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Course :- BCA   Sec :- B

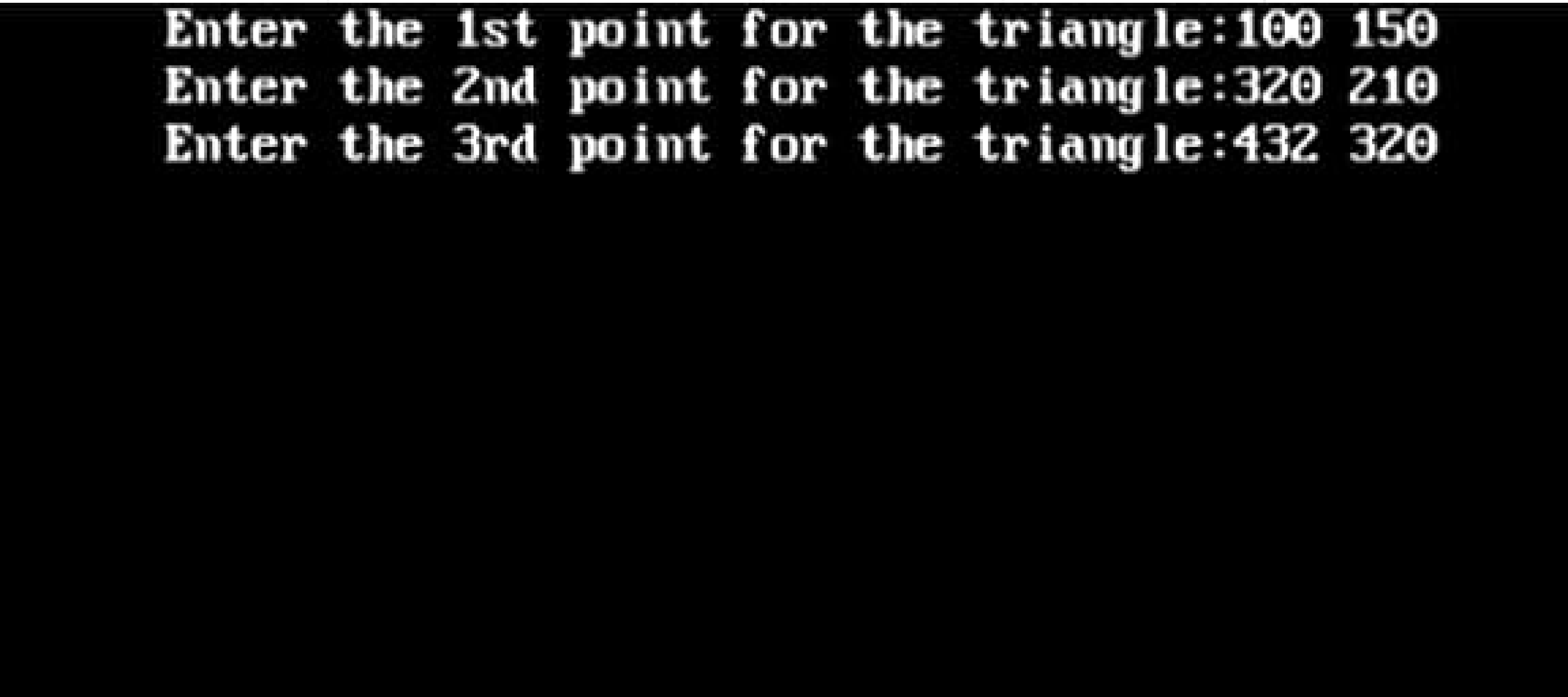
Roll no :- 1121135   (5-4)

