

GURU NANAK COLLEGE BUDHLADA



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DEPARTMENT:COMPUTER SCIENCE

NAME OF PROJECT : LIBRARY MANAGEMENT SYSTEM IN JAVA

SUBMITTEDTO:

A.P. Kiranpal Kaur

SUBMITTEDBY:

Gurleen Kaur 1201

Gopal Singh 1202

Lekhika Rani 1203

Abhishek Verma 1204

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Declaration

We are hereby declaring that the Project Report entitled "**Library Management System**" in Java is an authentic record of our work carried out at the Department of Computer Science, Guru Nanak College, Budhlada as requirements for the degree of B.C.A - III, under the guidance of Asst. Prof. Kiranpal Kaur.

Signature:

Gurleen Kaur (1201) *Gurleen Kaur*

Gopal Singh (1202) *Gopal Singh*

Lekhika Rani (1203) *Lekhika Rani*

Abhishek Verma (1204) *Abhishek Verma*

Kiranpal Kaur

Signature of Supervisor

[Signature]
Signature of ~~HOD~~ Head
Deptt. of Comp. Sci.
Guru Nanak College
Budhlada (Mansa)

Introduction

Our **JavaScript Tutorial** is designed for beginners and professionals both. JavaScript is used to create client-side dynamic pages.

JavaScript is an object-based scripting language which is lightweight and cross-platform.

JavaScript is not a compiled language, but it is a translated language. The JavaScript Translator (embedded in the browser) is responsible for translating the JavaScript code for the web browser.

What is JavaScript

JavaScript (js) is a light-weight object-oriented programming language which is used by several websites for scripting the webpages. It is an interpreted, full-fledged programming language that enables dynamic interactivity on websites when applied to an HTML document. It was introduced in the year 1995 for adding programs to the webpages in the Netscape Navigator browser. Since then, it has been adopted by all other graphical web browsers. With JavaScript, users can build modern web applications to interact directly without reloading the page every time. The traditional website uses js to provide several forms of interactivity and simplicity.

Features of JavaScript

There are following features of JavaScript:

1. All popular web browsers support JavaScript as they provide built-in execution environments.
2. JavaScript follows the syntax and structure of the C programming language. Thus, it is a structured programming language.
3. JavaScript is a weakly typed language, where certain types are implicitly cast (depending on the operation).
4. JavaScript is an object-oriented programming language that uses prototypes rather than using classes for inheritance.
5. It is a light-weighted and interpreted language.
6. It is a case-sensitive language.

7. JavaScript is supportable in several operating systems including, Windows, macOS, etc.
8. It provides good control to the users over the web browsers.

History of JavaScript

In 1993, **Mosaic**, the first popular web browser, came into existence. In the **year 1994**, **Netscape** was founded by **Marc Andreessen**. He realized that the web needed to become more dynamic. Thus, a 'glue language' was believed to be provided to HTML to make web designing easy for designers and part-time programmers. Consequently, in 1995, the company recruited **Brendan Eich** intending to implement and embed Scheme programming language to the browser. But, before Brendan could start, the company merged with **Sun Microsystems** for adding Java into its Navigator so that it could compete with Microsoft over the web technologies and platforms. Now, two languages were there: Java and the scripting language. Further, Netscape decided to give a similar name to the scripting language as Java's. It led to 'Javascript'. Finally, in May 1995, Marc Andreessen coined the first code of Javascript named '**Mocha**'. Later, the marketing team replaced the name with '**LiveScript**'. But, due to trademark reasons and certain other reasons, in December 1995, the language was finally renamed to 'JavaScript'. From then, JavaScript came into existence.

Application of JavaScript

JavaScript is used to create interactive websites. It is mainly used for:

- Client-side validation,
- Dynamic drop-down menus,
- Displaying date and time,
- Displaying pop-up windows and dialog boxes (like an alert dialog box, confirm dialog box, and prompt dialog box),
- Displaying clocks etc.

