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Министерство образования Российской Федерации

Пензенский государственный университет

Кафедра «Вычислительная техника»

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**ОТЧЕТ**

по лабораторной работе №6

по курсу «Программирование на языке Java»

на тему «Сетевое взаимодействие в Java»

Вариант №2

**Цель работы:** научиться создавать клиент-серверные приложения c использованием стандартных классов Java.

**Задание на лабораторную работу**

Модифицировать приложение из предыдущей лабораторной работы, реализовав клиент-серверную архитектуру, обеспечивающую распределенное вычисление определенного интеграла на нескольких вычислительных узлах (клиентах) при этом каждый узел использует несколько нитей, как в предыдущей работе. Сервер не занимается вычислениями, а лишь реализует взаимодействие с пользователем и агрегацию результатов вычислений от клиентов. Нечетные варианты используют протокол UDP, а четные TCP. Оформление лабораторной работы должно быть выполнено в соответствии с требованиями, приведенными в Приложении 2.

**Ход лабораторной работы:**

1. Провели тесты для написанного приложения.

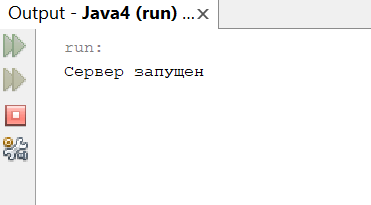


Рис.1 Запустили сервер

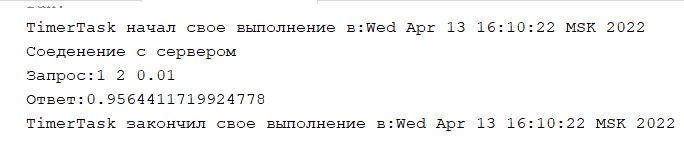


Рис.2 Запустили клиент и сделали вычисления

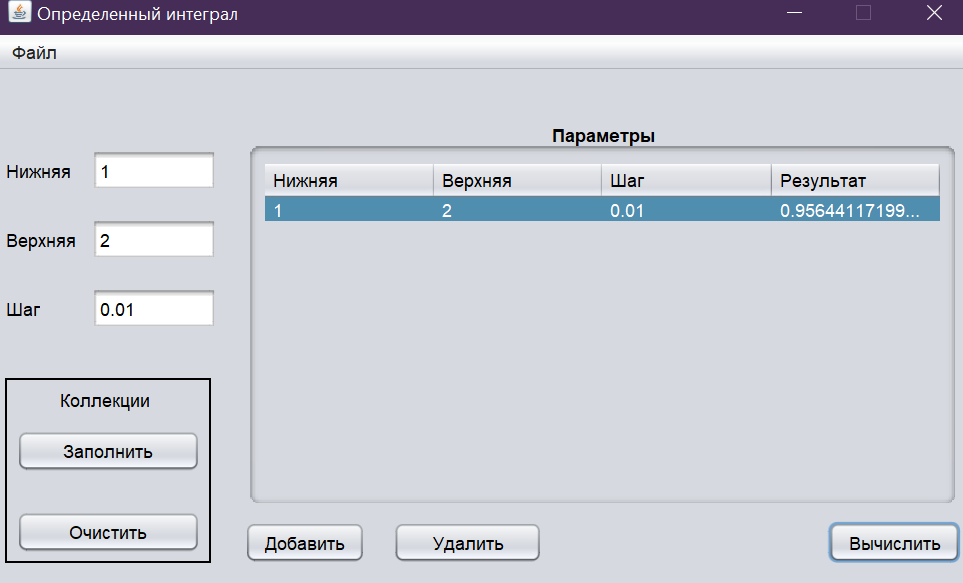


Рис.3 Результат работы клиент-сервера

**Вывод:** научились создавать клиент-серверные приложения c использованием стандартных классов Java.

**Листинг Server:**

package my.numberaddition;

import java.io.\*;

import java.io.IOException;

import java.io.OutputStreamWriter;

import java.net.ServerSocket;

import java.net.Socket;

import java.util.logging.Level;

import java.util.logging.Logger;

public class Server {

public static void main(String[] args){

try (ServerSocket server= new ServerSocket(8000)){

System.out.println("Сервер запущен");

while(true){

try(Socket socket = server.accept();

BufferedWriter writer = new BufferedWriter( new OutputStreamWriter(socket.getOutputStream()));

BufferedReader reader = new BufferedReader(new InputStreamReader(socket.getInputStream()))

