Sonargaon University

Department: Computer Science and Engineering

Course Title: Computer Graphics

Course code: CSE413

Final Project

Topics: Design some objects

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Submitted to:

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Code:

```
#include<iostream>
#include<bits/stdc++.h>
#include<graphics.h>
using namespace std;
void name_print();
void Smile_emoji();
void DDA_Algorithm();
void bresenhum_algorithm();
void mid_circle();
void Walking_Stickman();
void Happy_Birthday_Cake();
int main()
{

   int ch;
```

```
   cout<< "\tWelcome to my project\n----------------------------------------
-";

   cout<< "\nMenu\n----------\n\n1.Name print\n2.Smile emoji
print\n3.DDA Algorithm\n4.Bresenham Line Drawing Algorithm\n";

   cout<< "5.MId Point Circle A lgorithm\n6.Walking
Stickman\n7.Happy birthday cake\n0.Exit\n";



   while(true)

   {

      cout << "\nEnter your choice No: ";

      cin>> ch;



      switch(ch)

      {


      case 1:

      {


         name_print();
```

```
}
case 2:
{

   Smile_emoji();
}
case 3:
{

   DDA_Algorithm();
}
case 4:
{

   bresenhum_algorithm();
}
case 5:
{
   mid_circle();
```

```
}
case 6:
{
  Walking_Stickman();



}
case 7:
{
   Happy_Birthday_Cake();


}
case 0:
{
   exit(0);



}
default:

   cout<< "Invalid choice. Please try again.\n";
```

```
        }

    }

    return 0;
}
void name_print()
{

    int gd = DETECT, gm;
    initgraph(&gd, &gm, "");
    initwindow(2000,2000);

    line(100,100,200,100);
    line(100,100,100,200);
    line(100,200,200,200);
    line(200,200,200,300);
    line(200,300,100,300);
    line(300,100,300,200);
    line(400,100,400,200);
```

```
    line(300,150,400,150);
    line(500,100,500,200);
    line(600,100,600,200);
    line(500,100,600,100);
    line(500,200,600,200);
    line(700,100,650,200);
    line(700,100,750,200);
    line(675,150,725,150);


    getch();
    closegraph();



}

void Smile_emoji()
{

   int gd= DETECT, gm;
```

```
initgraph(&gd, &gm, "");
initwindow(1200, 1200, "Smile Emoji");

setcolor(RED);
line(345, 350, 455, 350);
ellipse(400, 350, 180, 360, 55, 50);
setfillstyle(3,YELLOW);
floodfill(346, 351, RED);

setcolor(RED);
circle(400, 310, 150);
setfillstyle(1,RED);
floodfill(430, 315, RED);

setcolor(WHITE);

circle(350, 260, 30);
setfillstyle(1,YELLOW);
floodfill(351, 261, WHITE);

setcolor(BLACK);
```

```
circle(350, 260, 10);
setfillstyle(1,BLACK);
floodfill(351, 261, BLACK);

setcolor(WHITE);
circle(450, 260, 30);
setfillstyle(1,YELLOW);
floodfill(450, 260, WHITE);

setcolor(BLACK);
circle(450, 260, 10);
setfillstyle(1,BLACK);
floodfill(451, 261, BLACK);

setcolor(WHITE);
line(400, 310, 420, 330);
line(400, 310, 380, 330);

line(380, 330, 420, 330);
setfillstyle(1,YELLOW);
