- **Source Code**

- *MainWindow.h*

```
#ifndef MAINWINDOW_H
#define MAINWINDOW_H

#include <QMainWindow>

QT_BEGIN_NAMESPACE
namespace Ui {
class MainWindow;
}
QT_END_NAMESPACE

class MainWindow : public QMainWindow
{
    Q_OBJECT

public:
    MainWindow(QWidget *parent = nullptr);
    ~MainWindow();

private slots:
    void on_pushButton_clicked();
    void DDA(int,int,int,int);
    void on_pushButton_2_clicked();
    void BCircle(int,int,int);

private:
    Ui::MainWindow *ui;
};
#endif // MAINWINDOW_H
```

- *MainWindow.cpp*

```
#include "mainwindow.h"
#include "ui_mainwindow.h"
QImage img(500,500,QImage::Format_RGB888);
```

```cpp
MainWindow::MainWindow(QWidget *parent)
    : QMainWindow(parent)
    , ui(new Ui::MainWindow)
{
    ui->setupUi(this);
}

MainWindow::~MainWindow()
{
    delete ui;
}

void MainWindow::on_pushButton_clicked()
{
    int x1,y1,x2,y2;
    x1 = ui->textEdit->toPlainText().toInt();
    y1 = ui->textEdit_2->toPlainText().toInt();
    x2 = ui->textEdit_3->toPlainText().toInt();
    y2 = ui->textEdit_4->toPlainText().toInt();
    DDA(x1,y1,x2,y2);
    ui->label->setPixmap(QPixmap::fromImage(img));
}

void MainWindow::DDA(int x1,int y1,int x2,int y2)
{
    float dx,dy,length,xinc,yinc,x,y;
    dx = x2-x1;
    dy = y2-y1;
    if(abs(dx) >= abs(dy)){
        length = abs(dx);
    }else{
        length = abs(dy);
    }
    xinc = dx/length;
    yinc = dy/length;
    int i = 0;
    x = x1;
    y = y1;
    while(i<length){
        img.setPixel(int(x),int(y),qRgb(255,255,255));
        x = x + xinc;
        y = y + yinc;
```

```
            i++;
        }
    }

    void MainWindow::on_pushButton_2_clicked()
    {
        int xc,yc,r;
        xc = ui->textEdit_5->toPlainText().toInt();
        yc = ui->textEdit_6->toPlainText().toInt();
        r = ui->textEdit_7->toPlainText().toInt();
        BCircle(xc,yc,r);
    }

    void MainWindow::BCircle(int xc, int yc, int r)
    {
        int x = 0;
        int y = r;
        int d = 3-(2*r);

        do{
            img.setPixel(xc+x,yc+y,qRgb(255,255,255));
            img.setPixel(xc+y,yc+x,qRgb(255,255,255));
            img.setPixel(xc-x,yc+y,qRgb(255,255,255));
            img.setPixel(xc-y,yc+x,qRgb(255,255,255));
            img.setPixel(xc-x,yc-y,qRgb(255,255,255));
            img.setPixel(xc-y,yc-x,qRgb(255,255,255));
            img.setPixel(xc+x,yc-y,qRgb(255,255,255));
            img.setPixel(xc+y,yc-x,qRgb(255,255,255));

            x = x+1;

            if(d<0){
                d = d + 4*(x)+6;
            }else{
                y = y-1;
                d = d + 4*(x-y)+10;
            }
            ui->label->setPixmap(QPixmap::fromImage(img));
        }while(x<=y);
    }
```

- **Output**