){

double result = 0.0 ;

String[] values;

String request = reader.readLine();

values = request.split(" ");

System.out.println("Запрос:" + values[0] + values[1] + values[2]);

MyThread[] myThread = new MyThread[2];

for (int i = 0; i < 2; i++) {

myThread[i] = new MyThread(values[0], values[1], values[2]);

myThread[i].start();

}

try {

for(int i = 0; i < 2; i++){

myThread[i].join();

}

} catch (InterruptedException ex) {

Logger.getLogger(IntegTrap.class.getName()).log(Level.SEVERE, null, ex);

}

for(int i = 0; i < 2; i++){

result += myThread[i].getResult();

}

System.out.println("Ответ:" + result);

String buf = Double.toString(result);

writer.write(buf);

writer.newLine();

writer.flush();

}catch(NullPointerException e){e.printStackTrace();}}

}catch(IOException e){throw new RuntimeException(e);}

}

}

**Листинг Client:**

package my.numberaddition;

import java.io.BufferedReader;

import java.io.BufferedWriter;

import java.io.InputStreamReader;

import java.io.OutputStreamWriter;

import java.net.Socket;

public class Client {

String result;

public String getRes(){

return result;

}

public void client(String low, String high, String step){

try(Socket socket = new Socket("localhost", 8000);

BufferedWriter writer = new BufferedWriter( new OutputStreamWriter(socket.getOutputStream()));

BufferedReader reader = new BufferedReader(new InputStreamReader(socket.getInputStream()))

){

System.out.println("Соеденение с сервером");

String request = low + " " + high + " " + step;

System.out.println("Запрос:" + request);

writer.write(request);

writer.newLine();

writer.flush();

result = reader.readLine();

System.out.println("Ответ:" + result);

}catch(Exception e){e.printStackTrace();}

}

}

**Листинг MyThread:**

package my.numberaddition;

public class MyThread extends Thread {

double high;

double low;

double step;

double res = 0.0;

public MyThread(String \_low, String \_high, String \_step) {

high = Double.parseDouble(\_high);

low = Double.parseDouble(\_low);

step = Double.parseDouble(\_step);

}

@Override

public void run() {

for (int i = 0; i < (high - low) / step; i++) {

res += step \* (0.5 \* (Math.sin(low + i \* step) + Math.sin(low + (i + 1) \* step)));

}

}

public synchronized double getResult() {

return res/2 ;

}

}

**Листинг IntegTrap:**

/\*

\* Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license

\* Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this template

\*/

package my.numberaddition;

import java.io.\*;

import java.net.Socket;

import java.util.Date;

import java.util.Timer;

import java.util.TimerTask;

import javax.swing.table.DefaultTableModel;

import java.util.LinkedList;

import java.util.logging.Level;

import java.util.logging.Logger;

import javax.swing.JFileChooser;

import javax.swing.JOptionPane;

class MyExceptionClass extends Exception {

public MyExceptionClass(String message) {

JOptionPane.showMessageDialog(null, message, "Ошибка данных", JOptionPane.ERROR\_MESSAGE);

}

}

public class IntegTrap extends javax.swing.JFrame {

private LinkedList<Object> Recintegral;

public IntegTrap() {

this.Recintegral = new LinkedList<>();

initComponents();

}

@SuppressWarnings("unchecked")

// <editor-fold defaultstate="collapsed" desc="Generated Code">//GEN-BEGIN:initComponents

private void initComponents() {

jMenuItem3 = new javax.swing.JMenuItem();

jMenu3 = new javax.swing.JMenu();

jFileChooser1 = new javax.swing.JFileChooser();

jTextField1 = new javax.swing.JTextField();

jTextField2 = new javax.swing.JTextField();

jTextField3 = new javax.swing.JTextField();

jButton1 = new javax.swing.JButton();

jButton2 = new javax.swing.JButton();

jButton3 = new javax.swing.JButton();

jScrollPane1 = new javax.swing.JScrollPane();

jTable1 = new javax.swing.JTable();

jLabel1 = new javax.swing.JLabel();

jLabel2 = new javax.swing.JLabel();

jLabel3 = new javax.swing.JLabel();

jPanel1 = new javax.swing.JPanel();

jButton4 = new javax.swing.JButton();

jButton5 = new javax.swing.JButton();

jLabel4 = new javax.swing.JLabel();

jButton6 = new javax.swing.JButton();

jMenuBar1 = new javax.swing.JMenuBar();

jMenu1 = new javax.swing.JMenu();

jMenu4 = new javax.swing.JMenu();

jMenuItem1 = new javax.swing.JMenuItem();

jMenuItem2 = new javax.swing.JMenuItem();

jMenu5 = new javax.swing.JMenu();

jMenuItem4 = new javax.swing.JMenuItem();

jMenuItem5 = new javax.swing.JMenuItem();

jMenuItem3.setText("jMenuItem3");

jMenu3.setText("jMenu3");