floodfill(400, 315, WHITE);
```

```
getch();

closegraph();
}

void DDA_Algorithm()
{
   float x1,x2,y1,y2,step;
   int gd=DETECT,gm;
   initgraph(&gd,&gm," ");
   cout<<("Enter the value x1 & y1:");
   cin >>x1>>y1;
   cout<<("Enter the value x2 & y2:");
   cin >>x2>>y2;
   int dx=abs(x2-x1);
   int dy=abs(y2-y1);
   cout << dx <<" " << dy << endl;
   if(dx>dy)
   {
      step=dx;
```

```
}
else
{
   step = dy;
}
cout << "Step :" << step << endl;
float xin,yin;
xin=dx/step;
yin=dy/step;
cout << xin <<" " << yin << endl;
int x=x1;
int y=y1;
for(int i=0; i<step; i++)
{
   putpixel(x,y,RED);
   x=x+xin;
   y=y+yin;
   cout << x <<" " << y << endl;
   delay(150);
}
getch();
```

```
    closegraph();

}

void bresenhum_algorithm()
{
    int gd=DETECT, gm, error, x0, y0, x1, y1,dx, dy, p, x, y;
    initgraph(&gd, &gm, "");
    initwindow(700,700, "Bresenhum");
    cout<<"Enter co-ordinates of first point: ";
    cin>>x0>>y0;

    cout<<"Enter co-ordinates of second point: ";
    cin>>x1>>y1;



    dx=x1-x0;
    dy=y1-y0;

    x=x0;
    y=y0;
```

```
p=2*dy-dx;

while(x<x1)
{
   if(p>=0)
   {
      putpixel(x,y,7);
      y=y+1;
      p=p+2*dy-2*dx;
   }
   else
   {
      putpixel(x,y,7);
      p=p+2*dy;
   }
   x=x+1;
}
getch();
closegraph();
```

```
}



void mid_circle()
{
   int gd=DETECT,gm;

   initwindow(800,700,"Circle Algorithm");

   outtextxy(150,50,"Name:Mymona Akter Shoa");

   int x,y,r;
   cout << "Enter the value of x, y & r: ";
   cin >> x >> y >> r;

   int x1=0;
   int y1=r;
   int p0=1-r;
   putpixel(x,y,7);

   while(x1<y1)
```

```
{
   if(p0<0)
   {
      x1=x1+1;
      p0=p0+2*x1+1;
   }
   else
   {
      x1=x1+1;
      y1=y1-1;
      p0=p0+2*x1+1-2*y1;
   }
   cout << "(" << x1  <<"," << y1 <<")"<<endl;
   putpixel(x+x1,y+y1,7);
   putpixel(x+x1,y-y1,7);
   putpixel(x-x1,y+y1,7);
   putpixel(x-x1,y-y1,7);
   putpixel(x+y1,y+x1,7);
   putpixel(x+y1,y-x1,7);
   putpixel(x-y1,y+x1,7);
   putpixel(x-y1,y-x1,7);
```

```
        delay(70);

    }

    getch();
    closegraph();

}

void Walking_Stickman()



{
        initwindow(700,500,"Walking Man",150,50);
        int i=0;
        int page=0;
        int n=1;
        POINT cursor;
        while(1)
        {
```

```
//road
setcolor(WHITE);
GetCursorPos(&cursor);
setactivepage(page);
setvisualpage(1-page);
cleardevice();
line(0,350,700,350);

//keys
setcolor(CYAN);
rectangle(250,400,300,450);
outtextxy(265,415,"<--");
rectangle(400,400,450,450);
outtextxy(420,415,"-->");

// STICKMAN
  setcolor(YELLOW);
  //head
circle(50+i,260,15);

  //body
```

```
line(50+i,275,50+i,310);


  //hand



line(50+i,290,20+i,280);
line(50+i,290,80+i,280);



   //legs
   if(n%2==0)
   {
    line(50+i,310,50+i,350);

line(50+i,310,50+i,350);

   }
   else
```

