Shri Vile Parle Kelavani Mandal's

SHRI BHAGUBHAI MAFATLAL POLYTECHNIC

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Program : **Information Technology**
Course Name : **Programming in Java**
Course Code : **PRJ190901—**
Semester : **III**
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Title : **Library Management System**

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Abstract

My Mini Project titled "Library Management System" is a software for monitoring and controlling the Transactions in a Library. This Project is designed coded in Netbeans IDE and database Management is handled by PHP MyAdmin, a free software tool written in PHP intended to handle the administration of MySQL and MariaDB.This Software mainly focuses on basic operations like to insert new information, searching books and facility to issue book and give feedback. My Project is easy to use for both beginners ad advanced users. It features an attractive user interface which is very interactive, designed by using the concept of Java Swing available in Netbeans

Problem Statement and Features:

Develop a Java Mini Project for Library Management System which offers the following features:

- Insert Data into Database.
- View records in the Database.
- Issue Book.
- Search for Available Book
- Feedback or Rate a particular Book.

SOFTWARE REQUIREMENTS

1. Java: JDK1.8

Fig. 1 Oracle Java Logo

Java is a general-purpose programming language that is class-based, object-oriented, and designed to have as few implementation dependencies as possible. Java is fast, reliable and secure. From desktop to web applications, scientific supercomputers to gaming consoles, cell phones to the Internet, Java is used in every nook and corner.Not only is Java the official programming language for Android app development (along with Kotlin), Java itself is used by Google for large parts of the Android internals.

JFreechart, JasperReport, Mail and Activations, MySQL, XAMPP, Netbeans

MySQL is easy to use. It is secure and consist of a solid data security layer ta protects sensitive data from intruders. Client Server Architecture, free to download, it is scalable ,speed and high flexibility.
XAMPP has he ability to serve web pages on he World Wide Wed. A speial tool is provided to password protect the most important parts the package. XAMPP also provides support for creating and manipulating databases in MariaDB and SQLite among others
NetBeans IDE

- Best Support for latest Java Technologies.
- Fast and Smart Code Editing
- Easy and Efficient Project Management
- Rapid user Interface Development
- Write Bug Free Code

HARDWARE REQUIREMENTS

- Windows 7 or higher (32bit or 64bit)
- Intel i3 processor (1.30 GHz)
- Minimum 4GB RAM
- 250GB Free Disk Space

Module Implementation

Sr no.	Module Name	Description	Implementation date
1	Defining the Requirements	Collecting all information needed for implementation of a Library Management System	4-10-2020
2	Designing on paper	Basic Structure or an outline of the whole project on paper.	8-10-20
3	Designing the Frames practically.	Design the Frames using Java Swing on an IDE without implementation.	16-10-20
4	Login Form implementation	Login Form enables the user to login to the Project and enables the the connection to Database.	21-10-20
5	Main Menu implementation	The Main Menu Frame contains the all the options used to access the further Frames or options.	25-10-20
6	Insert Data implementation	The Insert Data allow the user to enter data into Database.	28-10 20
7	Issual Form implementation	The issual form is used to get information the person who have issued the form and which of book have been issued and store the information in the database.	30-10-20
8	Feedback Form implementation	The Feedback Form all takes the feedback from the user about the book and store it into the database.	3-11-20
9	Display Form implementation	The Display Form Displays the records of the existing book into the table .	7-11-20
10	Search Form implementation	Search Form searches the Records of the book when its name is entered .	12-11-20

Mini Project Source Code

Login Form

```
private void LoginActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    try{
        Class.forName("com.mysql.jdbc.Driver");
        Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/library","root","");
        String sql="Select *from loginform where username=? and password =?";
        PreparedStatement pst = con.prepareStatement(sql);
        pst.setString(1,usertext.getText());
        pst.setString(2,passwordtext.getText());
        ResultSet rs = pst.executeQuery();
        if(rs.next()){
            JOptionPane.showMessageDialog(null,"Login Successful");

            MainMenu menu = new MainMenu();
            menu.setVisible(true);
            setVisible(false);
        }
        else{
            JOptionPane.showMessageDialog(null,"Incorrect Username or Password. Try Again!!");
            usertext.setText("");
            passwordtext.setText("");
        }
        con.close();

    }
    catch(Exception e){
        JOptionPane.showMessageDialog(null,e);

    }
}
```

