**Search Form**

import java.awt.Color;

import java.awt.Toolkit;

import java.sql.ResultSet;

import java.sql.Statement;

import javax.swing.ImageIcon;

import static my.reuse.Connections.makeConnection;

public class SearchForm extends javax.swing.JPanel {

public SearchForm() {

initComponents();

jComboBox1.addItem("Linear Search");

jComboBox1.addItem("Binary Search");

jComboBox1.addItem("Complexity comparison");

}

@SuppressWarnings("unchecked")

private void initComponents() {

jTextField1 = new javax.swing.JTextField();

jLabel1 = new javax.swing.JLabel();

jComboBox1 = new javax.swing.JComboBox<>();

jButton1 = new javax.swing.JButton();

jLabel2 = new javax.swing.JLabel();

jLabel3 = new javax.swing.JLabel();

jLabel4 = new javax.swing.JLabel();

jLabel5 = new javax.swing.JLabel();

jLabel6 = new javax.swing.JLabel();

jLabel7 = new javax.swing.JLabel();

jLabel8 = new javax.swing.JLabel();

jLabel9 = new javax.swing.JLabel();

jLabel10 = new javax.swing.JLabel();

jLabel11 = new javax.swing.JLabel();

setBorder(javax.swing.BorderFactory.createTitledBorder("Search book"));

jTextField1.setBorder(javax.swing.BorderFactory.createLineBorder(new java.awt.Color(0, 0, 0)));

jTextField1.addKeyListener(new java.awt.event.KeyAdapter() {

public void keyTyped(java.awt.event.KeyEvent evt) {

jTextField1KeyTyped(evt); }});

jLabel1.setFont(new java.awt.Font("Tahoma", 1, 11));

jLabel1.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);

jLabel1.setText("Book\_ISBN");

jLabel1.setAlignmentX(0.5F);

jComboBox1.addItemListener(new java.awt.event.ItemListener() {

public void itemStateChanged(java.awt.event.ItemEvent evt) {

jComboBox1ItemStateChanged(evt); }});

jButton1.setText("Search");

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

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

jButton1ActionPerformed(evt); }});

jLabel2.setFont(new java.awt.Font("Tahoma", 1, 11));

jLabel2.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);

jLabel2.setText("Book\_Title");

jLabel2.setBorder(javax.swing.BorderFactory.createEtchedBorder());

jLabel3.setFont(new java.awt.Font("Tahoma", 1, 11));

jLabel3.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);

jLabel3.setText("Author");

jLabel3.setBorder(javax.swing.BorderFactory.createEtchedBorder());

jLabel4.setFont(new java.awt.Font("Tahoma", 1, 11));

jLabel4.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);

jLabel4.setText("Publisher");

jLabel4.setBorder(javax.swing.BorderFactory.createEtchedBorder());

jLabel5.setFont(new java.awt.Font("Tahoma", 1, 11));

jLabel5.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);

jLabel5.setText("Price");

jLabel5.setBorder(javax.swing.BorderFactory.createEtchedBorder());

jLabel6.setFont(new java.awt.Font("Tahoma", 1, 11));

jLabel6.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);

jLabel6.setText("Stock");

jLabel6.setBorder(javax.swing.BorderFactory.createEtchedBorder());

jLabel7.setFont(new java.awt.Font("Tahoma", 1, 13));

jLabel7.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);

jLabel7.setText(" ");

jLabel8.setFont(new java.awt.Font("Tahoma", 1, 13));

jLabel8.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);

jLabel8.setText(" ");

jLabel9.setFont(new java.awt.Font("Tahoma", 1, 13));

jLabel9.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);

jLabel9.setText("Time Taken :");

jLabel10.setFont(new java.awt.Font("Tahoma", 1, 13));

jLabel10.setForeground(java.awt.Color.red);

jLabel10.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);

jLabel10.setText(" ");

jLabel11.setFont(new java.awt.Font("Tahoma", 1, 13));

jLabel11.setForeground(java.awt.Color.red);

jLabel11.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);

jLabel11.setText(" ");

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

this.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()

.addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED\_SIZE, 84, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addGap(30, 30, 30)

.addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED\_SIZE, 217, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 35, Short.MAX\_VALUE)

.addComponent(jButton1, javax.swing.GroupLayout.PREFERRED\_SIZE, 90, javax.swing.GroupLayout.PREFERRED\_SIZE).addGap(32, 32, 32))

.addGroup(layout.createSequentialGroup()

.addComponent(jComboBox1, javax.swing.GroupLayout.PREFERRED\_SIZE, 143, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addGap(0, 0, Short.MAX\_VALUE))

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

.addGap(0, 0, Short.MAX\_VALUE)

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

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

.addComponent(jLabel5, javax.swing.GroupLayout.DEFAULT\_SIZE, 159, Short.MAX\_VALUE)

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

.addComponent(jLabel6, javax.swing.GroupLayout.PREFERRED\_SIZE, 158, javax.swing.GroupLayout.PREFERRED\_SIZE))

.addComponent(jLabel3, javax.swing.GroupLayout.Alignment.TRAILING, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE)

