Name : Gourab Das

Roll no. : 2

Subject : CG

Assignment : 2(a)

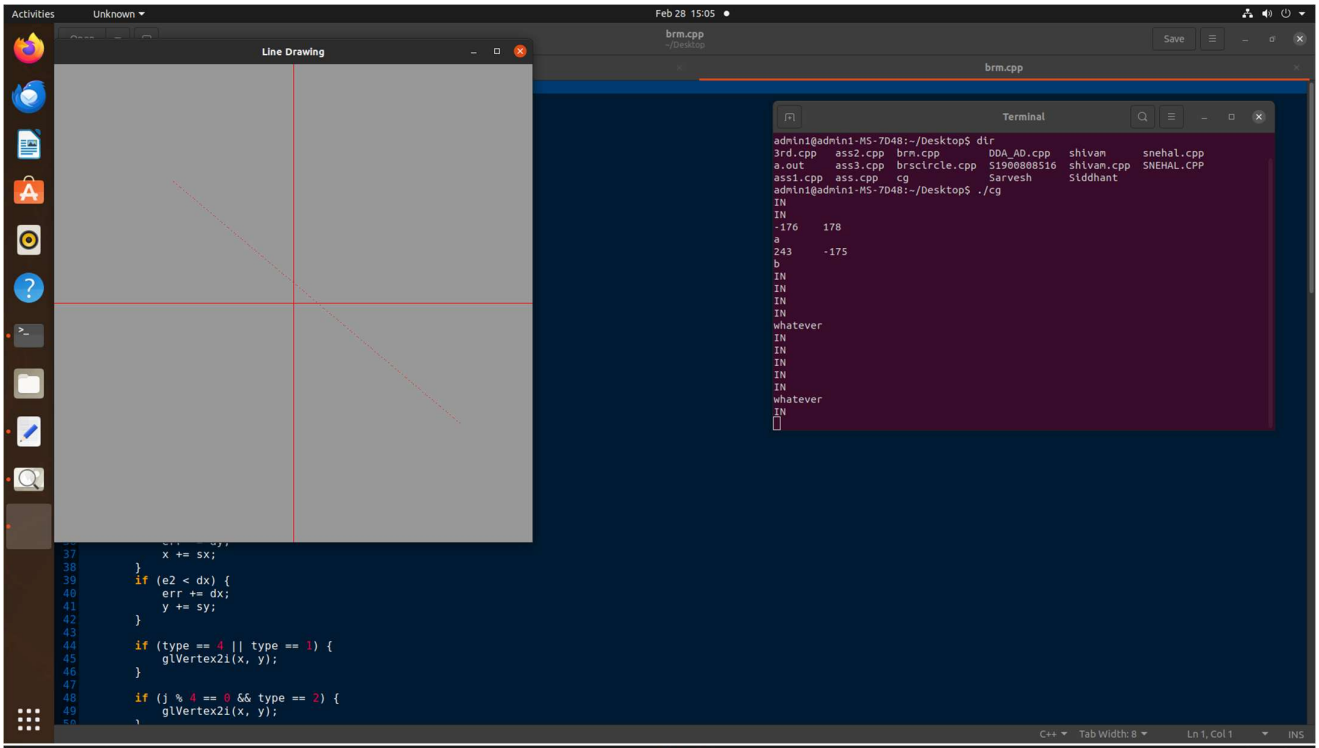
```
#include
<GL/glut.h>
                #include <iostream>


                #define zero 0.0
                #define one 1.0


                using namespace std;


                int a, b, c, d, type;


                void dda(int x1, int y1, int x2, int y2, int type) {
                   cout<<"IN"<<endl;
                   float step,x,y,k,Xin,Yin;
                   int dx=x2-x1;
                   int dy=y2-y1;


                if(abs(dx)> abs(dy))
                {
                step = abs(dx);
                }
                else
                step = abs(dy);


                Xin = dx/step;
                Yin = dy/step;


                x= x1;
                y=y1;
                glPointSize(1.0f);
```

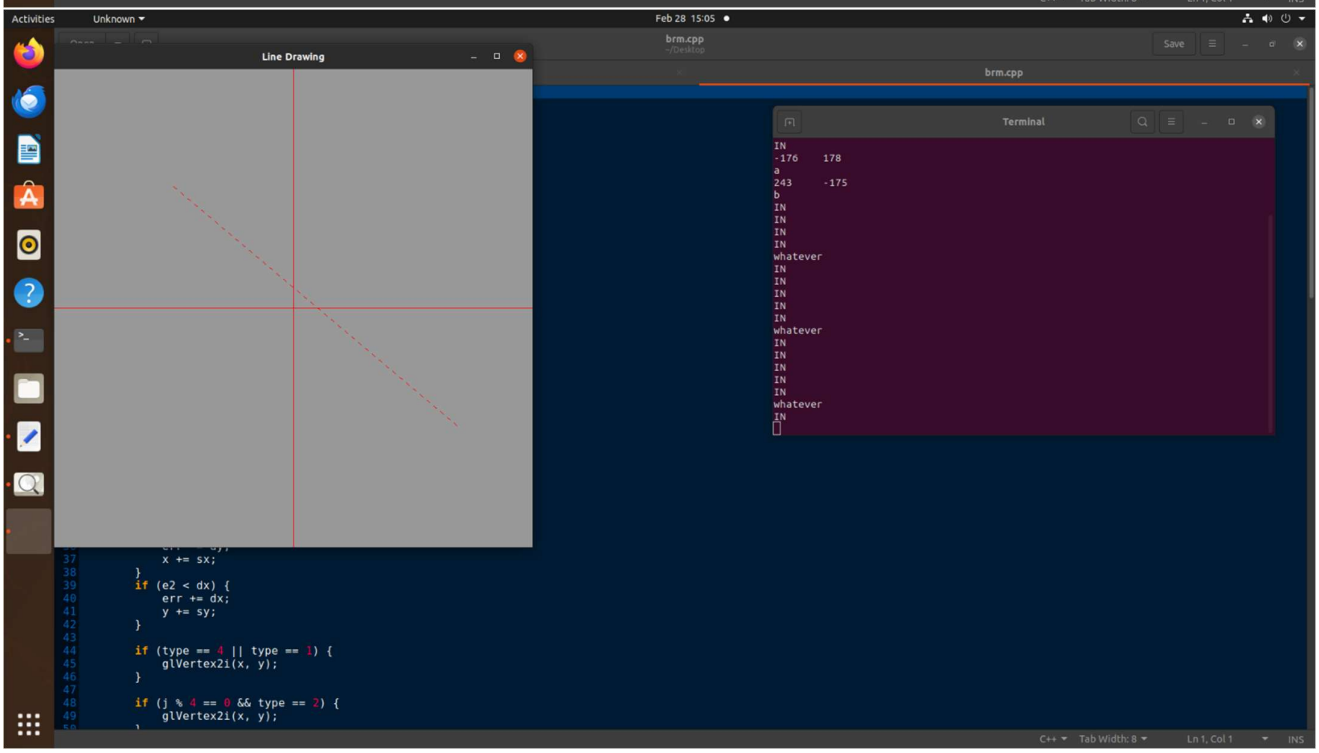
```
if(type==4){
   glPointSize(10.0f);
}
glBegin(GL_POINTS);
glVertex2i(x,y);
int j=0;
for (k=1 ;k<=step;k++)
{
x= x + Xin;
y= y + Yin;

      if (type == 4 || type == 1) {
         glVertex2i((int)x, (int)y);