Main Menu

```
private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    SearchData sd = new SearchData();
    sd.setVisible(true);
    setVisible(false);
}

private void jButton4ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    FeedbackForm fb = new FeedbackForm();
    fb.setVisible(true);
    setVisible(false);
}

private void IssuebtnActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    IssualForm i = new IssualForm();
    i.setVisible(true);
    setVisible(false);

}

private void displayActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:

    DisplayData dis = new DisplayData();
    dis.setVisible(true);
    setVisible(false);

}

private void insert1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    InsertData in = new InsertData();
     in.setVisible(true);
    setVisible(false);
}
```

Insert Data

```
private void savebtnActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
     try{
        Class.forName("com.mysql.jdbc.Driver");
        Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/library","root","");
        String query="Insert into recordsl(code,Name,Author,Genre,Status) values (?,?,?,?,?)";
        PreparedStatement pst = con.prepareStatement(query);
        pst.setString(1, codetf.getText());
        pst.setString(2, nametf.getText());
        pst.setString(3, authortf.getText());
        pst.setString(4, genretf.getText());
        pst.setString(5, statustf.getText());
        pst.executeUpdate();
        JOptionPane.showMessageDialog(null,"Insertion Successfull");

        MainMenu menu = new MainMenu();
        menu.setVisible(true);
        setVisible(false);
    }
     catch(Exception e){
        JOptionPane.showMessageDialog(null,e);
    }
}

private void resetbtnActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    codetf.setText("");
    nametf.setText("");
    authortf.setText("");
    genretf.setText("");
}

private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
     MainMenu menu = new MainMenu();
     menu.setVisible(true);
     setVisible(false);
}
```

Display Data

```
private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
     try{
        Class.forName("com.mysql.jdbc.Driver");
        Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/library","root","");
        Statement st = con.createStatement();
        String query3 ="Select * from recordsl ";
        ResultSet rs = st.executeQuery(query3);

        while(rs.next()){

            String Code=rs.getString("Code");
            String Name=rs.getString("Name");
            String Author=rs.getString("Author");
            String Genre =rs.getString("Genre");

            String displayTB[]={Code,Name,Author,Genre};
            DefaultTableModel tblModel = (DefaultTableModel)jTable1.getModel();

            tblModel.addRow(displayTB);
        }
        con.close();
    }
     catch(Exception e){
        JOptionPane.showMessageDialog(null,e);
      }
}

private void closeActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
          MainMenu menu = new MainMenu();
          menu.setVisible(true);
          setVisible(false);
}
```

Issue Form

```
private void issueResetActionPerformed(java.awt.event.ActionEvent evt) {
    fnametf.setText("");
    lnametf.setText("");
    stuidtf.setText("");
    namebktf.setText("");
    codebktf.setText("");
    datetf.setText("");
}

private void IssueSaveActionPerformed(java.awt.event.ActionEvent evt) {
    try{
        Class.forName("com.mysql.jdbc.Driver");
        Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/library","root","");
        String query1="insert into issuebook(FirstName,LastName,StudentId,BookName,BookCode,DateofIssual)values (?,?,?,?,?,?)";
        PreparedStatement pst = con.prepareStatement(query1);
        pst.setString(1,fnametf.getText());
        pst.setString(2,lnametf.getText());
        pst.setString(3,stuidtf.getText());
        pst.setString(4,namebktf.getText());
        pst.setString(5,codebktf.getText());
        pst.setString(6,datetf.getText());
        pst.executeUpdate();
        JOptionPane.showMessageDialog(null,"Issual Successfull");
        MainMenu menu = new MainMenu();
        menu.setVisible(true);
        setVisible(false);
    }
    catch(Exception e){
        JOptionPane.showMessageDialog(null,e);
         }
}

private void fnametfActionPerformed(java.awt.event.ActionEvent evt) {...3 lines }

private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
     MainMenu menu = new MainMenu();
     menu.setVisible(true);
    setVisible(false);
}
```