.addComponent(jLabel2, javax.swing.GroupLayout.Alignment.TRAILING, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE)

.addComponent(jLabel4, javax.swing.GroupLayout.Alignment.TRAILING, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE))

.addGap(97, 97, 97)).addGroup(layout.createSequentialGroup().addGap(336, 336, 336)

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

.addComponent(jLabel8, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE)

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

.addGap(0, 0, Short.MAX\_VALUE)

.addComponent(jLabel11, javax.swing.GroupLayout.PREFERRED\_SIZE, 146, javax.swing.GroupLayout.PREFERRED\_SIZE))))

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

.addComponent(jLabel9, javax.swing.GroupLayout.DEFAULT\_SIZE, 178, Short.MAX\_VALUE).addGap(18, 18, 18)

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

.addComponent(jLabel10, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE)

.addComponent(jLabel7, javax.swing.GroupLayout.PREFERRED\_SIZE, 159, javax.swing.GroupLayout.PREFERRED\_SIZE)).addContainerGap(133, Short.MAX\_VALUE)))));

layout.setVerticalGroup(

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

.addGroup(layout.createSequentialGroup().addGap(18, 18, 18)

.addComponent(jComboBox1,javax.swing.GroupLayout.PREFERRED\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addGap(35, 35, 35)

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

.addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED\_SIZE, 34, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(jLabel1).addComponent(jButton1))

.addGap(55, 55, 55)

.addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED\_SIZE, 24, javax.swing.GroupLayout.PREFERRED\_SIZE).addGap(18, 18, 18)

.addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED\_SIZE, 24, javax.swing.GroupLayout.PREFERRED\_SIZE).addGap(18, 18, 18)

.addComponent(jLabel4, javax.swing.GroupLayout.PREFERRED\_SIZE, 24, javax.swing.GroupLayout.PREFERRED\_SIZE).addGap(18, 18, 18)

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

.addComponent(jLabel6, javax.swing.GroupLayout.PREFERRED\_SIZE, 24, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(jLabel5, javax.swing.GroupLayout.PREFERRED\_SIZE, 24, javax.swing.GroupLayout.PREFERRED\_SIZE)).addGap(34, 34, 34)

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

.addComponent(jLabel7).addComponent(jLabel8))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 32, Short.MAX\_VALUE)

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

.addComponent(jLabel9).addComponent(jLabel10)

.addComponent(jLabel11)).addGap(22, 22, 22)));

}

private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {

jLabel7.setForeground(Color.BLACK);

jLabel7.setIcon(null);

jLabel8.setIcon(null);

long stt = System.nanoTime();

jLabel10.setText("");

jLabel11.setText("");

jLabel7.setText("");

jLabel8.setText("");

int index = jComboBox1.getSelectedIndex();

try {

long isbn = Long.parseLong(jTextField1.getText());

Statement st;

String bt = "", an = "", pn = "";

float p = 0;

int sp = 0, flag = 0;

if (jTextField1.getText().equals("")) {

jLabel7.setText("\*\*Please enter ISBN no. first");

} else if (index == 0) {

try {

st = makeConnection();

ResultSet rs = st.executeQuery("select \* from book");

while (rs.next()) {

long bisbn = rs.getLong("book\_isbn");

if (bisbn == isbn) {

flag = 1;

bt = rs.getString("book\_title");

an = rs.getString("author");

pn = rs.getString("publisher");

p = rs.getFloat("price");

sp = rs.getInt("stock\_position");

long edt = System.nanoTime();

jLabel10.setText((edt-stt)/1000000+" ms");

break; }

}

if (flag == 1) {

jLabel2.setText(bt);

jLabel3.setText(an);

jLabel4.setText(pn);

jLabel5.setText(p + "");

jLabel6.setText(sp + "");

} else {

long tt = System.nanoTime();

jLabel2.setText("N/F");

jLabel3.setText("N/F");

jLabel4.setText("N/F");

jLabel5.setText("N/F");

jLabel6.setText("N/F");

jLabel10.setText((tt-stt)/1000000+" ms");}

} catch (Exception e) {

System.out.println(e); }

} else if (index == 1) {

try {

int min = 0, max = 0;

boolean b = false;

int size = 0;

st = makeConnection();

ResultSet rs = st.executeQuery("select \* from book order by book\_isbn");

while (rs.next()) {

size++; }

max = size;

if (size != 0) {

rs.beforeFirst();

while (min <= max) {

int mid = (min + max) / 2;

if (mid == 0) {

mid = 1;

}

rs.absolute(mid);

if (isbn == rs.getLong("book\_isbn")) {

b = true;

jLabel2.setText(rs.getString("book\_title"));

jLabel3.setText(rs.getString("author"));

jLabel4.setText(rs.getString("publisher"));

jLabel5.setText(rs.getFloat("price") + "");

jLabel6.setText(rs.getInt("stock\_position") + "");

long edt = System.nanoTime();

jLabel10.setText((edt-stt)/1000000+" ms");

break;