Coding:

```
/*  
    * To change this license header, choose License Headers in Project Properties.  
    * To change this template file, choose Tools | Templates  
    * and open the template in the editor.  
    */  
  
package Library_Management;  
  
import java.awt.Dimension;  
  
import java.awt.Toolkit;  
  
/**  
    *  
    * @author ZI Zohir  
    */  
  
public class Home extends javax.swing.JFrame {  
  
    /**  
        * Creates new form Home  
        */  
  
    public Home() {  
        initComponents();  
  
        Toolkit toolkit = getToolkit();  
  
        Dimension size = toolkit.getScreenSize();  
  
        setLocation(size.width/2 - getWidth()/2, size.height/2 - getHeight()/2);  
  
    }  
  
    /**  
        * This method is called from within the constructor to initialize the form.  
        * WARNING: Do NOT modify this code. The content of this method is always  
        * regenerated by the Form Editor.
```

```

*/

@SuppressWarnings("unchecked")

// <editor-fold defaultstate="collapsed" desc="Generated Code"> //GEN-BEGIN: initComponents
private void initComponents() {

    jLabel1 = new javax.swing.JLabel();
    jLabel2 = new javax.swing.JLabel();
    jLabel3 = new javax.swing.JLabel();
    jLabel4 = new javax.swing.JLabel();
    jPanel4 = new javax.swing.JPanel();
    jPanel2 = new javax.swing.JPanel();
    btnrbook = new javax.swing.JButton();
    btnibook = new javax.swing.JButton();
    jPanel1 = new javax.swing.JPanel();
    btnstatistics = new javax.swing.JButton();
    btnnewstudent = new javax.swing.JButton();
    btnnewbook = new javax.swing.JButton();
    jMenuBar1 = new javax.swing.JMenuBar();
    jMenu1 = new javax.swing.JMenu();
    miexit = new javax.swing.JMenuItem();
    milogout = new javax.swing.JMenuItem();
    jMenu2 = new javax.swing.JMenu();
    miabout = new javax.swing.JMenuItem();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
    setTitle("Main Menu");
    setBackground(new java.awt.Color(0, 204, 204));
    jLabel1.setBackground(new java.awt.Color(0, 255, 255));

```

```

jLabel1.setFont(new java.awt.Font("Tahoma", 1, 24)); // NOI18N
jLabel1.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
jLabel1.setText("Library Management System");
jLabel2.setText("Welcome");
jLabel3.setText("to");
jLabel4.setText(" Library");

jPanel2.setBorder(javax.swing.BorderFactory.createTitledBorder(javax.swing.BorderFactory
.createLineBorder(new java.awt.Color(102, 255, 204)), "Action",
javax.swing.border.TitledBorder.DEFAULT_JUSTIFICATION,
javax.swing.border.TitledBorder.DEFAULT_POSITION, new java.awt.Font("Tahoma", 1,
24), new java.awt.Color(255, 102, 102))); // NOI18N

btnrbook.setText("Return Book");

btnrbook.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        btnrbookActionPerformed(evt);
    }
});

btnibook.setText("Issue Book");

btnibook.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        btnibookActionPerformed(evt);
    }
});

javax.swing.GroupLayout jPanel2Layout = new javax.swing.GroupLayout(jPanel2);
jPanel2.setLayout(jPanel2Layout);
jPanel2Layout.setHorizontalGroup(
    jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel2Layout.createSequentialGroup()
            .addContainerGap()
            .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE, 300, true)
                .addComponent(jLabel2, javax.swing.GroupLayout.DEFAULT_SIZE, 300, true)
                .addComponent(jLabel3, javax.swing.GroupLayout.DEFAULT_SIZE, 300, true)
                .addComponent(jLabel4, javax.swing.GroupLayout.DEFAULT_SIZE, 300, true)
                .addComponent(btnrbook, javax.swing.GroupLayout.DEFAULT_SIZE, 300, true)
                .addComponent(btnibook, javax.swing.GroupLayout.DEFAULT_SIZE, 300, true)
            )
            .addContainerGap(10, true)
        )
);

