```
1
2   #include<GL/glut.h>
3   #include<stdio.h>
4   int x1, y1, x2, y2;
5
6   void draw_pixel(int x, int y)
7   {
8       glColor3f(1.0,0.0,0.0);
9       glBegin(GL_POINTS);
10      glVertex2i(x, y);
11      glEnd();
12  }
13
14  void bresenhams_line_draw(int x1, int y1, int x2, int y2)
15  {
16      float dx = x2 - x1;
17      float dy = y2 - y1;
18      float m = dy/dx;
19
20      if(m < 1)
21      {
22          int p = 2*dy - dx;
23          int x = x1;
24          int y = y1;
25          if(dx < 0)
26           {
27              x = x2;
28              y = y2;
29              x2 = x1;
30          }
31          draw_pixel(x, y);
32          while(x < x2)
33          {
34              if(p >= 0)
35              {
36                  x = x+1;
37                  y = y+1;
38                  p=p + 2*dy - 2*dx * (y+1 - y);
39              }
40              else
41              {
42                  x = x+1;
43                  y = y;
44                  p = p + 2*dy - 2*dx * (y- y);
45              }
46              draw_pixel(x, y);
47          }
48      }
49
50      else if(m > 1)
51      {
52          int p = 2*dx - dy;
53          int x = x1;
54          int y = y1;
55          if(dy < 0)
56          {
57              x = x2;
58              y = y2;
59              y2 = y1;
60          }
61          draw_pixel(x, y);
62          while(y < y2)
63          {
64              if(p >= 0)
65              {
66                  x = x+1;
67                  y = y+1;
68                  p=p + 2*dx - 2*dy * (x+1 - x);
69              }
70              else
71              {
72                  y = y+1;
73                  x = x;
74                  p = p + 2*dx - 2*dy * (x- x);
75              }
76              draw_pixel(x, y);
77          }
78      }
79
80      else if (m == 1)
81      {
82          int x = x1;
83          int y = y1;
84          draw_pixel(x, y);
```

```
85          while(x < x2)
86          {
87              x = x+1;
88              y = y+1;
89              draw_pixel(x, y);
90          }
91      }
92  }
93
94  void init()
95  {
96      glClearColor(1,1,1,1);
97      gluOrtho2D(0.0, 500.0, 0.0, 500.0);       // left ->0, right ->500, bottom ->0, top
    ->500
98  }
99
100 void display()
101 {
102     glClear(GL_COLOR_BUFFER_BIT);
103     bresenhams_line_draw(x1, y1, x2, y2);
104     glFlush();
105 }
106
107 int main(int argc, char **argv)
108 {
109     printf( "Enter Start Points (x1,y1)\n");
110     scanf("%d %d", &x1, &y1);
111     printf( "Enter End Points (x2,y2)\n");
112     scanf("%d %d", &x2, &y2);
113     glutInit(&argc, argv);
114     glutInitDisplayMode(GLUT_SINGLE|GLUT_RGB);
115     glutInitWindowSize(250, 250);
116     glutInitWindowPosition(220, 200);
117     glutCreateWindow("Bresenham's Line Drawing.");
118     init();
119     glutDisplayFunc(display);
120     glutMainLoop();
121 }
122
```