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT\_ON\_CLOSE);

setTitle("Определенный интеграл");

setBounds(new java.awt.Rectangle(0, 0, 0, 0));

setCursor(new java.awt.Cursor(java.awt.Cursor.DEFAULT\_CURSOR));

setResizable(false);

addWindowListener(new java.awt.event.WindowAdapter() {

public void windowOpened(java.awt.event.WindowEvent evt) {

formWindowOpened(evt);

}

});

jTextField1.setDoubleBuffered(true);

jTextField1.addActionListener(new java.awt.event.ActionListener() {

public void actionPerformed(java.awt.event.ActionEvent evt) {

jTextField1ActionPerformed(evt);

}

});

jTextField2.setDoubleBuffered(true);

jTextField3.setDoubleBuffered(true);

jButton1.setText("Добавить");

jButton1.addActionListener(new java.awt.event.ActionListener() {

public void actionPerformed(java.awt.event.ActionEvent evt) {

jButton1ActionPerformed(evt);

}

});

jButton2.setText("Удалить");

jButton2.addActionListener(new java.awt.event.ActionListener() {

public void actionPerformed(java.awt.event.ActionEvent evt) {

jButton2ActionPerformed(evt);

}

});

jButton3.setText("Вычислить");

jButton3.addActionListener(new java.awt.event.ActionListener() {

public void actionPerformed(java.awt.event.ActionEvent evt) {

jButton3ActionPerformed(evt);

}

});

jScrollPane1.setBorder(javax.swing.BorderFactory.createTitledBorder(null, "Параметры", javax.swing.border.TitledBorder.CENTER, javax.swing.border.TitledBorder.DEFAULT\_POSITION));

jTable1.setModel(new javax.swing.table.DefaultTableModel(

new Object [][] {

},

new String [] {

"Нижняя", "Верхняя", "Шаг", "Результат"

}

) {

boolean[] canEdit = new boolean [] {

true, false, false, false

};

public boolean isCellEditable(int rowIndex, int columnIndex) {

return canEdit [columnIndex];

}

});

jTable1.setSelectionBackground(new java.awt.Color(80, 142, 175));

jTable1.setShowGrid(false);

jTable1.getTableHeader().setReorderingAllowed(false);

jScrollPane1.setViewportView(jTable1);

if (jTable1.getColumnModel().getColumnCount() > 0) {

jTable1.getColumnModel().getColumn(0).setResizable(false);

jTable1.getColumnModel().getColumn(1).setResizable(false);

jTable1.getColumnModel().getColumn(2).setResizable(false);

jTable1.getColumnModel().getColumn(3).setResizable(false);

}

jLabel1.setText("Нижняя");

jLabel1.setDoubleBuffered(true);

jLabel2.setText("Верхняя");

jLabel2.setDoubleBuffered(true);

jLabel3.setText("Шаг");

jLabel3.setDoubleBuffered(true);

jPanel1.setBorder(javax.swing.BorderFactory.createLineBorder(new java.awt.Color(0, 0, 0)));

jButton4.setText("Заполнить");

jButton4.addActionListener(new java.awt.event.ActionListener() {

public void actionPerformed(java.awt.event.ActionEvent evt) {

jButton4ActionPerformed(evt);

}

});

jButton5.setText("Очистить");

jButton5.addActionListener(new java.awt.event.ActionListener() {

public void actionPerformed(java.awt.event.ActionEvent evt) {

jButton5ActionPerformed(evt);

}

});

jLabel4.setText("Коллекции");

javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);

jPanel1.setLayout(jPanel1Layout);

jPanel1Layout.setHorizontalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(javax.swing.GroupLayout.Alignment.TRAILING, jPanel1Layout.createSequentialGroup()

.addContainerGap(javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addComponent(jButton4, javax.swing.GroupLayout.Alignment.TRAILING, javax.swing.GroupLayout.PREFERRED\_SIZE, 123, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(jButton5, javax.swing.GroupLayout.Alignment.TRAILING, javax.swing.GroupLayout.PREFERRED\_SIZE, 123, javax.swing.GroupLayout.PREFERRED\_SIZE))

