EXP2

AIM: Drawing Line using Bresenham's Algorithm

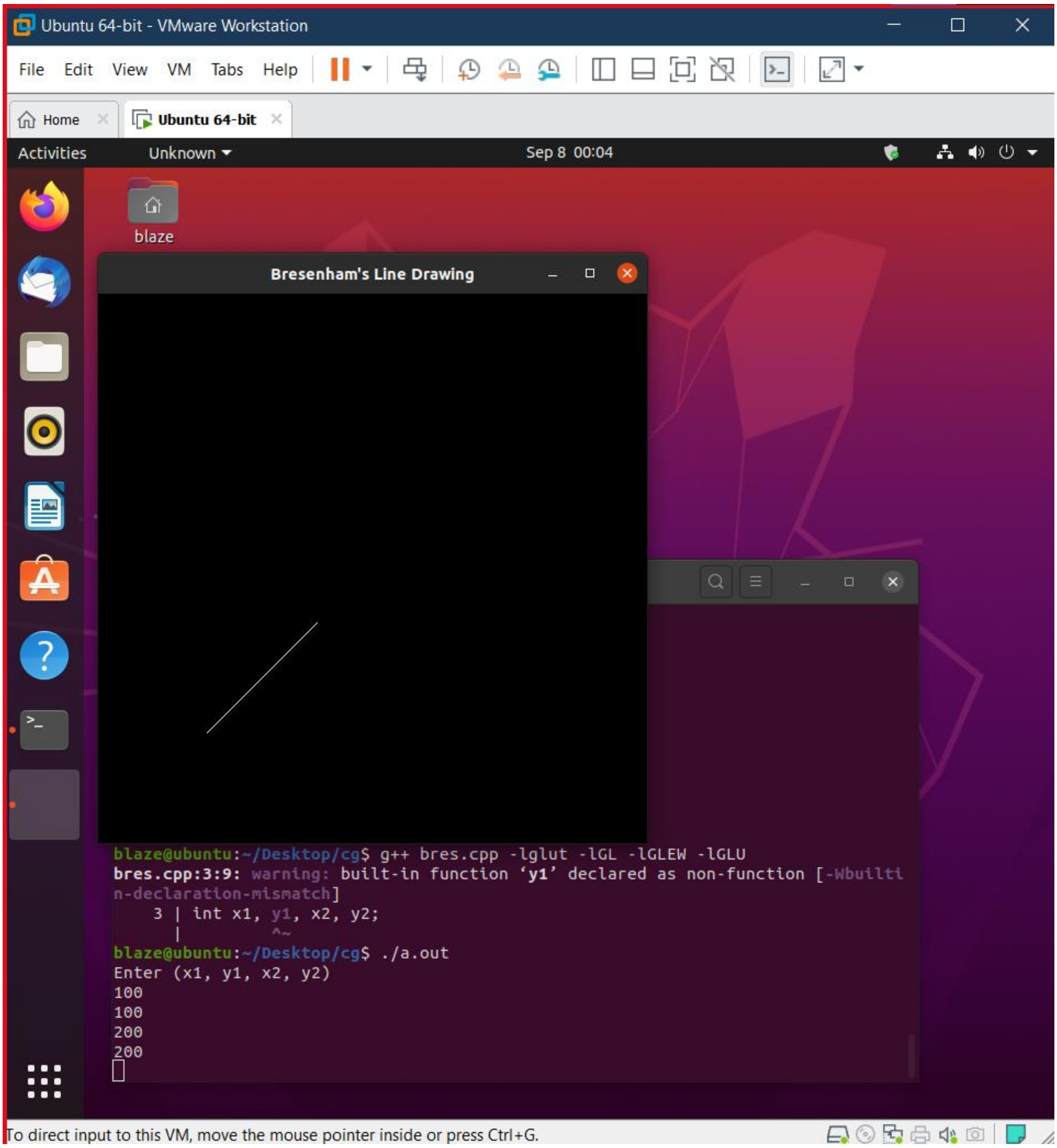
CODE:

```
#include <GL/glut.h>
#include <stdio.h>
int x1, y1, x2, y2;
void myInit() {
glClear(GL_COLOR_BUFFER_BIT);
glClearColor(0.0, 0.0, 0.0, 1.0);
glMatrixMode(GL_PROJECTION);
gluOrtho2D(0, 500, 0, 500);
}
void draw_pixel(int x, int y) {
glBegin(GL_POINTS);
glVertex2i(x, y);
glEnd();
}
void draw_line(int x1, int x2, int y1, int y2) {
int dx, dy, i, e;
int incx, incy, inc1, inc2;
int x,y;
dx = x2-x1;
dy = y2-y1;
if (dx < 0) dx = -dx;
if (dy < 0) dy = -dy;
incx = 1;
if (x2 < x1) incx = -1;
incy = 1;
if (y2 < y1) incy = -1;
x = x1; y = y1;
```

```
if (dx > dy) {
draw_pixel(x, y);
e = 2 * dy-dx;
inc1 = 2*(dy-dx);
inc2 = 2*dy;
for (i=0; i<dx; i++) {
if (e >= 0) {
y += incy;
e += inc1;
}
else
e += inc2;
x += incx;
draw_pixel(x, y);
}
} else {
draw_pixel(x, y);
e = 2*dx-dy;
inc1 = 2*(dx-dy);
inc2 = 2*dx;
for (i=0; i<dy; i++) {
if (e >= 0) {
x += incx;
e += inc1;
}
else
e += inc2;
y += incy;
draw_pixel(x, y);
}
}
```

```
}

void myDisplay() {

draw_line(x1, x2, y1, y2);

glFlush();

}

int main(int argc, char **argv) {

printf( "Enter (x1, y1, x2, y2)\n");

scanf("%d %d %d %d", &x1, &y1, &x2, &y2);

glutInit(&argc, argv);

glutInitDisplayMode(GLUT_SINGLE|GLUT_RGB);

glutInitWindowSize(500, 500);

glutInitWindowPosition(0, 0);

glutCreateWindow("Bresenham's Line Drawing");

myInit();

glutDisplayFunc(myDisplay);

glutMainLoop();

}
```

OUTPUT:



```
blaze@ubuntu:~/Desktop/cg$ g++ bres.cpp -lglut -lGL -lGLEW -lGLU
bres.cpp:3:9: warning: built-in function ‘y1’ declared as non-function [-Wbuilti
n-declaration-mismatch]
    3 | int x1, y1, x2, y2;
      |         ^~
blaze@ubuntu:~/Desktop/cg$ ./a.out
Enter (x1, y1, x2, y2)
100
100
200
200
```

To direct input to this VM, move the mouse pointer inside or press Ctrl+G.