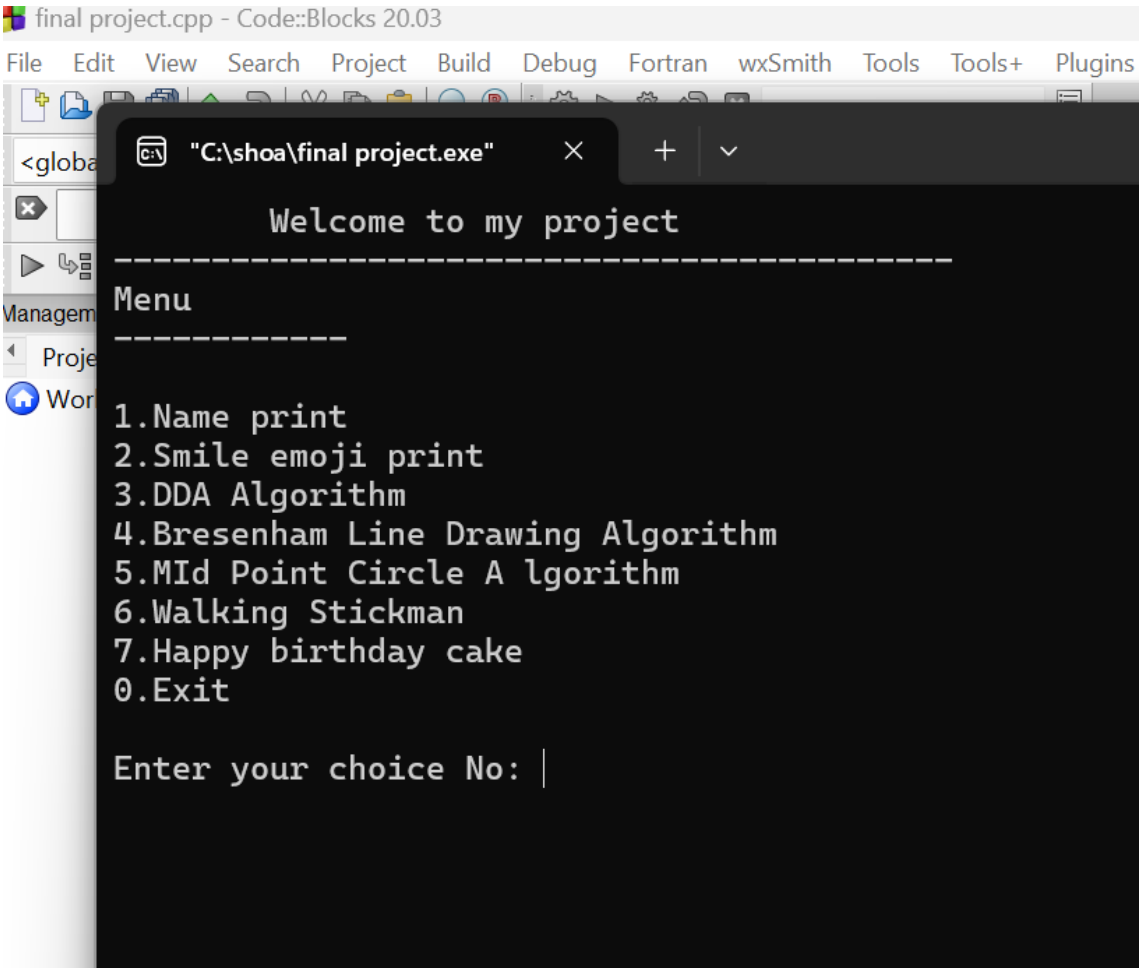
```
  {
  line(50+i,310,35+i,350);

  line(50+i,310,65+i,350);

  }


        if(GetAsyncKeyState(VK_LEFT))
        {

        i=i-5;
                n++;
        }

if(GetAsyncKeyState(VK_RIGHT))
{
        i=i+5;
                n++;
}
delay(100);
```

```
        page=1-page;



    }


        getch();
        closegraph();
}

void Happy_Birthday_Cake()
{
   initwindow(600,500,"Happy Birthday",150,50);

        // Third layer
        for(int i=0;i<=300;i++)
        {
                setcolor(LIGHTMAGENTA);
        line(150+i,370,150+i,430);
        delay(10);

     }
```

```
// Second layer
for(int i=260;i>=0;i--)
{
      setcolor(YELLOW);
      line(170+i,310,170+i,370-2);
      delay(10);
      }


// first layer
for(int i=0;i<=220;i++)
{
      setcolor(WHITE);
      line(190+i,250,190+i,310-2);
      delay(10);
      }

      // candles
      for(int i=0;i<=70;i++)
      {
            setcolor(LIGHTRED);
```