Feedback Form

```
private void ResetActionPerformed(java.awt.event.ActionEvent evt) {
    fullnametf.setText("");
    booknametf.setText("");
    ratingtf.setText("");
    feedbackta.setText("");
}

private void saveActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    try{
        Class.forName("com.mysql.jdbc.Driver");
        Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/library","root","");
        String query2="insert into feedbackform(FullName,BookName,Ratings,Feedback)values (?,?,?,?)";
        PreparedStatement pst = con.prepareStatement(query2);
        pst.setString(1,fullnametf.getText());
        pst.setString(2,booknametf.getText());
        pst.setString(3,ratingtf.getText());
        pst.setString(4,feedbackta.getText());
        pst.executeUpdate();
        JOptionPane.showMessageDialog(null,"Issual Successfull");
        MainMenu menu = new MainMenu();
        menu.setVisible(true);
        setVisible(false);
     }
        catch(Exception e){
        JOptionPane.showMessageDialog(null,e);
}

}

private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
     MainMenu menu = new MainMenu();
          menu.setVisible(true);
         setVisible(false);
}
```

Search Data

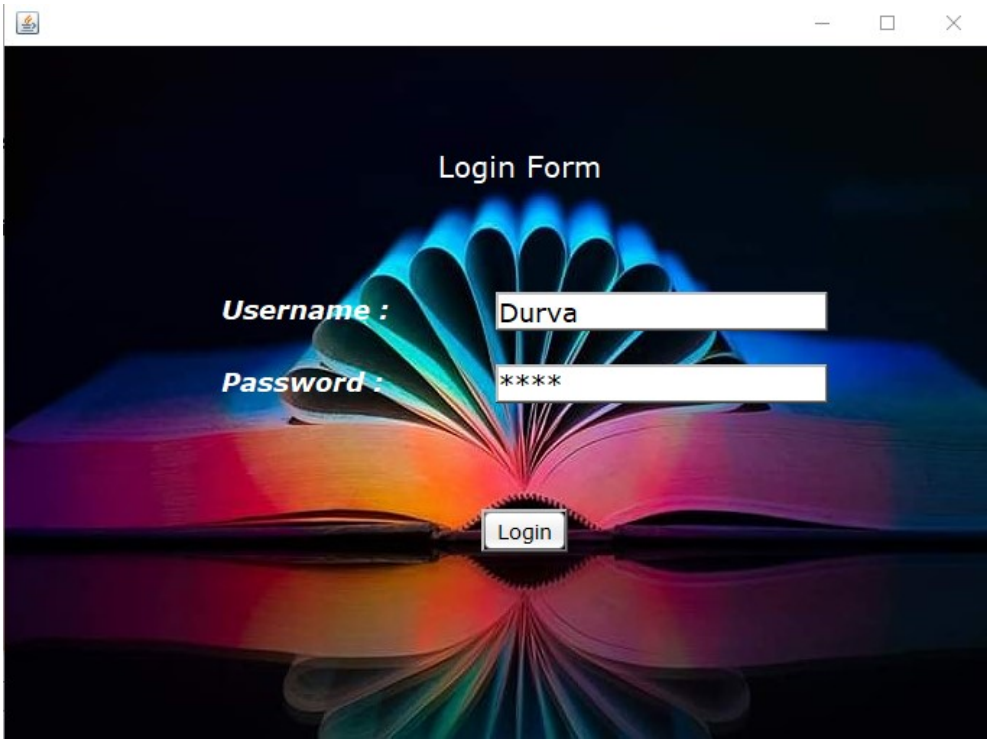
```
private void search_txtKeyReleased(java.awt.event.KeyEvent evt) {
    // TODO add your handling code here:
  try{

      Class.forName("com.mysql.jdbc.Driver");
        Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/library","root","");
      String sql = "select * from records1 where name =?";
      PreparedStatement pst = con.prepareStatement(sql);
      pst = con.prepareStatement(sql);
      pst.setString(1,search_txt.getText());
      ResultSet rs = pst.executeQuery();

      if(rs.next()){
          String add1= rs.getString("code");
          searchCode.setText(add1);
          String add2= rs.getString("name");
          searchName.setText(add2);
          String add3= rs.getString("author");
          searchAuthor.setText(add3);
          String add4= rs.getString("genre");
          searchGenre.setText(add4);
          String add5= rs.getString("status");
          searchStatus.setText(add5);
      }
  }
  catch(Exception e){
          JOptionPane.showMessageDialog(null,"Book with such name does not exist. Search with a proper Name. ");
   }
}

private void closeActionPerformed(java.awt.event.ActionEvent evt) {
    MainMenu menu = new MainMenu();
    menu.setVisible(true);
    setVisible(false);
}
```