      }
      if (j % 4 == 0 && type == 2) {
         glVertex2i((int)x, (int)y);
      }
      if (j < 5 && type == 3) {
         glVertex2i((int)x, (int)y);
      }
      j = (j + 1) % 10;
}
glEnd();
}

void display() {
   glClear(GL_COLOR_BUFFER_BIT);
   glColor3f(one, zero, zero);
   dda(-350, 0, 350, 0, 1);
   dda(0, 350, 0, -350, 1);
   glFlush();
}

void init() {
```

```
 glClearColor(0.6, 0.6, 0.6, 0.0);
  glClear(GL_COLOR_BUFFER_BIT);
  // glColor3f(1.0f,0.0f,0.0f);
  // glPointSize(4.0);
  glMatrixMode(GL_PROJECTION);
  glLoadIdentity();
  gluOrtho2D(-700 / 2, 700 / 2, -700 / 2, 700 / 2);
}

int cnt=0;
int oldx,oldy;
int newx,newy;
void mouse(int button, int state, int x, int y)
{
  if (state == GLUT_DOWN)
  {
    if (button == GLUT_LEFT_BUTTON)
    {
      int viewport[4];
      glGetIntegerv(GL_VIEWPORT, viewport);
      int winWidth = viewport[2];
      int winHeight = viewport[3];

      int xi = x- winWidth / 2;
      int yi = winHeight/2-y;

      cout << xi << "\t" << yi << "\n";

      cnt = (cnt + 1) % 2;

      if (cnt == 1)
      {
        oldx = xi;