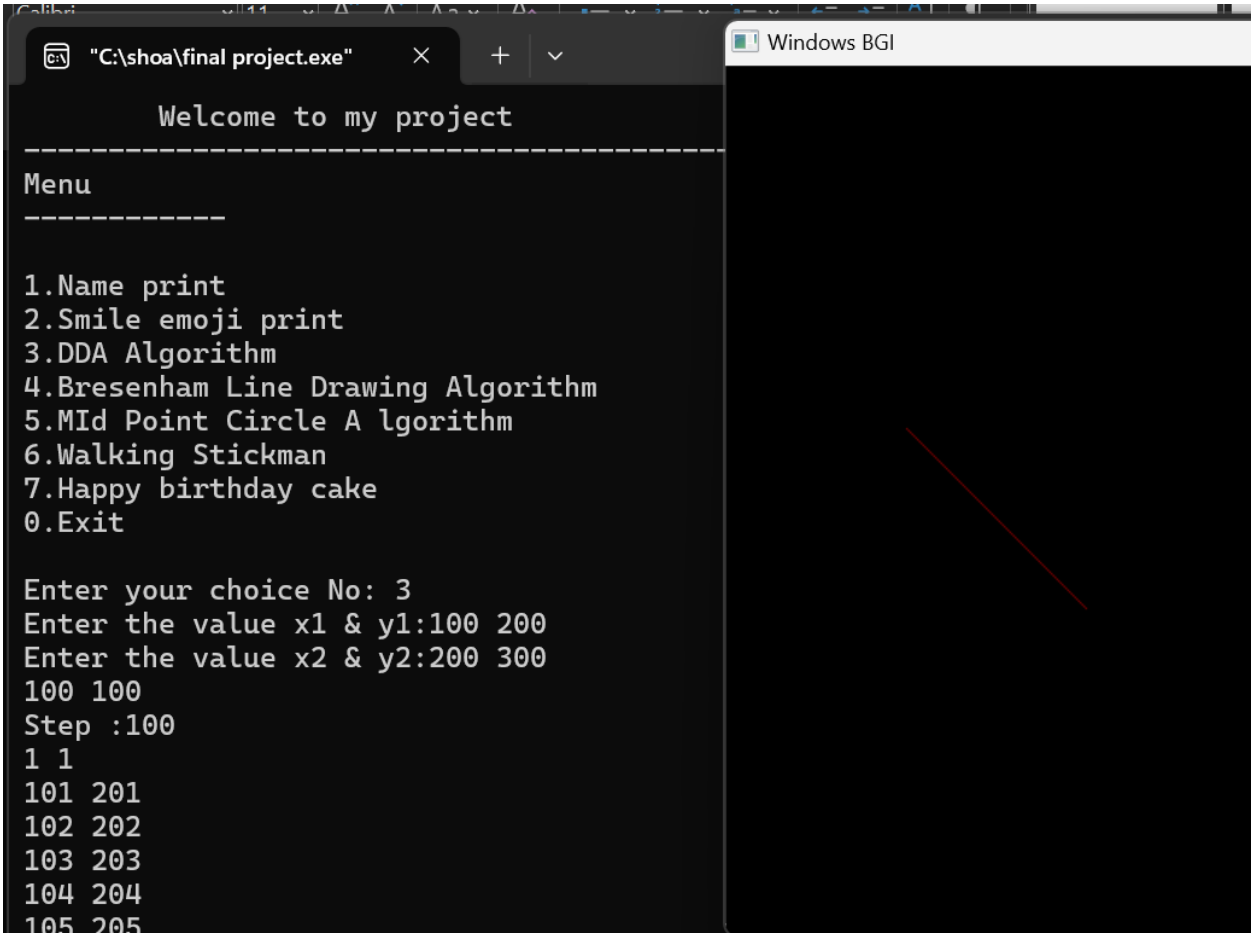
```
            line(210+25,250-2-i,210+25+10,250-2-i);
            line(210+85,250-2-i,210+85+10,250-2-i);
            line(210+145,250-2-i,210+145+10,250-2-i);

            delay(10);
        }
         setcolor(LIGHTGREEN);
    settextstyle(1,HORIZ_DIR,3);
    outtextxy(140,50,"Happy Birthday Shoa ");




        getch();
        closegraph();
}
```