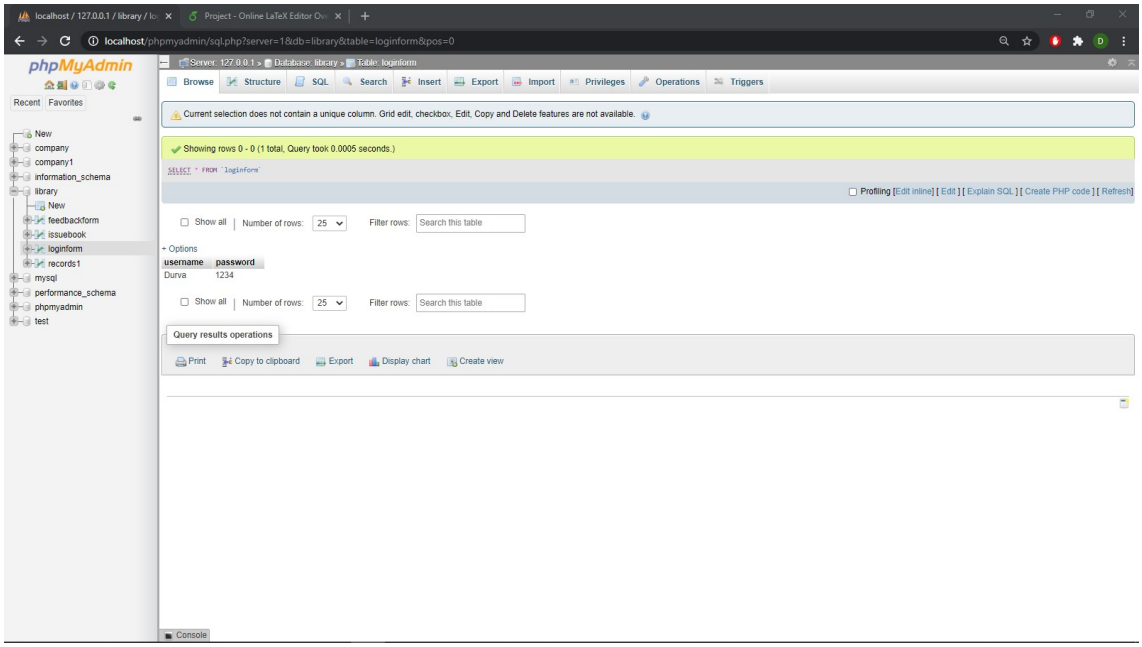
Code for getting the JFrame in the middle of the Screen

```
initComponents();
Toolkit toolkit = getToolkit();
Dimension size = toolkit.getScreenSize();
setLocation(size.width/2-getWidth()/2,size.height/2 - getHeight()/2);
```