} else if (isbn < rs.getLong("book\_isbn")) {

max = mid - 1;

if (max == 0) {

break; }

} else {

min = mid + 1; }

}

if (b == false) {

long ttb = System.nanoTime();

jLabel2.setText("N/F");

jLabel3.setText("N/F");

jLabel4.setText("N/F");

jLabel5.setText("N/F");

jLabel6.setText("N/F");

jLabel10.setText((ttb-stt)/1000000+" ms");

}

} else {

jLabel2.setText("Book\_Title");

jLabel3.setText("Author");

jLabel4.setText("Publisher");

jLabel5.setText("Price");

jLabel6.setText("Position");

jLabel7.setText("\*There is no book in Database!!!"); }

} catch (Exception e) {

System.out.println(e);

}

} else {

jLabel7.setText("Linear");

jLabel8.setText("Binary");

long lt = System.nanoTime();

long tbl = 0, tbb = 0, lnf = 0;

try {

st = makeConnection();

ResultSet rs = st.executeQuery("select \* from book");

while (rs.next()) {

long bisbn = rs.getLong("book\_isbn");

if (bisbn == isbn) {

flag = 1;

bt = rs.getString("book\_title");

an = rs.getString("author");

pn = rs.getString("publisher");

p = rs.getFloat("price");

sp = rs.getInt("stock\_position");

break;} }

if (flag != 1) {

lnf = System.nanoTime();

tbl = (lnf - stt) / 1000000;

jLabel2.setText("N/F");

jLabel3.setText("N/F");

jLabel4.setText("N/F");

jLabel5.setText("N/F");

jLabel6.setText("N/F");

} else {

lnf = System.nanoTime();

tbl = (lnf - stt) / 1000000;

jLabel2.setText(bt);

jLabel3.setText(an);

jLabel4.setText(pn);

jLabel5.setText(p + "");

jLabel6.setText(sp + "");}

} catch (Exception e) {

System.out.println(e);

}

long bset, bst = System.nanoTime();

try {

int min = 0, max = 0;

boolean b = false;

st = makeConnection();

ResultSet rs = st.executeQuery("select \* from book order by book\_isbn");

int size = 0;

while (rs.next()) {

size++;

}

System.out.println(size);

max = size;

if (size != 0) {

rs.beforeFirst();

while (min <= max) {

int mid = (min + max) / 2;

if (mid == 0) {

mid = 1; }

rs.absolute(mid);

if (isbn == rs.getLong("book\_isbn")) {

b = true;

bset = System.nanoTime();

tbb =(bset - stt - lnf + lt)/1000000;

break;

} else if (isbn < rs.getLong("book\_isbn")) {

max = mid - 1;

if (max == 0) {

break;

}

} else {

min = mid + 1;

}

}

if (b == false) {

bset = System.nanoTime();

tbb = (bset - stt - lnf + lt)/1000000; }

} else {

jLabel7.setText("Empty Database");

}

} catch (Exception e) {

System.out.println(e);

}

long s=tbb-tbl;

if(s<0){

jLabel8.setIcon(new ImageIcon(getClass().getResource("/green-check-mark-hi.png")));

}

else if(s>0){

jLabel7.setIcon(new ImageIcon(getClass().getResource("/green-check-mark-hi.png")));

}else{

jLabel7.setIcon(new ImageIcon(getClass().getResource("/green-check-mark-hi.png")));

jLabel8.setIcon(new ImageIcon(getClass().getResource("/green-check-mark-hi.png")));

}

jLabel10.setText(tbl+" ms");

jLabel11.setText(tbb+" ms");

}

} catch (Exception e) {

jLabel7.setForeground(Color.red);

jLabel7.setText("\*Invalid Book Isbn!!!"); }

}

private void jTextField1KeyTyped(java.awt.event.KeyEvent evt) {

char ch = evt.getKeyChar();

if (!((ch >= '0' && ch <= '9') || (ch == 8))) {

Toolkit.getDefaultToolkit().beep();

evt.consume();}

}

private void jComboBox1ItemStateChanged(java.awt.event.ItemEvent evt) {

if(jComboBox1.getSelectedIndex()==2)

{

jLabel7.setText("Linear");

jLabel8.setText("Binary");

}else{

jLabel7.setText("");

jLabel8.setText("");}

jLabel7.setIcon(null);

jLabel8.setIcon(null);

jTextField1.requestFocus();

jLabel10.setText("");

jLabel11.setText("");}

private javax.swing.JButton jButton1;

private javax.swing.JComboBox<String> jComboBox1;

private javax.swing.JLabel jLabel1;

private javax.swing.JLabel jLabel10;

private javax.swing.JLabel jLabel11;

private javax.swing.JLabel jLabel2;

private javax.swing.JLabel jLabel3;

private javax.swing.JLabel jLabel4;

private javax.swing.JLabel jLabel5;

private javax.swing.JLabel jLabel6;

private javax.swing.JLabel jLabel7;

private javax.swing.JLabel jLabel8;

private javax.swing.JLabel jLabel9;

private javax.swing.JTextField jTextField1;

}