

Appendix A: Source Code

LOGIN CODE

```
package javaproject;

import javax.swing.JOptionPane;

/**
 *
 * @author EE
 */
public class Login extends javax.swing.JFrame {

    /**
     * Creates new form Login
     */
    public Login() {
        initComponents();
    }

    /**
     * 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")

    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
        login_1 l=new login_1();
        l.setPassword("24680");
        l.setUsername("kudzai");
    }
}
```

```

        if (l.username.equals(username.getText())&&l.password.equals(passwr.getText())){

            JOptionPane.showMessageDialog(null, "Sucess");

            Display d= new Display();

            d.setVisible(true);

            this.dispose();
        }

        else {

            if(l.username.equals(username.getText()))

                JOptionPane.showMessageDialog(null, "Wrong Password");

            else if(l.password.equals(passwr.getText())){

                JOptionPane.showMessageDialog(null, "Wrong Username");

            }

            else{

                JOptionPane.showMessageDialog(null, "Wrong Password and Username");

            }

        }

        // TODO add your handling code here:
    }

}

/**
 * @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(Login.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);

    }

}

```

```

    } catch (InstantiationException ex) {

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

    } catch (IllegalAccessException ex) {

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

    } catch (javax.swing.UnsupportedLookAndFeelException ex) {

        java.util.logging.Logger.getLogger(Login.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 Login().setVisible(true);

    }

});

}

```

```

// Variables declaration - do not modify

private javax.swing.JButton jButton1;

private javax.swing.JLabel jLabel1;

private javax.swing.JLabel jLabel2;

private javax.swing.JLabel jLabel3;

private javax.swing.JPasswordField passwr;

private javax.swing.JTextField username;

// End of variables declaration

}

```

LOGIN ASSISTANCE (Login_1)

```

public class login_1 {

    String username="admin";

    String password="password";

    public void setUsername(String username){

```

```

        this.username=username;
    }

    public void setPassword(String password){
        this.password=password;
    }
}

```

DISPLAY

```

public class Display extends javax.swing.JFrame {

```

```

    /**

```

```

     * Creates new form Display

```

```

     */

```

```

    public Display() {
        initComponents();
    }

```

```

    /**

```

```

     * 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">

```

```

    private void initComponents() {

```

```

        jPanel1 = new javax.swing.JPanel();

```

```

        jLabel2 = new javax.swing.JLabel();

```

```

        searcharea = new javax.swing.JTextField();

```

```

        Search = new javax.swing.JButton();

```

```

        DisplayAll = new javax.swing.JButton();

```

```
Exit = new javax.swing.JButton();
Add = new javax.swing.JButton();
Modify = new javax.swing.JButton();
jScrollPane2 = new javax.swing.JScrollPane();
text = new javax.swing.JTable();
Delete = new javax.swing.JButton();

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

jPanel1.setBackground(new java.awt.Color(255, 204, 204));

jLabel2.setFont(new java.awt.Font("Microsoft YaHei", 0, 11)); // NOI18N
jLabel2.setText("Course Name");

Search.setFont(new java.awt.Font("Microsoft YaHei", 0, 11)); // NOI18N
Search.setText("Search");
Search.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        SearchActionPerformed(evt);
    }
});

DisplayAll.setFont(new java.awt.Font("Microsoft YaHei", 0, 11)); // NOI18N
DisplayAll.setText("Display All");
DisplayAll.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        DisplayAllActionPerformed(evt);
    }
});

Exit.setFont(new java.awt.Font("Microsoft YaHei", 0, 11)); // NOI18N
```

```

Exit.setText("Exit");

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

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

        ExitActionPerformed(evt);

    }

});

```

```

Add.setFont(new java.awt.Font("Microsoft YaHei", 0, 11)); // NOI18N
Add.setText("Add");

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

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

        AddActionPerformed(evt);

    }

});

```

```

Modify.setFont(new java.awt.Font("Microsoft YaHei", 0, 11)); // NOI18N
Modify.setText("Modify");

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

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

        ModifyActionPerformed(evt);

    }

});

```

```

text.setFont(new java.awt.Font("Microsoft YaHei", 1, 11)); // NOI18N
text.setModel(new javax.swing.table.DefaultTableModel(

    new Object [][] {

        ,

    },

    new String [] {

        "Course Name", "Course Id", "Hours", "Credit"

    }

) {

    Class[] types = new Class [] {