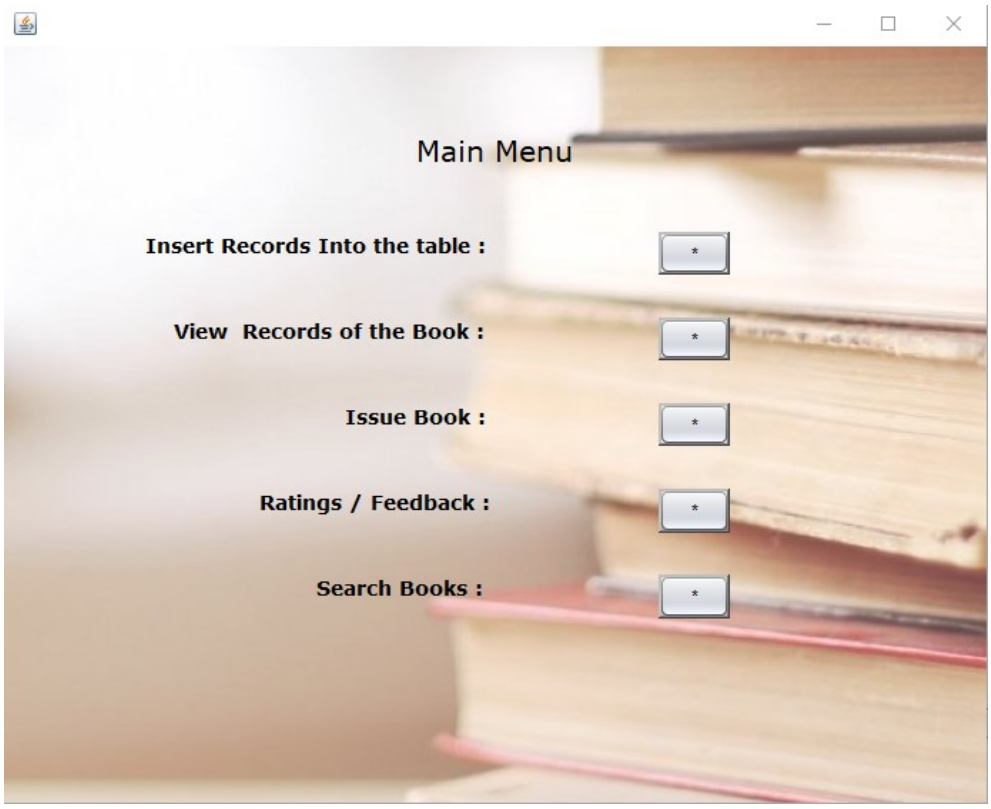
Mini Project Result

Login Form Result

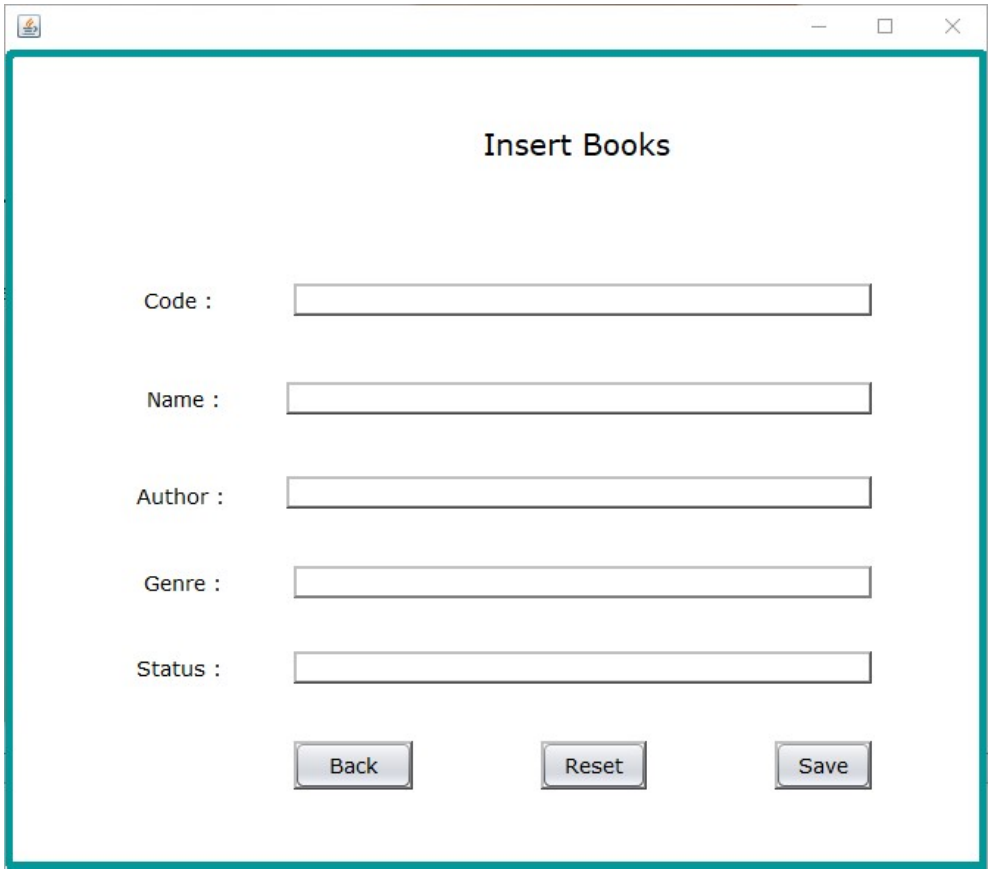