        oldy = yi;
```

```
      cout << "a" << endl;
    }
    if (cnt == 0)
    {
      newx = xi;
      newy = yi;
      cout << "b" << endl;
    }

    glPointSize(5.0f);
    glColor3f(1.0, 0.0, 0.0);
    glBegin(GL_POINTS);
    glVertex2i(xi, yi);

    glEnd();
    glFlush();
   }
  }
}

void menu(int a){
   cout<<"whatever\n";
   dda(oldx,oldy,newx,newy,a);
}

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

   a=200,b=-200,c=-200,d=200;
   type=1;

   glutInit(&argc, argv);
   glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
   glutInitWindowSize(700, 700);
   glutInitWindowPosition(50, 50);
```

```
    glutCreateWindow("Line Drawing");
    init();
    glutDisplayFunc(display);
    glutMouseFunc(mouse);
    glutCreateMenu(menu);
    glutAddMenuEntry("DDA_SIMPLE", 1);
    glutAddMenuEntry("DDA_DOTTED", 2);
    glutAddMenuEntry("DDA_DASHED", 3);
    glutAddMenuEntry("DDA_SOLID", 4);
    //glutAddMenuEntry("EXIT", 9);
    glutAttachMenu(GLUT_RIGHT_BUTTON);
    glutMainLoop();

    return 0;
}
```


Activities
Unknown
Feb 28 15:05
Line Drawing
brm.cpp
~/Desktop