Subject :- Computer Graphics and Animation

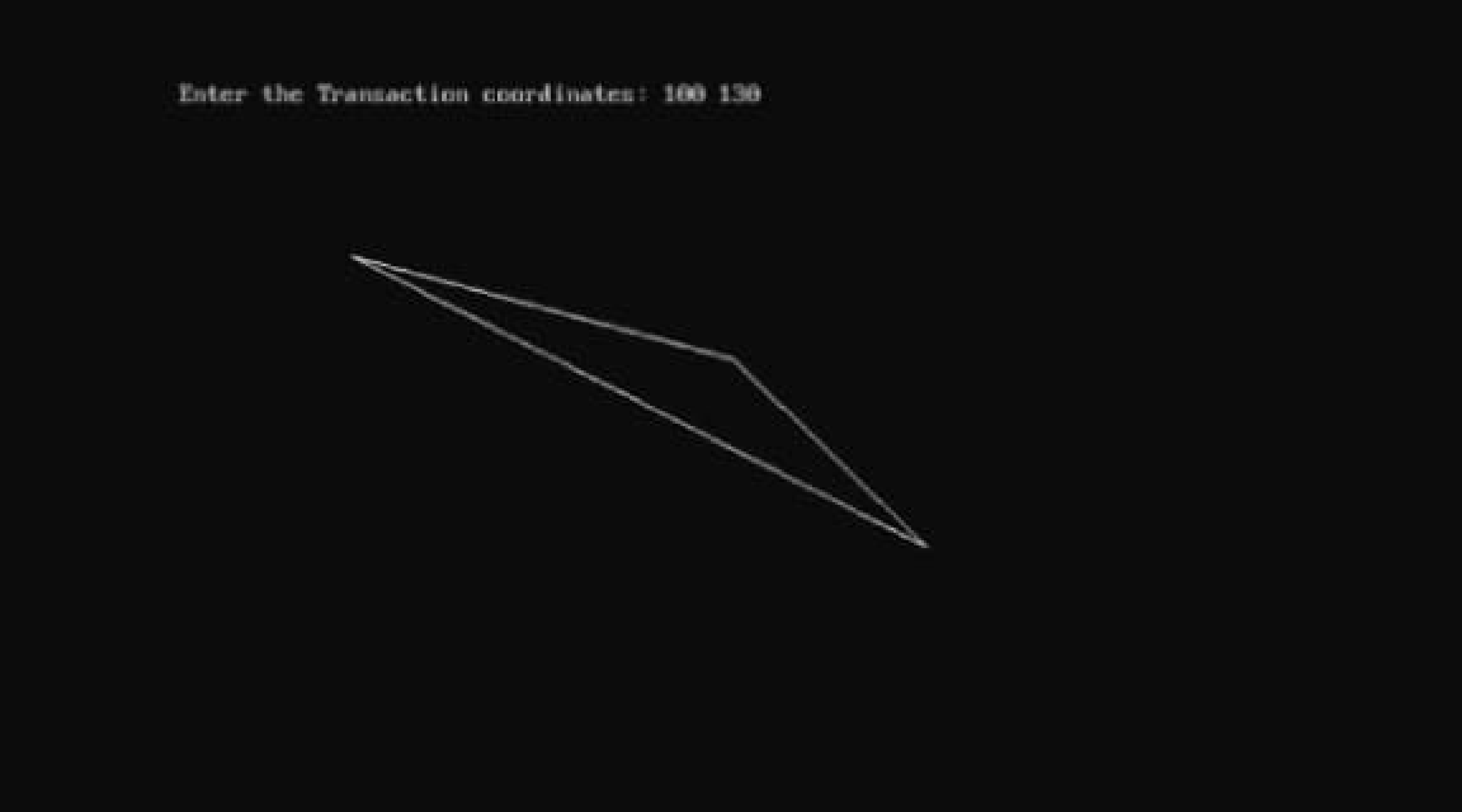
Set B

P2

```
#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 tri();

void main()
{
    int gd = DETECT, gm;
    int c;
    initgraph(&gd, &gm, "");
    printf("Enter 1st point for the triangle");
    scanf("%d %d", &x1, &y1);
    Printf(" Enter 2nd point ");
    Scanf(" %d %d", &x2, &y2);
    printf("Enter 3rd point ");
    scanf("%d %d", &x3, &y3);
    Clear device ();
    draw ();
    getch ();
    tri ();
    getch ();
}

 void draw ()~~{~~
  {
     line (x1, y1, x2, y2);
     line (x2, y2, x3, y3);
     line (x3, y3, x1, y1);
  }

 Void tri ()
  {
     int x, y, a1, a2, a3, b1, b2, b3;
     printf (" Enter transition coordinates ");
     scanf (" %d %d" , &x, &y);
     Clear device();
     a1 = x1 + x;
     b1 = y1 + y;
     a2 = x2 + x;
     b2 = y2 + y;
     a3 = x3 + x;
     b3 = y3 + y;
     line (a1, b1, a2, b2);
     line (a2, b2, a3, b3);
     line (a3, b3, a1, b1);
}
```



```
Enter the 1st point for the triangle:100 150
Enter the 2nd point for the triangle:320 210
Enter the 3rd point for the triangle:432 320
```