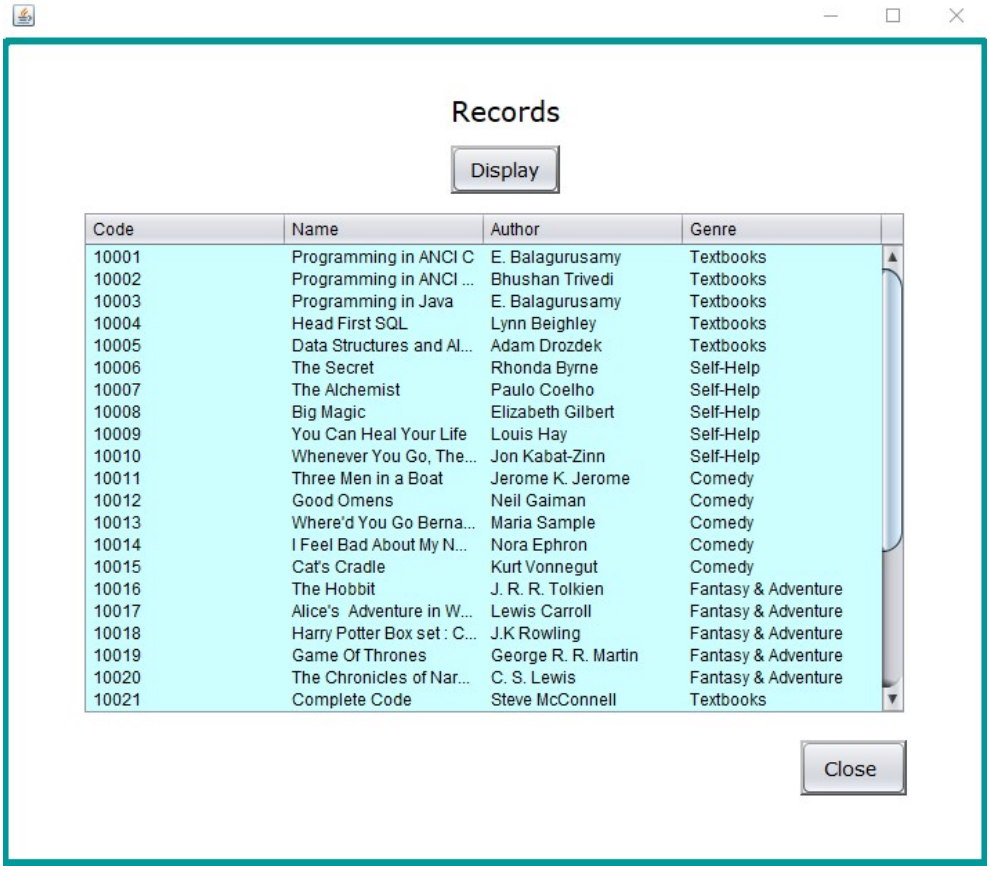
Main Menu Result

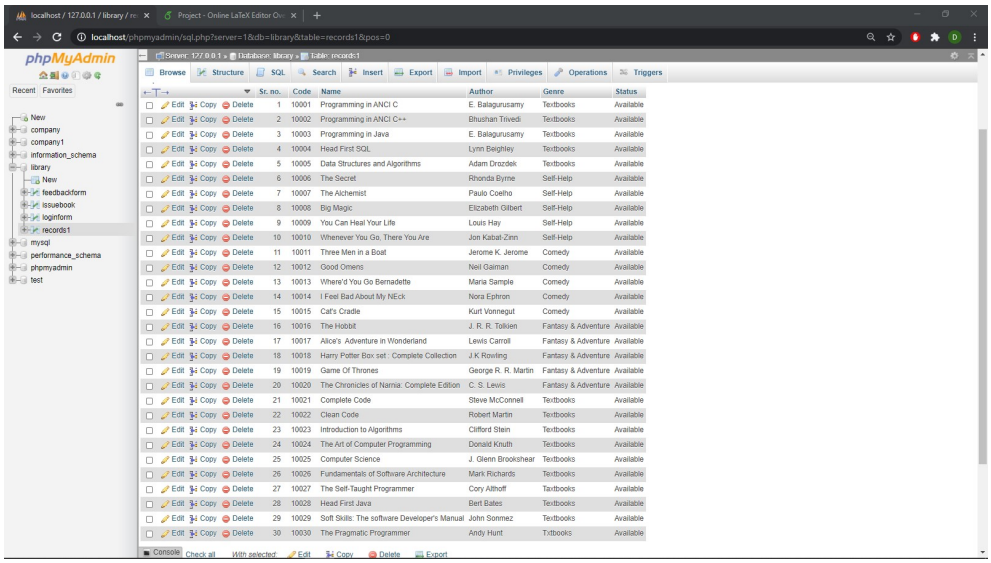


Insert Data Result

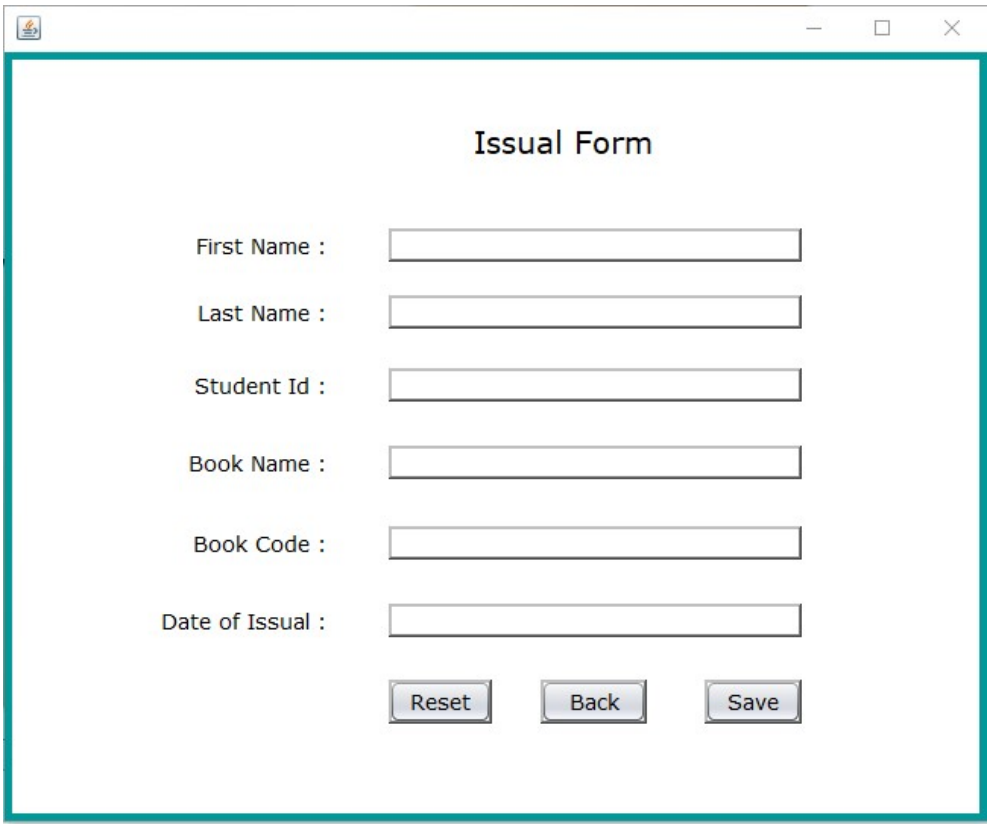


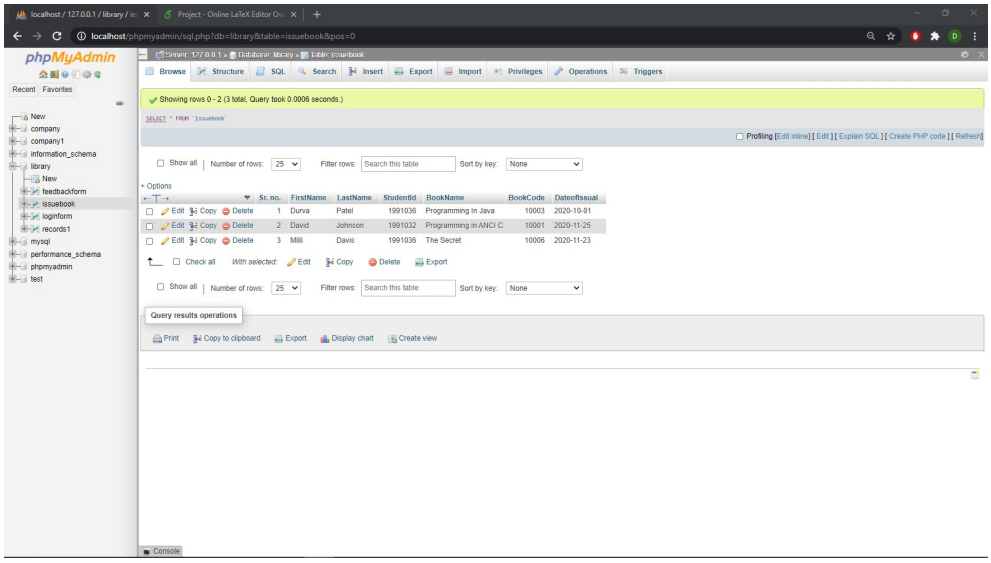
Insert Data Result



