc, yc, r);
    circleBres(xc1, yc1, r1);
    dda(x1,y1,x2,y2);
    dda(x1,y1,x3,y3);
    dda(x3,y3,x2,y2);
    delay(50000);
    return 0;
}

```

COMMAND :-

```
(base) oem@ubuntu6:~$ gcc p3.cpp -o p3 -lgraph  
(base) oem@ubuntu6:~$ ./p3
```

OUTPUT:-

