# Защита лабораторной работы №2

## Листинг программы:

```
#include "mainwindow.h"
#include "ui_mainwindow.h"
#include <QMessageBox>


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

MainWindow::~MainWindow()
{
    delete ui;
}
QString sloj(QString per1, QString per2){
    int length1 = per1.length();
    int length2 = per2.length();
    int maxlength;
    int perenos = 0;
    QString otvet = "";
    if (per1.length()>per2.length()){
        maxlength = per1.length();
        for (int i=0;i<length1-length2;i++)
            per2="0"+per2;

    }
    else if (per1.length()<per2.length()){
        maxlength = per2.length();
        for (int i=0;i<length2-length1;i++)
            per1="0"+per1;
    }
    else{
        maxlength = per2.length();
    }

    for (int i=maxlength-1;i>=0;i--)
    {
        if (per1[i].unicode()+per2[i].unicode()==96){
            if (perenos>0){
                otvet = '1' + otvet;
                perenos--;
            }
            else {
                otvet = '0' + otvet;
            }

        }
        else if (per1[i].unicode()+per2[i].unicode()==97){
            if (perenos>0){
                 otvet = '0' + otvet;
            }
            else{
                otvet = '1' + otvet;
            }


        }
```

```
        else if (per1[i].unicode()+per2[i].unicode()==98){
            otvet = '0' + otvet;
            perenos++;
        }
        //QMessageBox::warning(this,
"Внимание",QString("%1").arg(per1[i].unicode()+per2[i].unicode())+"
"+per1[i]+" "+per2[i]);
    }
    if (perenos>0){
        otvet = '1' + otvet;
    }
    return otvet;
}
QString vich(QString per1, QString per2){
    int length1 = per1.length();
    int length2 = per2.length();
    int maxlength;
    int perenos = 0;
    QString otvet = "";
    if (per1.length()>per2.length()){
        maxlength = per1.length();
        for (int i=0;i<length1-length2;i++)
            per2="0"+per2;

    }
    else if (per1.length()<per2.length()){
        maxlength = per2.length();
        for (int i=0;i<length2-length1;i++)
            per1="0"+per1;
    }
    else{
        maxlength = per2.length();
    }

    for (int i=maxlength-1;i>=0;i--)
    {
        if (per1[i].unicode()-per2[i].unicode()==1){
            if (perenos==0){
                otvet = '1' + otvet;
            }
            else{
                otvet = '0' + otvet;
                perenos--;
            }

        }
        else if (per1[i].unicode()-per2[i].unicode()==0){
            otvet = '0' + otvet;
        }
        else if (per1[i].unicode()-per2[i].unicode()<0){
            otvet = '1' + otvet;
            perenos++;
        }
        //QMessageBox::warning(this,
"Внимание",QString("%1").arg(per1[i].unicode()-per2[i].unicode())+"
"+per1[i]+" "+per2[i]);
    }
    if (perenos>0){
        otvet = '-' + otvet;
    }
    return otvet;
}
void MainWindow::on_pushButton_clicked()
{
```

```
    if (ui->checkBox->isChecked()){
        QString per1 = ui->ch1->text();
        QString per2 = ui->ch2->text();
        ui->result->setText(sloj(per1, per2));
    }
    else {
        float vrem;
        vrem = ui->ch1->text().toFloat()+ui->ch2->text().toFloat();
        QString str;
        str.setNum(vrem);
        ui->result->setText(str);
    }

}


void MainWindow::on_pushButton_2_clicked()
{
    if (ui->checkBox->isChecked()){
        QString per1 = ui->ch1->text();
        QString per2 = ui->ch2->text();

        ui->result->setText(vich(per1, per2));
    }
    else{
        float vrem;
        vrem = ui->ch1->text().toFloat()-ui->ch2->text().toFloat();
        QString str;
        str.setNum(vrem);
        ui->result->setText(str);
    }
}


void MainWindow::on_pushButton_3_clicked()
{
    if (ui->checkBox->isChecked()){
        QString per1 = ui->ch1->text();
        QString per2 = ui->ch2->text();
        QString otvet = "";
        int length1 = per1.length();
        QString vrem = per1[0];
        for (int i=1;i<length1;i++){
            if (vrem.toInt()>=per2.toInt()){
                vrem = vich(vrem,per2);
                vrem+=per1[i];
                otvet+='1';
            }
            else{
                otvet+='0';
                vrem+=per1[i];
            }

        }
        if (vrem.toInt()>=per2.toInt()){
            otvet+='1';
        }
        else{
            otvet+='0';
        }
        ui->result->setText(otvet);

    }
    else{
```

```
        float vrem;
        vrem = ui->ch1->text().toFloat()/ui->ch2->text().toFloat();
        QString str;
        str.setNum(vrem);
        ui->result->setText(str);
    }

}


void MainWindow::on_pushButton_4_clicked()
{
    if (ui->checkBox->isChecked()){
        QString per1 = ui->ch1->text();
        QString per2 = ui->ch2->text();
        int length1 = per1.length();
        int length2 = per2.length();
        int maxlength;
        QString otvet = "0";
        if (per1.length()>per2.length()){
            maxlength = per1.length();
            for (int i=0;i<length1-length2;i++)
                per2="0"+per2;

        }
        else if (per1.length()<per2.length()){
            maxlength = per2.length();
            for (int i=0;i<length2-length1;i++)
                per1="0"+per1;
        }
        else{
            maxlength = per2.length();
        }

        for (int i=maxlength-1;i>=0;i--)
        {
            if (per2[i].unicode()==49){
                    QString vrem = "";
                    for (int j=0;j<i;j++)
                        vrem+='0';
                    vrem = per1 + vrem;
                    otvet = sloj(vrem, otvet);
            }

        }
        ui->result->setText(otvet);

    }
    else{
        float vrem;
        vrem = ui->ch1->text().toFloat()*ui->ch2->text().toFloat();
        QString str;
        str.setNum(vrem);
        ui->result->setText(str);
    }
}
```

## Стили

```
QLable{
font-family: "Century Gothic";
}
QLineEdit{
```

```
font-family: "Century Gothic";
}
QCheckBox{
font-family: "Century Gothic";
}
QPushButton{
font-family: "Century Gothic";
}
```

**Result**

font-family: "Century Gothic";
padding: 5px;
border: 2px solid green;
border-radius: 15px

**Результат работы:**

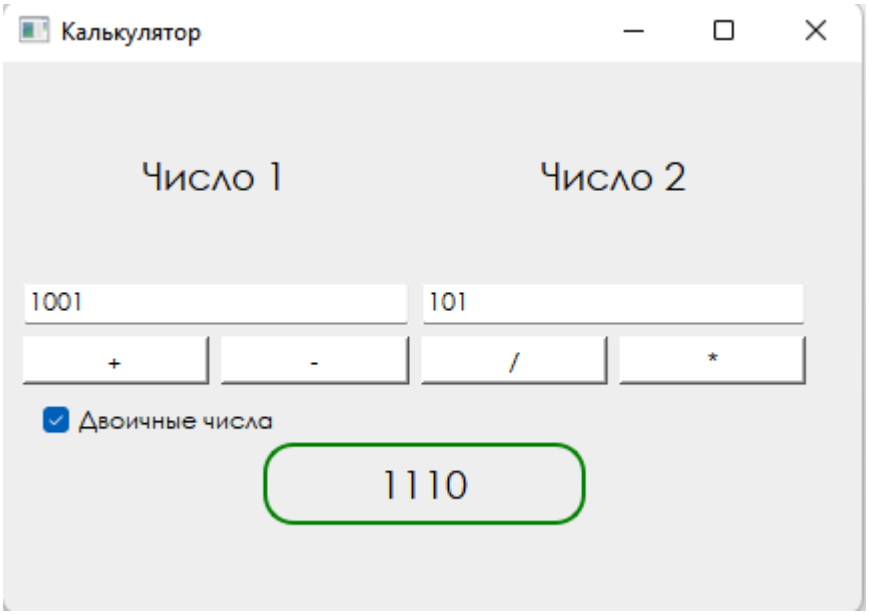


**Рис 1. Сложение двоичных чисел**

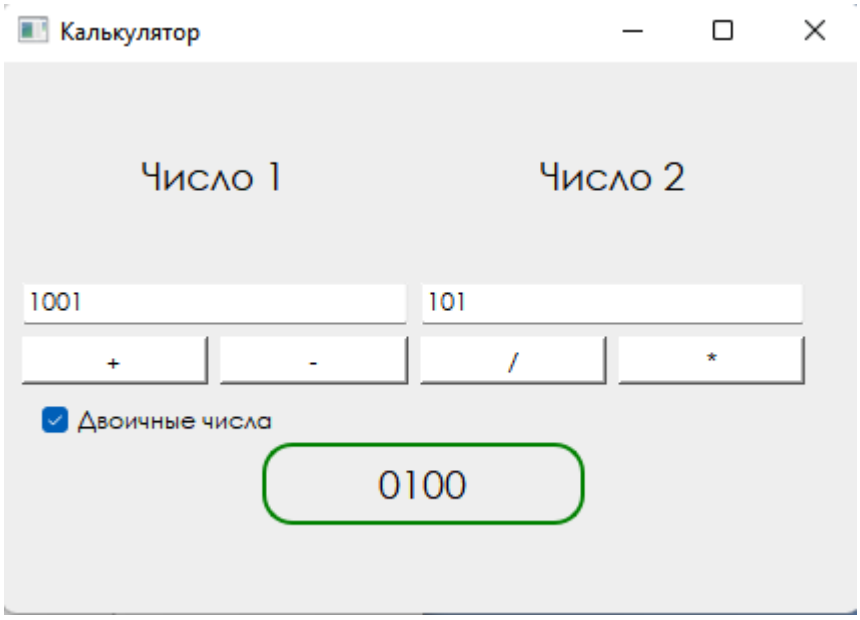


**Рис 2. Вычитание двоичных чисел**

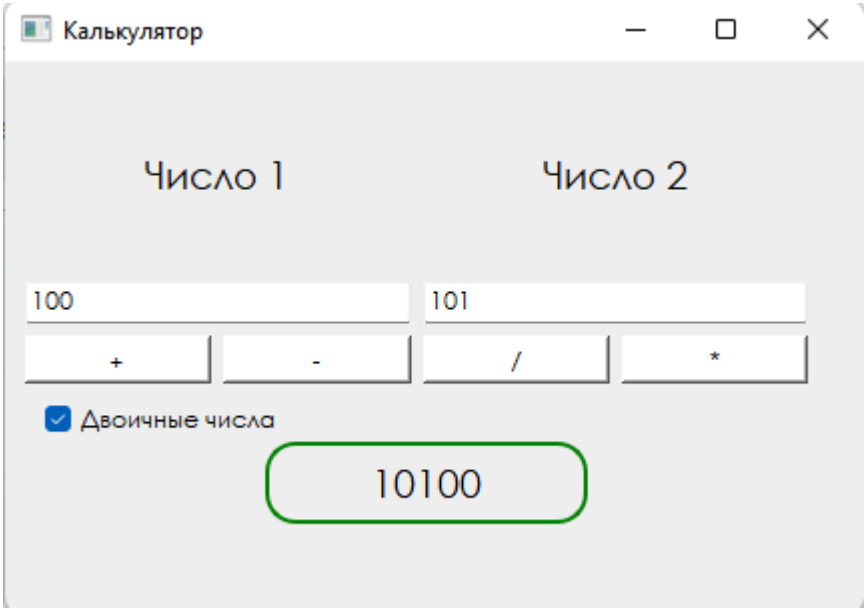


**Рис 3. Умножение двоичных чисел**

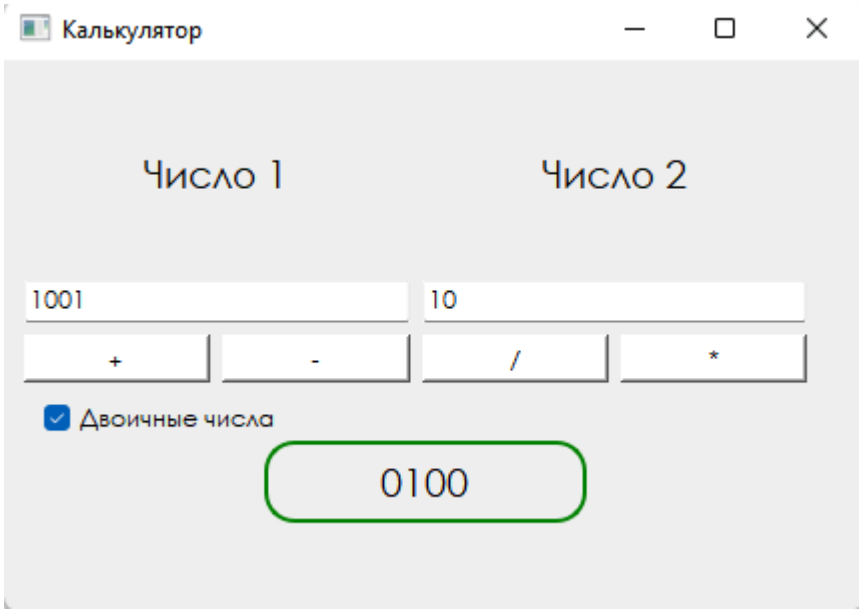


**Рис 4. Целочисленное деление двоичных чисел**