```
Enter the Transaction coordinates: 100 130
```

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P 3

Algo

```
Step 1> Start
Step 2> Declare p, q, x, y, r, d variables
        p, q are coordinates of the center of circle
        r is the radius of the circle
Step 3> Enter the value of r
Step 4> Calculate $d = 3 - 2r$
Step 5> Initialize $x = 0$
        &nbsy = r
Step 6> Check if the whole circle is scan converted
        If $x >= y$
        Stop
Step 7> Plot eight points by using concepts of eight
        way symmetry. The center is at (p, q).
        putpixel (x+p, y+q)
        putpixel (y+p, x+~~p~~q)
        putpixel (-y+p, x+q)
        putpixel (-x+p, y+q)
```

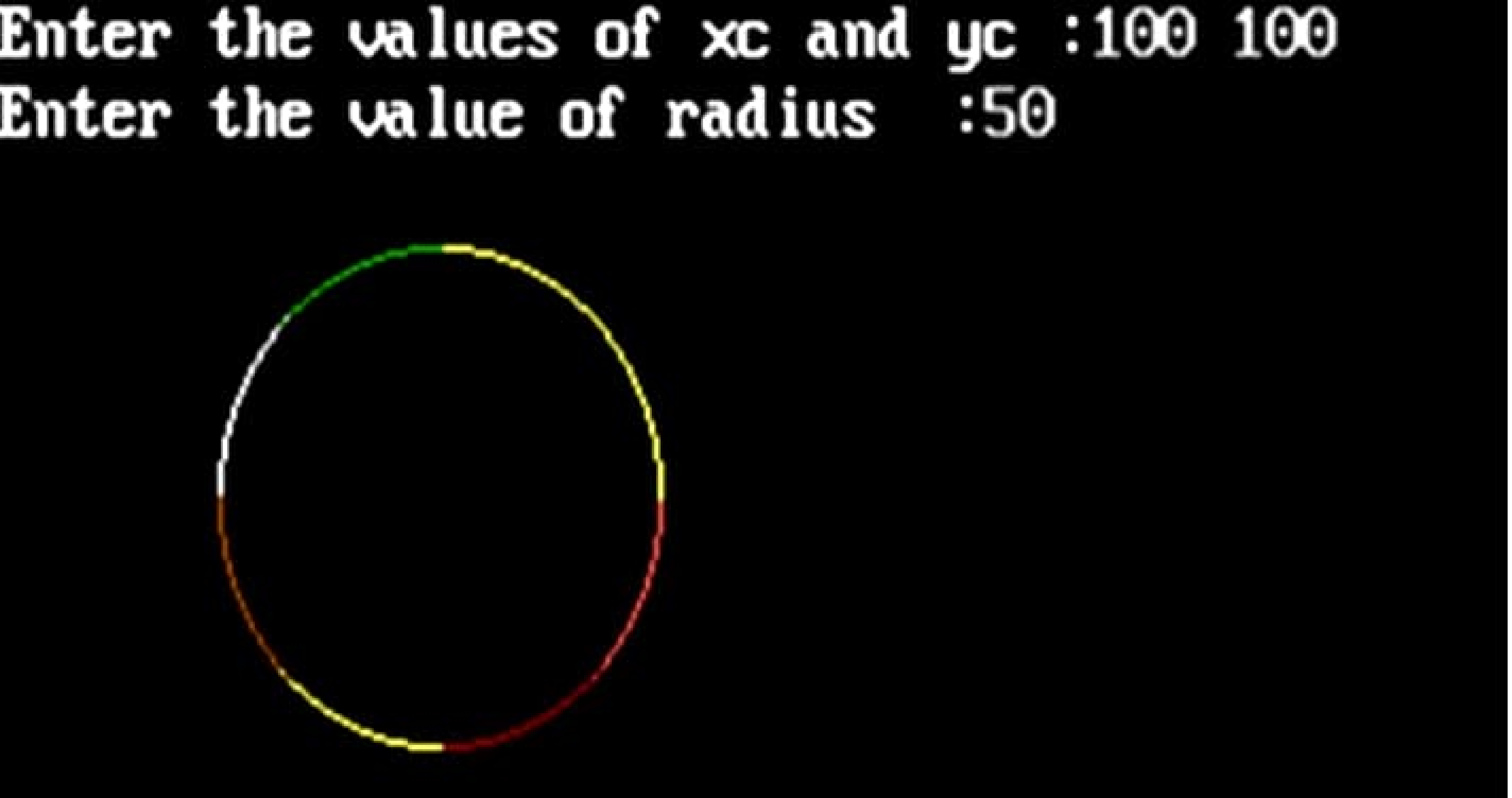
```
    Putpixel $(-x+p , -y+q)$
    putpixel $(-y+p , -x+q)$
    Putpixel $(y+p , -x+q)$
    putpixel $(x+p , -y-q)$

Step 8> Find location of next pixels to be scanned
        if $d < 0$
        then $d = d + 4x + 6$
        increment $x = x + 1$
        if $d \geq 0$
        then $d = d + 4(x-y) + 10$
        increment $x = x + 1$
        decrement $y = y - 1$

Step 9> Go to Step 6

Step 10> Stop Algorithm.
```

