**Assignment 1**

#include "mainwindow.h"

#include "ui\_mainwindow.h"

QImage img(300,300,QImage::Format\_RGB888);

MainWindow::MainWindow(QWidget \*parent) :

QMainWindow(parent),

ui(new Ui::MainWindow)

{

ui->setupUi(this);

}

MainWindow::~MainWindow()

{

delete ui;

}

void MainWindow::on\_pushButton\_clicked()

{

float x1,y1,x2,y2;

x1 = ui -> textEdit->toPlainText().toFloat();

y1 = ui -> textEdit\_2->toPlainText().toFloat();

x2 = ui -> textEdit\_3->toPlainText().toFloat();

y2 = ui -> textEdit\_4->toPlainText().toFloat();

dda\_line(x1,y1,x2,y2);

}

void MainWindow::dda\_line(float x1, float y1, float x2, float y2)

{

float dx,dy,len,x,y,i;

dx = x2-x1;

dy = y2-y1;

if(abs(dx)>=abs(dy))

len = abs(dx);

else

len = abs(dy);

dx = dx/len;

dy = dy/len;

x = x1 + 0.5 \* sign(x2-x1);

y = y1 + 0.5 \* sign(y2-y1);

while (i<=len) {

img.setPixel(x,y,qRgb(255,0,0));

x = x + dx;

y = y + dy;

i = i + 1;

}

ui->label->setPixmap(QPixmap::fromImage(img));

}

void MainWindow::on\_pushButton\_2\_clicked()

{

float x1,y1,x2,y2;

x1 = ui -> textEdit->toPlainText().toFloat();

y1 = ui -> textEdit\_2->toPlainText().toFloat();

x2 = ui -> textEdit\_3->toPlainText().toFloat();

y2 = ui -> textEdit\_4->toPlainText().toFloat();

bresenham\_line(x1,y1,x2,y2);

}

void MainWindow::bresenham\_line(float x1, float y1, float x2, float y2)

{

float dx,dy,x,y,p;

float i = 0;

x = x1;

y = y1;

dx = abs(x2-x1);

dy = abs(y2-y1);

if(dx>=dy)

{

p = 2\*dy-dx;

while(i<dx)

{

img.setPixel(x,y,qRgb(0,255,0));

if(p<0)

p = p+2\*dy;

else

{

p = p+2\*(dy-dx);

y = y+sign(y2-y1);

}

x = x+sign(x2-x1);

i++;

}

}

else

{

p = 2\*dx-dy;

while(i<dy)

{

img.setPixel(x,y,qRgb(0,255,0));

if(p<0)

p = p+2\*dx;

else

{

p = p+2\*(dx-dy);

x = x+sign(x2-x1);

}

y = y+sign(y2-y1);

i++;

}

}

ui->label->setPixmap(QPixmap::fromImage(img));

}

float MainWindow::sign(float p)

{

if(p<0)

return -1;

else

return 1;

}

**Output:**

****