.addContainerGap())

.addGroup(jPanel1Layout.createSequentialGroup()

.addGap(35, 35, 35)

.addComponent(jLabel4)

.addContainerGap(javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE))

);

jPanel1Layout.setVerticalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(jPanel1Layout.createSequentialGroup()

.addGap(5, 5, 5)

.addComponent(jLabel4)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)

.addComponent(jButton4)

.addGap(26, 26, 26)

.addComponent(jButton5)

.addContainerGap(javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE))

);

jButton6.setText("TCP");

jButton6.addActionListener(new java.awt.event.ActionListener() {

public void actionPerformed(java.awt.event.ActionEvent evt) {

jButton6ActionPerformed(evt);

}

});

jMenu1.setText("Файл");

jMenu4.setText("Сохранить");

jMenuItem1.setText("Сохранить");

jMenuItem1.addActionListener(new java.awt.event.ActionListener() {

public void actionPerformed(java.awt.event.ActionEvent evt) {

jMenuItem1ActionPerformed(evt);

}

});

jMenu4.add(jMenuItem1);

jMenuItem2.setText("Сохранить(бит)");

jMenuItem2.addActionListener(new java.awt.event.ActionListener() {

public void actionPerformed(java.awt.event.ActionEvent evt) {

jMenuItem2ActionPerformed(evt);

}

});

jMenu4.add(jMenuItem2);

jMenu1.add(jMenu4);

jMenu5.setText("Загрузить");

jMenuItem4.setText("Загрузить");

jMenuItem4.addActionListener(new java.awt.event.ActionListener() {

public void actionPerformed(java.awt.event.ActionEvent evt) {

jMenuItem4ActionPerformed(evt);

}

});

jMenu5.add(jMenuItem4);

jMenuItem5.setText("Загрузить(бит)");

jMenuItem5.addActionListener(new java.awt.event.ActionListener() {

public void actionPerformed(java.awt.event.ActionEvent evt) {

jMenuItem5ActionPerformed(evt);

}

});

jMenu5.add(jMenuItem5);

jMenu1.add(jMenu5);

jMenuBar1.add(jMenu1);

setJMenuBar(jMenuBar1);

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());

getContentPane().setLayout(layout);

layout.setHorizontalGroup(

layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(layout.createSequentialGroup()

.addContainerGap()

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(layout.createSequentialGroup()

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addComponent(jLabel2)

.addComponent(jLabel1)

.addComponent(jLabel3))

.addGap(10, 10, 10)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)

.addComponent(jTextField2)

.addComponent(jTextField3)

.addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED\_SIZE, 84, javax.swing.GroupLayout.PREFERRED\_SIZE)))

.addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.PREFERRED\_SIZE))

.addGap(18, 18, 18)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)

.addGroup(layout.createSequentialGroup()

.addComponent(jButton1)

.addGap(18, 18, 18)

.addComponent(jButton2, javax.swing.GroupLayout.PREFERRED\_SIZE, 100, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addComponent(jButton6, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addComponent(jButton3))

.addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.PREFERRED\_SIZE))

.addContainerGap(javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE))

);

layout.setVerticalGroup(

layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(layout.createSequentialGroup()

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING, false)

.addGroup(layout.createSequentialGroup()

.addGap(46, 46, 46)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

.addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(jLabel1))

.addGap(18, 18, 18)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

.addComponent(jTextField2, javax.swing.GroupLayout.PREFERRED\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(jLabel2))

.addGap(18, 18, 18)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

.addComponent(jTextField3, javax.swing.GroupLayout.PREFERRED\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(jLabel3))

.addGap(33, 33, 33)

.addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.PREFERRED\_SIZE))

.addGroup(layout.createSequentialGroup()

.addGap(35, 35, 35)

.addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED\_SIZE, 260, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

.addComponent(jButton1)

.addComponent(jButton2)

.addComponent(jButton3)

.addComponent(jButton6))))

.addGap(9, 19, Short.MAX\_VALUE))

);

pack();

}// </editor-fold>//GEN-END:initComponents

private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {//GEN-FIRST:event\_jButton1ActionPerformed

// Добавить в таблицу:

DefaultTableModel model = (DefaultTableModel) jTable1.getModel();

try{

String s\_low = jTextField1.getText();

String s\_high = jTextField2.getText();