Program

```
#include <graphics.h>
#include <stdlib.h>
#include <stdio.h>
# include < conio.h>
#include < math.h>

  Void    EightWaySymmetricPlot (intxc, int yc; int x, int y)
  {

     putpixel (x+ xc , y+ yc , RED);
     Put pixel (x+ xc , -y +yc , YELLOW);
     putpixel (-x +xc , -y+yc , GREEN);
     Put pixel (-x +xc , y+yc , YELLOW);
     putpixel (+y +xc, x +yc , 12);
     putpixel ( y+xc ,-x +yc , 14);
     putpixel (-y +xc,-x +yc ,15);
     putpixel (-y +xc ,x +yc, 6);
   }

   Void   Bresenham Circle (int xc, intyc , int r)
   {
     int x =0, y=r , d= 3-(2*r);
     Eight Way Symmetric Plot (xc, yc, x,y);
     while (x<=y)
     {
       if (d<=0)
        {
```

```
        d = d + (4 * x) + 6;
      }
      else
       {
         d = d + (4 * x) - (4 * y) + 10;
         y = y - 1;
       }
       x = x + 1;
       EightWaySymmetricPlot(xc, yc, x, y);
     }
   }

   int main(void)
   {
     int xc, yc, r, gd = DETECT, gm, errorcode;
     initgraph(&gd, &gm, " ");
     errorcode = graphresult();
     if (errorcode != grOk)
      {
        printf(" Graphics error %s ", grapherrormsg(errorcode));
        printf(" Press any key to Stop ");
        getch();
        exit(1);
      }
```

```
    Printf (" Enter the values of xc & yc ");
    Scanf ("%d %d", &xc, &yc);
    printf ("Enter radius ");
    Scanf ("%d", &r);
    Bresenham Circle (xc, yc, r);

    getch ();
    Closegraph ();
    return 0;
}
```



```
Enter the values of xc and yc :100 100
Enter the value of radius  :50
```