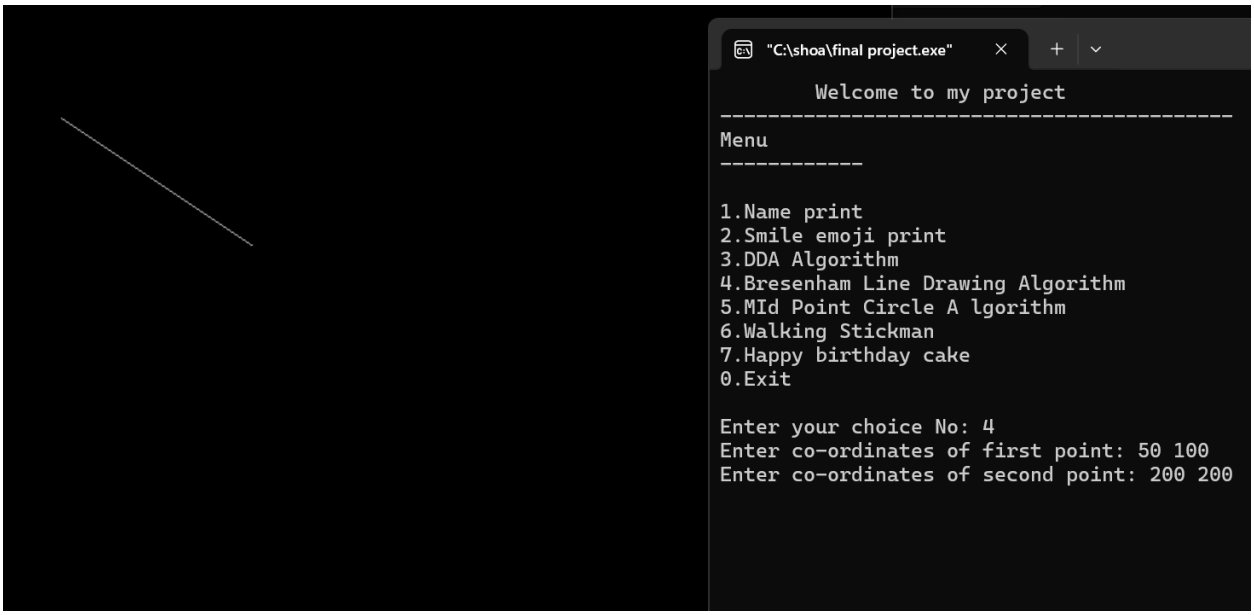
Output:

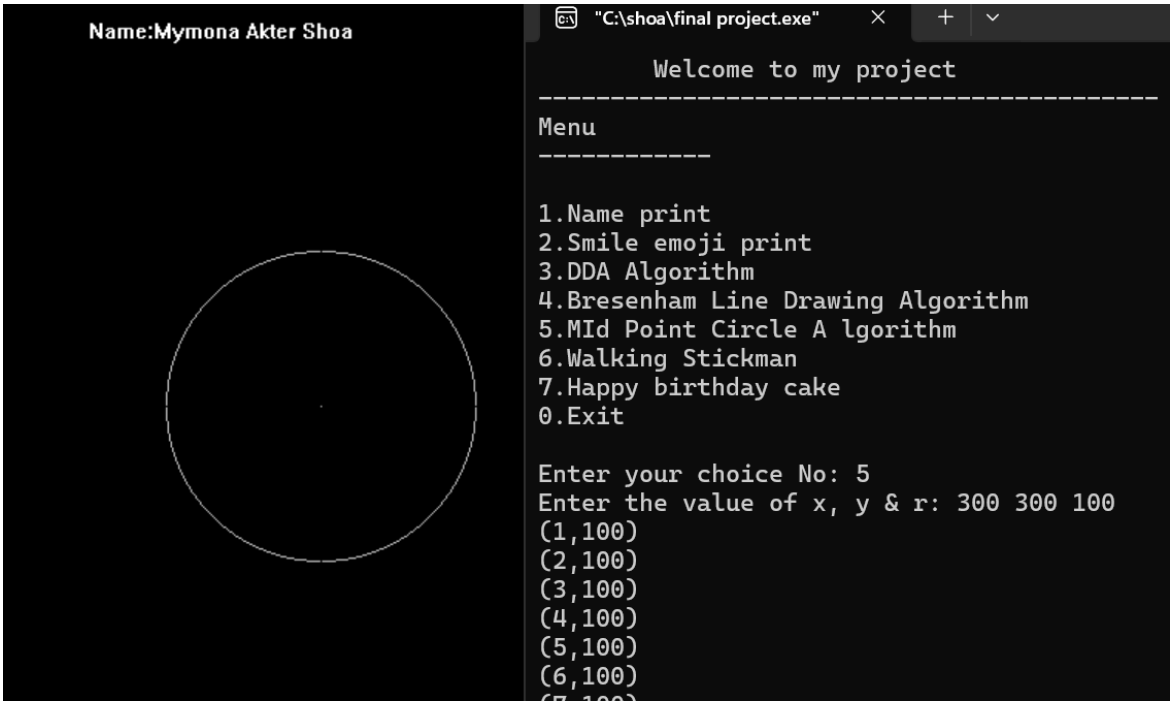

final project.cpp - Code::Blocks 20.03
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins
"C:\shoa\final project.exe"
Welcome to my project
Menu
1.Name print
2.Smile emoji print
3.DDA Algorithm
4.Bresenham Line Drawing Algorithm
5.MId Point Circle A lgorithm
6.Walking Stickman
7.Happy birthday cake
0.Exit
Enter your choice No:


Windows BGI
SHOA


"C:\shoa\final project.exe"
Welcome to my project
Menu
1.Name print
2.Smile emoji print
3.DDA Algorithm
4.Bresenham Line Drawing Algorithm
5.MId Point Circle A lgorithm
6.Walking Stickman
7.Happy birthday cake
0.Exit
Enter your choice No: 2