```



```

.addContainerGap()

.addComponent(btnibook, javax.swing.GroupLayout.PREFERRED_SIZE, 175,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addGap(18, 18, 18)

.addComponent(btnrbook, javax.swing.GroupLayout.PREFERRED_SIZE, 175,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))

);

jPanel2Layout.setVerticalGroup(

    jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(jPanel2Layout.createSequentialGroup())

.addContainerGap()

.addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

.addComponent(btnibook, javax.swing.GroupLayout.PREFERRED_SIZE, 73,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addComponent(btnrbook, javax.swing.GroupLayout.PREFERRED_SIZE, 73,
javax.swing.GroupLayout.PREFERRED_SIZE))

.addContainerGap(23, Short.MAX_VALUE))

);

jPanel1.setBorder(javax.swing.BorderFactory.createTitledBorder(javax.swing.BorderFactory
.createLineBorder(new java.awt.Color(102, 255, 102)), "Operation",
javax.swing.border.TitledBorder.DEFAULT_JUSTIFICATION,
javax.swing.border.TitledBorder.DEFAULT_POSITION, new java.awt.Font("Tahoma", 1,
24), new java.awt.Color(0, 102, 204))); // NOI18N

btnstatistics.setText("Statistics");

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

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

btnstatisticsActionPerformed(evt);

    }
}

```

```
});
```

```
btnnewstudent.setText("New Student");
```

```
btnnewstudent.addActionListener(new java.awt.event.ActionListener() {
```

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

```
btnnewstudentActionPerformed(evt);
```

```
    }
```

```
});
```

```
btnnewbook.setText("New Book");
```

```
btnnewbook.addActionListener(new java.awt.event.ActionListener() {
```

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

```
btnnewbookActionPerformed(evt);
```

```
    }
```

```
});
```

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

```
jPanel1.setLayout(jPanel1Layout);
```

```
jPanel1Layout.setHorizontalGroup(
```

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

```
.addGroup(jPanel1Layout.createSequentialGroup()
```

```
.addContainerGap()
```

```
.addComponent(btnnewbook, javax.swing.GroupLayout.PREFERRED_SIZE, 175,  
javax.swing.GroupLayout.PREFERRED_SIZE)
```

```
.addGap(18, 18, 18)
```

```
.addComponent(btnstatistics, javax.swing.GroupLayout.PREFERRED_SIZE, 175,  
javax.swing.GroupLayout.PREFERRED_SIZE)
```

```
.addGap(18, 18, 18)
```

```

.addComponent(btnnewstudent, javax.swing.GroupLayout.PREFERRED_SIZE, 175,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addContainerGap(62, Short.MAX_VALUE))

);

jPanel1Layout.setVerticalGroup(

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

.addGroup(jPanel1Layout.createSequentialGroup())

.addContainerGap()

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

.addComponent(btnnewbook, javax.swing.GroupLayout.PREFERRED_SIZE, 65,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addComponent(btnstatistics, javax.swing.GroupLayout.PREFERRED_SIZE, 65,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addComponent(btnnewstudent, javax.swing.GroupLayout.PREFERRED_SIZE, 62,
javax.swing.GroupLayout.PREFERRED_SIZE))

.addContainerGap(29, Short.MAX_VALUE))

);

javax.swing.GroupLayout jPanel4Layout = new javax.swing.GroupLayout(jPanel4);

jPanel4.setLayout(jPanel4Layout);

jPanel4Layout.setHorizontalGroup(

jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel4Layout.createSequentialGroup())

.addContainerGap()

.addGroup(jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)

.addComponent(jPanel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

```

```

.addComponent(jPanel2, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))

.addGap(21, 21, 21))

);

jPanel4Layout.setVerticalGroup(

jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel4Layout.createSequentialGroup())

.addGap(32, 32, 32)

.addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addGap(41, 41, 41)

.addComponent(jPanel2, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addContainerGap(106, Short.MAX_VALUE))

);

jMenu1.setText("File");

miexit.setText("Exit");

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

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

    }

});

jMenu1.add(miexit);

```

```
milogout.setText("Logout");

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

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

        milogoutActionPerformed(evt);

    }

});

jMenu1.add(milogout);

jMenuBar1.add(jMenu1);

jMenu2.setText("Edit");

miabout.setText("About");

jMenu2.add(miabout);

jMenuBar1.add(jMenu2);

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()
            .addGap(10, 10, 10)
            .addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
            .addContainerGap())
        .addGroup(layout.createSequentialGroup()
            .addGap(10, 10, 10)
            .addComponent(jTextField1, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
            .addContainerGap())
        .addGroup(layout.createSequentialGroup()
            .addGap(10, 10, 10)
            .addComponent(jButton1, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
            .addContainerGap())
        .addGroup(layout.createSequentialGroup()
            .addGap(10, 10, 10)
            .addComponent(jButton2, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
            .addContainerGap())
        .addGroup(layout.createSequentialGroup()
            .addGap(10, 10, 10)
            .addComponent(jButton3, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
            .addContainerGap())
        .addGroup(layout.createSequentialGroup()
            .addGap(10, 10, 10)
            .addComponent(jButton4, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
            .addContainerGap())
```

```

.addComponent(jLabel2)
.addComponent(jLabel3)
.addComponent(jLabel4))
.addContainerGap()))
    );

layout.setVerticalGroup(
layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(layout.createSequentialGroup()
.addContainerGap()
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(layout.createSequentialGroup()
.addComponent(jLabel2)
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
.addComponent(jLabel3)
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
.addComponent(jLabel4))
.addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 50,
javax.swing.GroupLayout.PREFERRED_SIZE))
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
.addComponent(jPanel4, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
.addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
    );

setSize(new java.awt.Dimension(700, 605));

setLocationRelativeTo(null);

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

```

```
private void milogoutActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_milogoutActionPerformed
```

```
    Login log = new Login();  
    log.setVisible(true);  
    this.dispose();  
} //GEN-LAST:event_milogoutActionPerformed
```

```
private void miexitActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_miexitActionPerformed
```

```
    System.exit(0);  
} //GEN-LAST:event_miexitActionPerformed
```

```
private void btnnewbookActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_btnnewbookActionPerformed
```

```
    NewBookob = new NewBook();  
    ob.setVisible(true);  
    this.dispose();  
} //GEN-LAST:event_btnnewbookActionPerformed
```

```
private void btnstatisticsActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_btnstatisticsActionPerformed
```

```
    Statistics ob = new Statistics();  
    ob.setVisible(true);  
    this.dispose();  
} //GEN-LAST:event_btnstatisticsActionPerformed
```

```
private void btnnewstudentActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_btnnewstudentActionPerformed
```

```
    Student ob = new Student();
```

```

ob.setVisible(true);

this.dispose();

} //GEN-LAST:event_btnnewstudentActionPerformed


private void btnrbookActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_btnrbookActionPerformed

    Return ob = new Return();

ob.setVisible(true);

this.dispose();

} //GEN-LAST:event_btnrbookActionPerformed


private void btnibookActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_btnibookActionPerformed

    Issue ob = new Issue();

ob.setVisible(true);

this.dispose();

} //GEN-LAST:event_btnibookActionPerformed


/**
 * @param args the command line arguments
 */
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 ex) {

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

        } catch (InstantiationException ex) {

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

        } catch (IllegalAccessException ex) {

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

        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

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

        }

        //</editor-fold>

        /* Create and display the form */

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

            public void run() {

                new Home().setVisible(true);

            }

        });

```

```
}  
  
// Variables declaration - do not modify//GEN-BEGIN:variables  
  
private javax.swing.JButton btnbook;  
  
private javax.swing.JButton btnnewbook;  
  
private javax.swing.JButton btnnewstudent;  
  
private javax.swing.JButton btnrbook;  
  
private javax.swing.JButton btnstatistics;  
  
private javax.swing.JLabel jLabel1;  
  
private javax.swing.JLabel jLabel2;  
  
private javax.swing.JLabel jLabel3;  
  
private javax.swing.JLabel jLabel4;  
  
private javax.swing.JMenu jMenuItem1;  
  
private javax.swing.JMenu jMenuItem2;  
  
private javax.swing.JMenuBar jMenuItemBar1;  
  
private javax.swing.JPanel jPanel1;  
  
private javax.swing.JPanel jPanel2;  
  
private javax.swing.JPanel jPanel4;  
  
private javax.swing.JMenuItem jMenuItemabout;  
  
private javax.swing.JMenuItem jMenuItemexit;  
  
private javax.swing.JMenuItem jMenuItemlogout  
  
// End of variables declaration//GEN-END:variables  
  
}
```

Conclusion

In this Library Management System project, you can enter the record of new books and retrieve the details of books available in the library. You can issue the books to the students and maintain their records. Late fine is charged for students who return the issued books after the due date. Only one book is issued to students. A new book is not issued to students who those not returned the last book