```

```

        java.lang.String.class, java.lang.String.class, java.lang.String.class, java.lang.String.class
    };

    public Class getColumnClass(int columnIndex) {
        return types [columnIndex];
    }
});
text.setCellSelectionEnabled(true);
jScrollPane2.setViewportView(text);
text.getColumnModel().getSelectionModel().setSelectionMode(javax.swing.ListSelectionModel.SINGLE_INTERVAL_SELECTION);

Delete.setFont(new java.awt.Font("Microsoft YaHei", 0, 11)); // NOI18N
Delete.setText("Delete");
Delete.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        DeleteActionPerformed(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()
            .addGap(23, 23, 23)
            .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 72, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(18, 18, 18)
            .addComponent(searcharea, javax.swing.GroupLayout.PREFERRED_SIZE, 172, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(53, 53, 53)
            .addComponent(Search)
            .addGap(79, 79, 79)
            .addComponent(DisplayAll, javax.swing.GroupLayout.PREFERRED_SIZE, 103, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        .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, false)

            .addGroup(jPanel1Layout.createSequentialGroup())

                .addComponent(jScrollPane2, javax.swing.GroupLayout.PREFERRED_SIZE, 564, javax.swing.GroupLayout.PREFERRED_SIZE)

                .addContainerGap()

            .addGroup(jPanel1Layout.createSequentialGroup())

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

                .addGap(72, 72, 72)

                .addComponent(Modify)

                .addGap(97, 97, 97)

                .addComponent>Delete)

            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

            .addComponent(Exit, javax.swing.GroupLayout.PREFERRED_SIZE, 81, javax.swing.GroupLayout.PREFERRED_SIZE)

            .addGap(40, 40, 40))))
    );

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

        .addGroup(jPanel1Layout.createSequentialGroup())

            .addGap(134, 134, 134)

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

                .addComponent(jLabel2)

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

                .addComponent(Search)

                .addComponent(DisplayAll))

            .addGap(26, 26, 26)

            .addComponent(jScrollPane2, javax.swing.GroupLayout.PREFERRED_SIZE, 328, javax.swing.GroupLayout.PREFERRED_SIZE)

            .addGap(64, 64, 64)

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

                .addComponent>Add)

                .addComponent>Modify)

                .addComponent>Delete)

                .addComponent>Exit))

            .addContainerGap(412, Short.MAX_VALUE))
    );

```



```

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

getContentPane().setLayout(layout);

layout.setHorizontalGroup(

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

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

);

layout.setVerticalGroup(

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

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

);

pack();
} // </editor-fold>

```

```

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

    // TODO add your handling code here: DISPLAY.setToolTipText("Display all student information");

    Iterator it = Subject.carray.iterator();

    Subject temp;

    while(it.hasNext())

    {

        int r=0;

        int c=0;

        temp = (Subject) it.next();

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

        model.addRow(new Object[] { temp.getCname(),temp.getCid(),temp.getHours(),temp.getCred() });

        System.out.println(temp.getCname()+"\t"+temp.getCid()+"\t"+temp.getHours()+temp.getCred()+"\n");

    }

}

```

```

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

    // TODO add your handling code here:

    Search.setToolTipText("Enter Course name:");

    int c,u;

```

```

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

c=model.getRowCount();

String search = searcharea.getText();

if(search.length()==0){

    JOptionPane.showMessageDialog(null, "Empty Search Bar");

}

else{

model.setRowCount(0);

Iterator it = Subject.carray.iterator();

Subject temp;

    boolean found = false;

    while(it.hasNext())

    {

        temp = (Subject) it.next();

        if(temp.getCname().equals(search)||temp.Courseinformation.getCouName().equals(search)){

            model.addRow(new Object[]{ temp.getCname(),temp.getCid(),temp.getHours(),temp.getCred()});

            found = true;

        }

    }

    if(!found){

        JOptionPane.showMessageDialog(this,"Not found!");

    }

searcharea.setText(" ");

System.out.println(searcharea.getText()+search);

}

}

```

```

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

    // TODO add your handling code here:

    Modify.setToofTipText("CLick on object to modify or search");

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

    int row,column;

    Object o,t;

    column=text.getSelectedColumn();

    row =text.getSelectedRow();

    o=model.getValueAt(row, column);

```

```

Iterator it = Subject.carray.iterator();

Subject temp;

while(it.hasNext()){

    temp = (Subject) it.next();

    System.out.println(temp.getCid());

    if(temp.getCName().equals(o)||temp.getCid().equals(o)||temp.getHours().equals(o)||temp.getCred().equals(o)){

        if(column==0){

            temp.setCName(JOptionPane.showInputDialog("Course Name"));

            model.removeRow(row);

        }

        else if(column==1){

            temp.setCid(JOptionPane.showInputDialog("Course Id"));

            model.removeRow(row);

        }

        else if(column==2){

            temp.setHours(JOptionPane.showInputDialog("Hours"));

            model.removeRow(row);

        }

        else if(column==3){

            temp.setCred(JOptionPane.showInputDialog("Credit"));

            model.removeRow(row);

        }

    }

    else{

        if(searcharea.getText().equals(temp.getCName())){

            temp.setCName(JOptionPane.showInputDialog("Course Name"));

            temp.setCid(JOptionPane.showInputDialog("Course Id"));

            temp.setHours(JOptionPane.showInputDialog("Hours"));

            temp.setCred(JOptionPane.showInputDialog("Credit"));

            model.removeRow(row); }

    }

}

```

```
}  
}
```

```
private void AddActionPerformed(java.awt.event.ActionEvent evt) {  
    // TODO add your handling code here:  
    Add.setTooTipText("Add new information");  
    Add a=new Add();  
    a.setVisible(true);  
    this.dispose();  
}
```

```
private void ExitActionPerformed(java.awt.event.ActionEvent evt) {  
    // TODO add your handling code here:  
    Login l = new Login();  
    l.setVisible(true);  
    this.dispose();  
}
```

```
private void DeleteActionPerformed(java.awt.event.ActionEvent evt) {  
    // TODO add your handling code here:  
    Delete.setTooTipText("Click on Object to Delete");  
    DefaultTableModel model=(DefaultTableModel)text.getModel();  
    int row,colume;  
    boolean isfound=false;  
    Object o,t;  
  
    colume=text.getSelectedColumn();  
    row =text.getSelectedRow();  
    o=model.getValueAt(row, colume);  
    Iterator it = Subject.cdarray.iterator();  
    Subject temp,destu=null;  
    while(it.hasNext()){  
        temp = (Subject) it.next();  
        if(temp.getCname().equals(o)){
```

```

        isfound = true;

        destu = temp;

    }

}

if(isfound){
    Subject.cdarray.remove(destu);
    model.removeRow(row);
}

}

/**
 * @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(Display.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    } catch (InstantiationException ex) {

        java.util.logging.Logger.getLogger(Display.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    } catch (IllegalAccessException ex) {

        java.util.logging.Logger.getLogger(Display.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {

```

```

        java.util.logging.Logger.getLogger(Display.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 Display().setVisible(true);
        }
    });
}

```

```

// Variables declaration - do not modify
private javax.swing.JButton Add;
private javax.swing.JButton Delete;
private javax.swing.JButton DisplayAll;
private javax.swing.JButton Exit;
private javax.swing.JButton Modify;
private javax.swing.JButton Search;
private javax.swing.JLabel jLabel2;
private javax.swing.JPanel jPanel1;
private javax.swing.JScrollPane jScrollPane2;
private javax.swing.JTextField searcharea;
private javax.swing.JTable text;

// End of variables declaration
}

```

ADD

```

private void addingActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    if(" ".equals(coursename.getText())){
        JOptionPane.showMessageDialog(null, "invalid info");
    }
    else{

```

```

Subject cdtemp = new Subject(coursename.getText(),courseid.getText(),hours.getText(),credit.getText());

Subject.cdarray.add(cdtemp);

Iterator it = Subject.cdarray.iterator();

Subject temp;

while(it.hasNext())

{

    temp = (Subject) it.next();

    System.out.println(temp.getCname()+"\t"+temp.getCid()+"\t"+ temp.getHours()+"\t"+temp.getCred()+"\n");

}


coursename.setText(" ");

courseid.setText(" ");

hours.setText(" ");

credit.setText(" ");


JOptionPane.showMessageDialog(null, "Information Added");


}

}


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

    // TODO add your handling code here:


    d.setVisible(true);

    this.dispose();

}


/**

 * @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(Add.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
} catch (InstantiationException ex) {
    java.util.logging.Logger.getLogger(Add.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
} catch (IllegalAccessException ex) {
    java.util.logging.Logger.getLogger(Add.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
} catch (javax.swing.UnsupportedLookAndFeelException ex) {
    java.util.logging.Logger.getLogger(Add.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 Add().setVisible(true);
    }
});
}

```

```

// Variables declaration - do not modify
private javax.swing.JButton adding;
private javax.swing.JTextField courseid;

```



```

private javax.swing.JTextField coursename;

private javax.swing.JTextField credit;

private javax.swing.JTextField hours;

private javax.swing.JButton jButton2;

private javax.swing.JLabel jLabel1;

private javax.swing.JLabel jLabel2;

private javax.swing.JLabel jLabel3;

private javax.swing.JLabel jLabel4;

private javax.swing.JLabel jLabel5;

private javax.swing.JPanel jPanel1;

private javax.swing.JButton mainscreen;

// End of variables declaration

Display d = new Display();

}

```

SUBJECT

```

import java.util.ArrayList;

import java.util.*;

```

```

/**
 *
 * @author EE
 */

public class Subject {

    String cname,cred;

    String cid,s;

    String hours;

    public Courseinformation Courseinformation =new Courseinformation();

    public Subject(){ }

    public Subject(String cname,String cid,String hours,String cred){

        this.cname=cname;

        this.cid=cid;

        this.hours=hours;

        this.cred=cred;
    }
}

```

```

    }

    public void setCname(String cname){

        this.cname= cname;

    }

    public String getCname(){

        return cname;

    }

    public void setCid(String cid){

        this.cid=cid;

    }

    public String getCid(){

        return cid;

    }

    public void setHours(String hours){

        this.hours=hours;

    }

    public String getHours(){

        return hours;

    }

    public void setCred(String cred){

        this.cred=cred;

    }

    public String getCred(){

        return cred;

    }

}

static ArrayList<Subject> cdarray = new ArrayList<Subject>();

}

```

JAVAPROJECT

```

public class Javaproject {

    /**

    * @param args the command line arguments

    */
}

```

```
public static void main(String[] args) {  
    // TODO code application logic here  
    new Login().setVisible(true);  
}  
}
```

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MainFrame

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