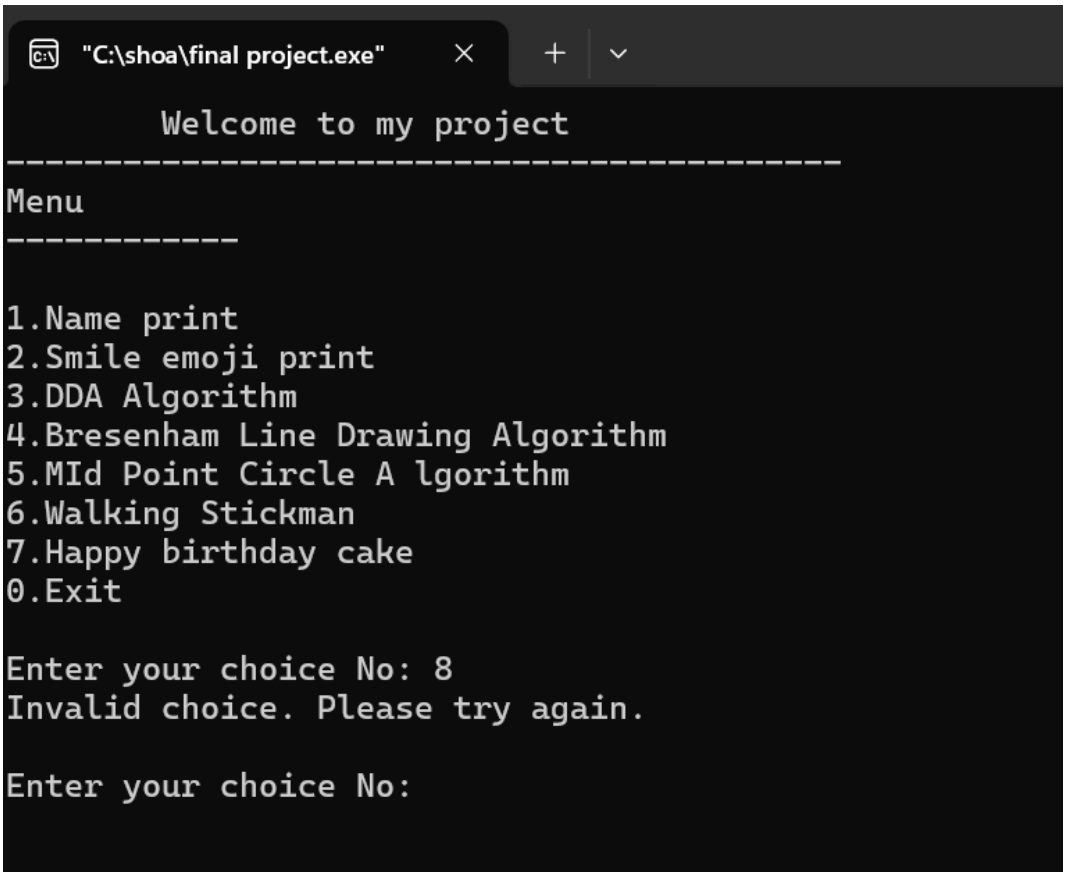

"C:\shoa\final project.exe"
Welcome to my project
Menu
1.Name print
2.Smile emoji print
3.DDA Algorithm
4.Bresenham Line Drawing Algorithm
5.MId Point Circle A lgorithm
6.Walking Stickman
7.Happy birthday cake
0.Exit
Enter your choice No: 3
Enter the value x1 & y1:100 200
Enter the value x2 & y2:200 300
100 100
Step :100
1 1
101 201
102 202
103 203
104 204
105 205
Windows BGI


"C:\shoa\final project.exe"
Welcome to my project
Menu
1.Name print
2.Smile emoji print
3.DDA Algorithm
4.Bresenham Line Drawing Algorithm
5.MId Point Circle A lgorithm
6.Walking Stickman
7.Happy birthday cake
0.Exit
Enter your choice No: 4
Enter co-ordinates of first point: 50 100
Enter co-ordinates of second point: 200 200


Name:Mymona Akter Shoa
"C:\shoa\final project.exe"
Welcome to my project
Menu
1.Name print
2.Smile emoji print
3.DDA Algorithm
4.Bresenham Line Drawing Algorithm
5.MId Point Circle A lgorithm
6.Walking Stickman
7.Happy birthday cake
0.Exit
Enter your choice No: 5
Enter the value of x, y & r: 300 300 100
(1,100)
(2,100)
(3,100)
(4,100)
(5,100)
(6,100)


"C:\shoa\final project.exe"
Welcome to my project
Menu
1.Name print
2.Smile emoji print
3.DDA Algorithm
4.Bresenham Line Drawing Algorithm
5.MId Point Circle A lgorithm
6.Walking Stickman
7.Happy birthday cake
0.Exit
Enter your choice No: 6


Happy Birthday Shoa
Welcome to my project
Menu
1.Name print
2.Smile emoji print
3.DDA Algorithm
4.Bresenham Line Drawing Algorithm
5.MId Point Circle A lgorithm
6.Walking Stickman
7.Happy birthday cake
0.Exit
Enter your choice No: 7


"C:\shoa\final project.exe"
Welcome to my project
Menu
1.Name print
2.Smile emoji print
3.DDA Algorithm
4.Bresenham Line Drawing Algorithm
5.MId Point Circle A lgorithm
6.Walking Stickman
7.Happy birthday cake
0.Exit
Enter your choice No: 8
Invalid choice. Please try again.
Enter your choice No: