EXP2

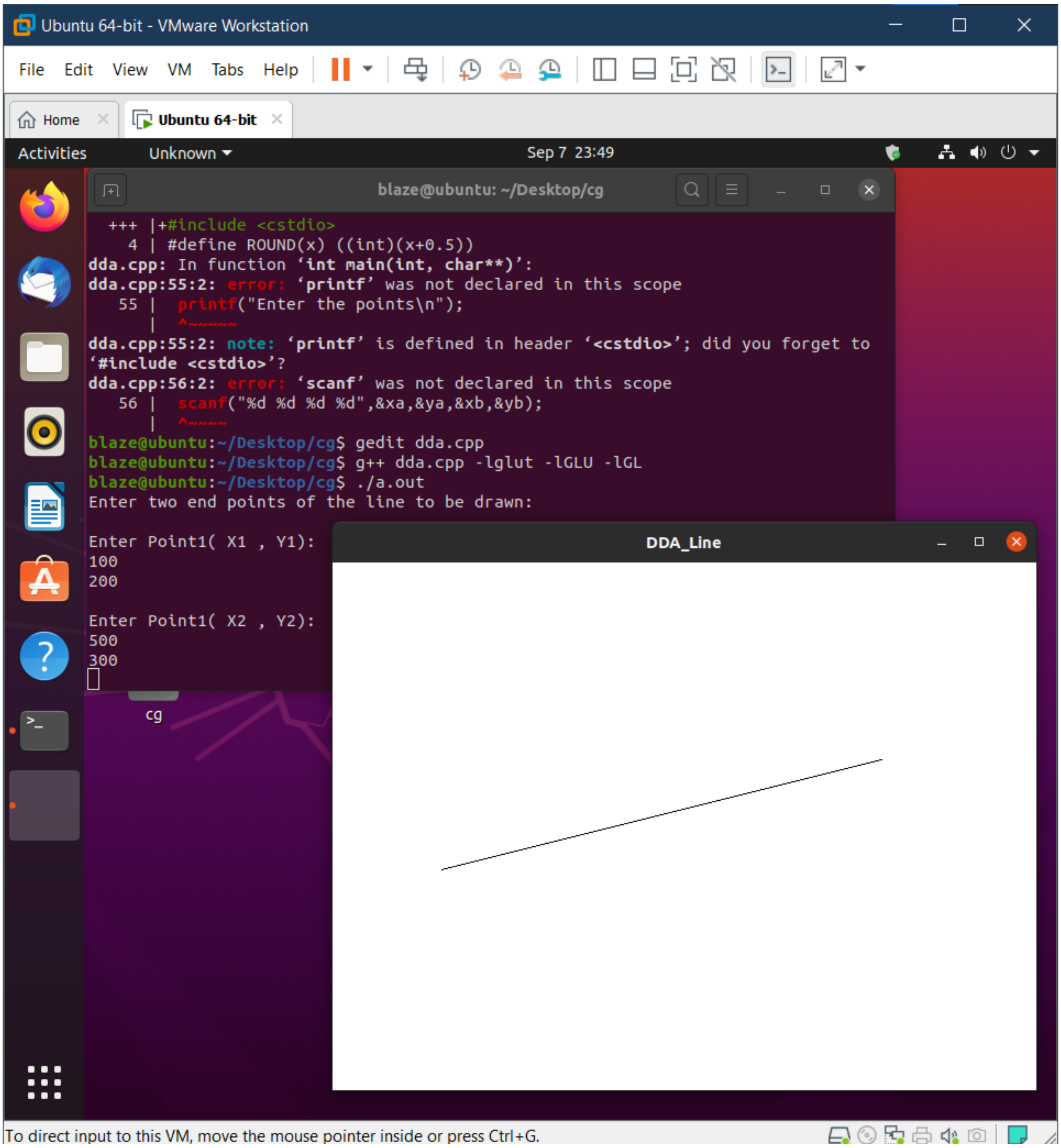
AIM: Drawing Line using DDA Algorithm

CODE:

```
#include <stdio.h>

#include<stdlib.h>

#include <math.h>

#include <GL/glut.h>


double X1, Y1, X2, Y2;


float round_value(float v)

{

  return floor(v + 0.5);

}

void LineDDA(void)

{

  double dx=(X2-X1);

  double dy=(Y2-Y1);

  double steps;

  float xInc,yInc,x=X1,y=Y1;


  steps=(abs(dx)>abs(dy))?(abs(dx)):(abs(dy));

  xInc=dx/(float)steps;

  yInc=dy/(float)steps;



  glClear(GL_COLOR_BUFFER_BIT);


  glBegin(GL_POINTS);
```

```
 glVertex2d(x,y);
 int k;

 for(k=0;k<steps;k++)
 {
  x+=xInc;
  y+=yInc;

  glVertex2d(round_value(x), round_value(y));
 }
 glEnd();

 glFlush();
}
void Init()
{

 glClearColor(1.0,1.0,1.0,0);

 glColor3f(0.0,0.0,0.0);

 gluOrtho2D(0 , 640 , 0 , 480);
}
int main(int argc, char**argv)
{
 printf("Enter two end points of the line to be drawn:\n");

 printf("\nEnter Point1( X1 , Y1):\n");
 scanf("%lf%lf",&X1,&Y1);
 printf("\nEnter Point1( X2 , Y2):\n");
 scanf("%lf%lf",&X2,&Y2);
 glutInit(&argc,argv);


 glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);


 glutInitWindowPosition(0,0);
 glutInitWindowSize(640,480);


 glutCreateWindow("DDA_Line");


 Init();


 glutDisplayFunc(LineDDA);


 glutMainLoop();
 return 0;
}
```

OUTPUT:



Ubuntu 64-bit - VMware Workstation
File Edit View VM Tabs Help
Home
Ubuntu 64-bit
Activities
Unknown
Sep 7 23:49
blaze@ubuntu: ~/Desktop/cg
cg
DDA_Line
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

```
  +++ |+#include <cstdio>
    4 | #define ROUND(x) ((int)(x+0.5))
dda.cpp: In function ‘int main(int, char**)’:
dda.cpp:55:2: error: ‘printf’ was not declared in this scope
   55 |  printf("Enter the points\n");
      |  ^~~~~~
dda.cpp:55:2: note: ‘printf’ is defined in header ‘<cstdio>’; did you forget to
‘#include <cstdio>’?
dda.cpp:56:2: error: ‘scanf’ was not declared in this scope
   56 |  scanf("%d %d %d %d",&xa,&ya,&xb,&yb);
      |  ^~~~~
blaze@ubuntu:~/Desktop/cg$ gedit dda.cpp
blaze@ubuntu:~/Desktop/cg$ g++ dda.cpp -lglut -lGLU -lGL
blaze@ubuntu:~/Desktop/cg$ ./a.out
Enter two end points of the line to be drawn:

Enter Point1( X1 , Y1):
100
200

Enter Point1( X2 , Y2):
500
300
```