String s\_step = jTextField3.getText();

double low = Double.parseDouble(s\_low);

double high = Double.parseDouble(s\_high);

double step = Double.parseDouble(s\_step);

if (low < high)

{

if ((high - low)>step)

{

if (((0.000001 < low )&(low < 1000000))&((0.000001 < high )&(high < 1000000))&((0.000001 < step )&(step < 1000000)))

{

model.addRow( new Object[]{jTextField1.getText(), jTextField2.getText(), jTextField3.getText(), "0.0"});

Recintegral.add(jTextField1.getText());

Recintegral.add(jTextField2.getText());

Recintegral.add(jTextField3.getText());

}

else {throw new MyExceptionClass("Выход за диапозон (0.000001 : 1000000)");}

}else {throw new MyExceptionClass("Разница верхней и нижней границы меньше шага");}

}else {throw new MyExceptionClass("Верхняя граница меньше нижней");}

} catch(MyExceptionClass e){}

}//GEN-LAST:event\_jButton1ActionPerformed

private void jTextField1ActionPerformed(java.awt.event.ActionEvent evt) {//GEN-FIRST:event\_jTextField1ActionPerformed

// TODO add your handling code here:

}//GEN-LAST:event\_jTextField1ActionPerformed

private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {//GEN-FIRST:event\_jButton2ActionPerformed

// Удалить строку:

DefaultTableModel model = (DefaultTableModel) jTable1.getModel();

model.removeRow(jTable1.getSelectedRow());

}//GEN-LAST:event\_jButton2ActionPerformed

private void jButton3ActionPerformed(java.awt.event.ActionEvent evt) {//GEN-FIRST:event\_jButton3ActionPerformed

// Вычислить:

int row = jTable1.getSelectedRow();

Client client = new Client();

String s\_low = jTable1.getValueAt(row, 0).toString();

String s\_high = jTable1.getValueAt(row, 1).toString();

String s\_step = jTable1.getValueAt(row, 2).toString();

String buf;

double res = 0.0;

System.out.println("TimerTask начал свое выполнение в:" + new Date());

client.client(s\_low, s\_high, s\_step);

buf = client.getRes();

res = Double.parseDouble(buf);

DefaultTableModel model = (DefaultTableModel) jTable1.getModel();

model.setValueAt(res, row, 3);

System.out.println("TimerTask закончил свое выполнение в:" + new Date());

// double low = Double.parseDouble(s\_low);

// double high = Double.parseDouble(s\_high);

// double step = Double.parseDouble(s\_step);

// for (int i = 0; i < (high-low)/step; i++)

// {

// res += step \*( 0.5\* (Math.sin(low+i\*step)+Math.sin(low+(i+1)\*step)));

// DefaultTableModel model = (DefaultTableModel) jTable1.getModel();

// model.setValueAt(res, row, 3);

// }

// res = res/2;

}//GEN-LAST:event\_jButton3ActionPerformed

private void jButton4ActionPerformed(java.awt.event.ActionEvent evt) {//GEN-FIRST:event\_jButton4ActionPerformed

// Заполнить коллекцию:

DefaultTableModel model = (DefaultTableModel) jTable1.getModel();

for (int i = 0; i< Recintegral.size (); i+=3)

{

model.addRow( new Object[]{Recintegral.get(i), Recintegral.get(i+1), Recintegral.get(i+2), "0.0"});

}

}//GEN-LAST:event\_jButton4ActionPerformed

private void jButton5ActionPerformed(java.awt.event.ActionEvent evt) {//GEN-FIRST:event\_jButton5ActionPerformed

// Очитстить коллекцию:

Recintegral.clear();

}//GEN-LAST:event\_jButton5ActionPerformed

private void jMenuItem1ActionPerformed(java.awt.event.ActionEvent evt) {//GEN-FIRST:event\_jMenuItem1ActionPerformed

// Сохранить:

DefaultTableModel model = (DefaultTableModel) jTable1.getModel();

int[] rowCount = jTable1.getSelectedRows();

try(PrintWriter fwrite = new PrintWriter("data.txt"))

{

for (int item : rowCount){

for(int i = 0; i < 4; i++)

{

fwrite.println(model.getValueAt(item, i));

}

}

fwrite.close();

}

catch(IOException e){}

}//GEN-LAST:event\_jMenuItem1ActionPerformed

private void jMenuItem4ActionPerformed(java.awt.event.ActionEvent evt) {//GEN-FIRST:event\_jMenuItem4ActionPerformed