Save
brm.cpp
Terminal
admin1@admin1-MS-7D48:~/Desktop$ dir
3rd.cpp ass2.cpp brm.cpp DDA_AD.cpp shivam snehal.cpp
a.out ass3.cpp brscircle.cpp S190080816 shivam.cpp SNEHAL.CPP
ass1.cpp ass.cpp cg Sarvesh Siddhant
admin1@admin1-MS-7D48:~/Desktop$ ./cg
IN
IN
-176 178
a
243 -175
b
IN
IN
IN
IN
whatever
IN
IN
IN
IN
IN
whatever
IN
x += sx;
}
if (e2 < dx) {
err += dx;
y += sy;
}
if (type == 4 || type == 1) {
glVertex2i(x, y);
}
if (j % 4 == 0 && type == 2) {
glVertex2i(x, y);
C++
Tab Width: 8
Ln 1, Col 1
INS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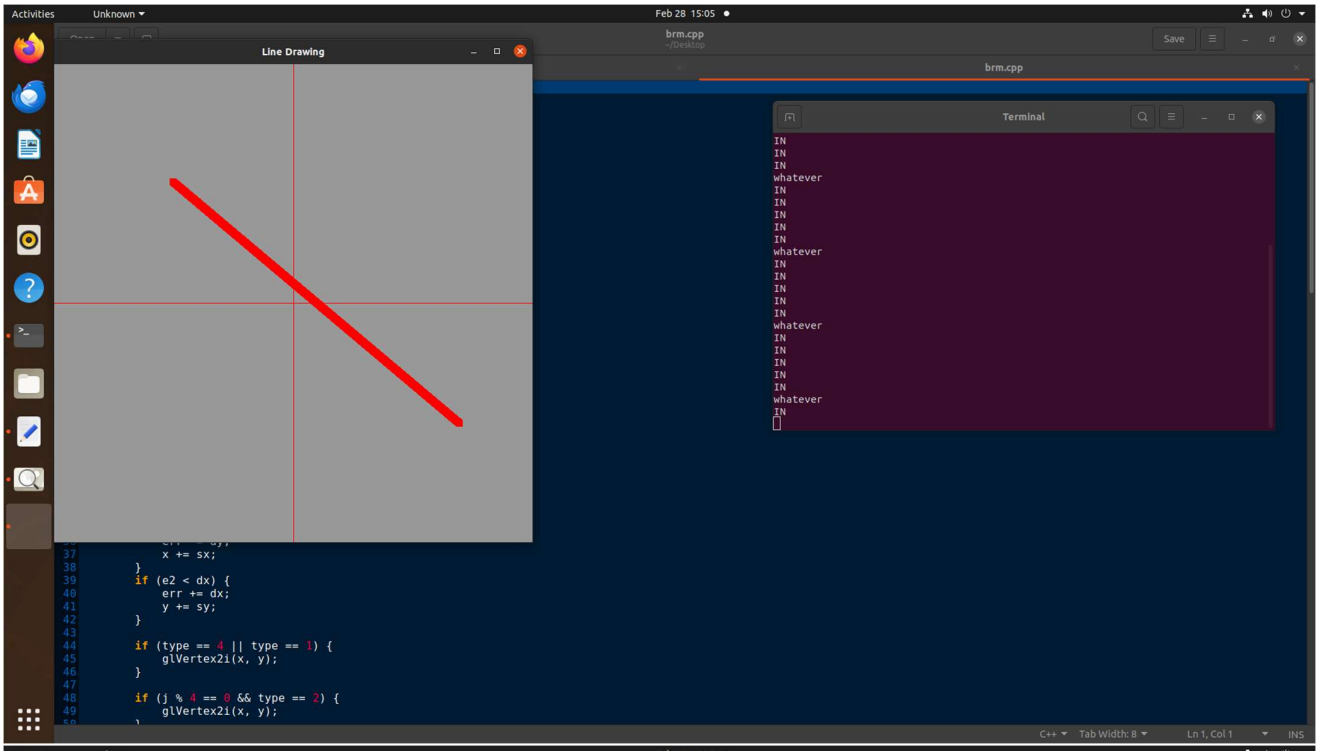
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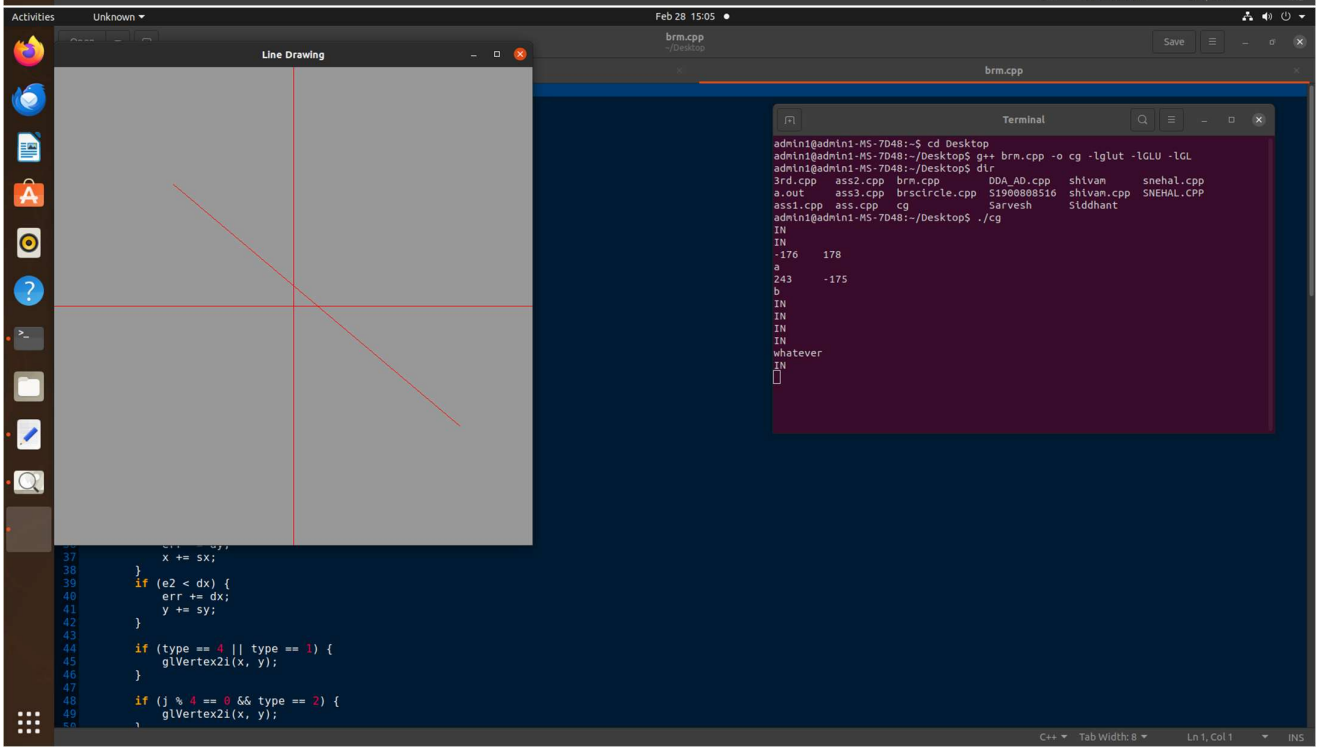
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admin1@admin1-MS-7D48:~$ cd Desktop
admin1@admin1-MS-7D48:~/Desktop$ g++ brm.cpp -o cg -lglut -lGLU -lGL
admin1@admin1-MS-7D48:~/Desktop$ dir
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a.out ass3.cpp brscircle.cpp S1900808516 shivam.cpp SNEHAL.CPP
ass1.cpp ass.cpp cg Sarvesh Siddhant
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