// загрузить:

DefaultTableModel model = (DefaultTableModel) jTable1.getModel();

JFileChooser chooser = new JFileChooser();

chooser.showOpenDialog(null);

String myfile = chooser.getSelectedFile().toString();

int cnt = 0;

try (LineNumberReader lineNumberReader = new LineNumberReader(new FileReader(myfile))){

while ( lineNumberReader.readLine() != null)

{

cnt = lineNumberReader.getLineNumber();

}

} catch (IOException e) {}

try(BufferedReader fread = new BufferedReader (new FileReader(myfile)))

{

String[] buf = new String[cnt];

for(int i = 0; i < cnt; i++)

{

buf[i] = fread.readLine();

}

for(int i = 0; i < cnt; i+=4)

{

model.addRow(new Object[]{buf[i], buf[i+1], buf[i+2], buf[i+3]});

}

fread.close();

}

catch(IOException e){ throw new RuntimeException(e); }

}//GEN-LAST:event\_jMenuItem4ActionPerformed

private void jMenuItem2ActionPerformed(java.awt.event.ActionEvent evt) {//GEN-FIRST:event\_jMenuItem2ActionPerformed

// сохранить бит:

try{

ObjectOutputStream out = null;

out = new ObjectOutputStream(new FileOutputStream("file.ser"));

out.writeObject(Recintegral);

}

catch (IOException ex)

{

}

}//GEN-LAST:event\_jMenuItem2ActionPerformed

private void jMenuItem5ActionPerformed(java.awt.event.ActionEvent evt) {//GEN-FIRST:event\_jMenuItem5ActionPerformed

// загрузить бит:

DefaultTableModel model = (DefaultTableModel) jTable1.getModel();

JFileChooser chooser = new JFileChooser();

chooser.showOpenDialog(null);

File myfile = chooser.getSelectedFile();

try{

ObjectInputStream in = new ObjectInputStream(new BufferedInputStream(new FileInputStream(myfile)));

Recintegral = (LinkedList<Object>) in.readObject();

}

catch (IOException | ClassNotFoundException ex){}

for (int i = 0; i< Recintegral.size (); i+=3)

{

model.addRow( new Object[]{Recintegral.get(i), Recintegral.get(i+1), Recintegral.get(i+2), "0.0"});

}

}//GEN-LAST:event\_jMenuItem5ActionPerformed

public static void main(String args[]) {

/\* Set the Nimbus look and feel \*/

//<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">

/\* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.

\* For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html

\*/

try {

for (javax.swing.UIManager.LookAndFeelInfo info : javax.swing.UIManager.getInstalledLookAndFeels()) {

if ("Nimbus".equals(info.getName())) {

javax.swing.UIManager.setLookAndFeel(info.getClassName());

break;

}

}

} catch (ClassNotFoundException | InstantiationException | IllegalAccessException | javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(IntegTrap.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

}

//</editor-fold>

//</editor-fold>

/\* Create and display the form \*/

java.awt.EventQueue.invokeLater(new Runnable() {

public void run() {

new IntegTrap().setVisible(true);

}

});

}

// Variables declaration - do not modify//GEN-BEGIN:variables

private javax.swing.JButton jButton1;

private javax.swing.JButton jButton2;

private javax.swing.JButton jButton3;

private javax.swing.JButton jButton4;

private javax.swing.JButton jButton5;

private javax.swing.JButton jButton6;

private javax.swing.JFileChooser jFileChooser1;

private javax.swing.JLabel jLabel1;

private javax.swing.JLabel jLabel2;

private javax.swing.JLabel jLabel3;

private javax.swing.JLabel jLabel4;

private javax.swing.JMenu jMenu1;

private javax.swing.JMenu jMenu3;

private javax.swing.JMenu jMenu4;

private javax.swing.JMenu jMenu5;

private javax.swing.JMenuBar jMenuBar1;

private javax.swing.JMenuItem jMenuItem1;

private javax.swing.JMenuItem jMenuItem2;

private javax.swing.JMenuItem jMenuItem3;

private javax.swing.JMenuItem jMenuItem4;

private javax.swing.JMenuItem jMenuItem5;

private javax.swing.JPanel jPanel1;

private javax.swing.JScrollPane jScrollPane1;

private javax.swing.JTable jTable1;

private javax.swing.JTextField jTextField1;

private javax.swing.JTextField jTextField2;

private javax.swing.JTextField jTextField3;

// End of variables declaration//GEN-END:variables

}