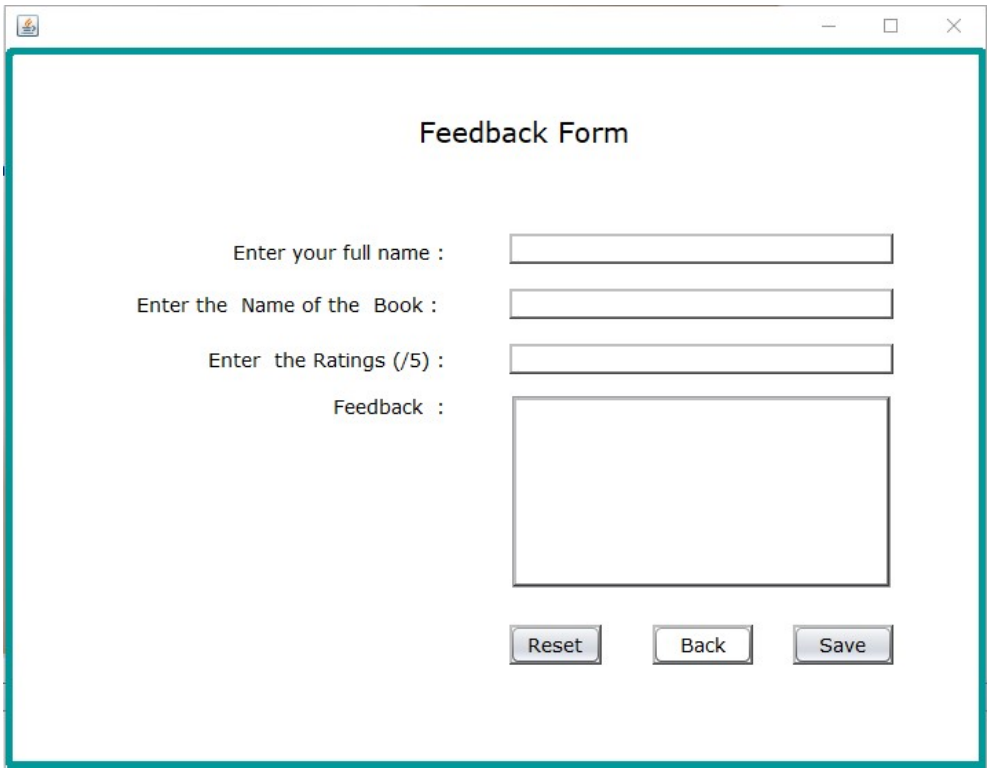


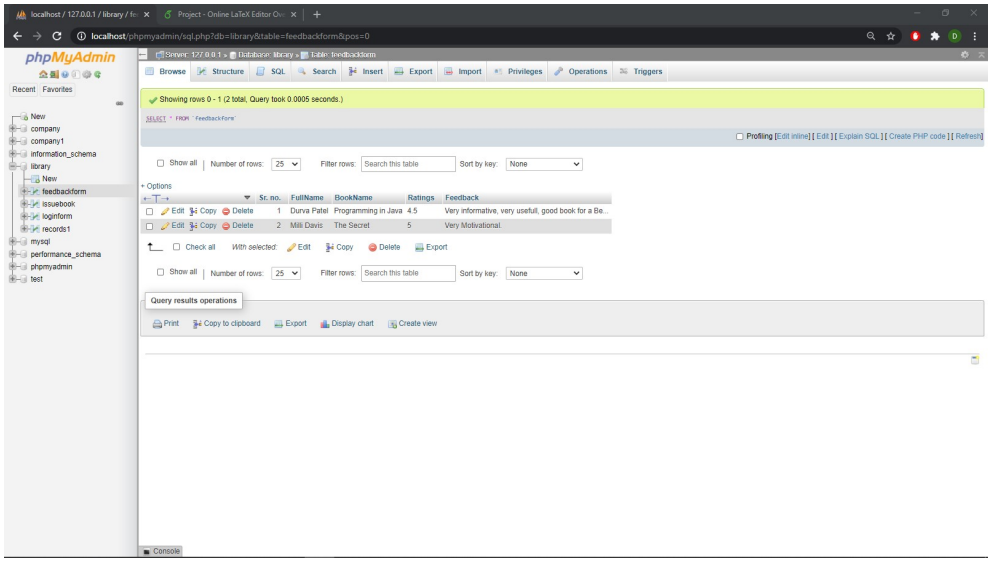
Issue Book Result



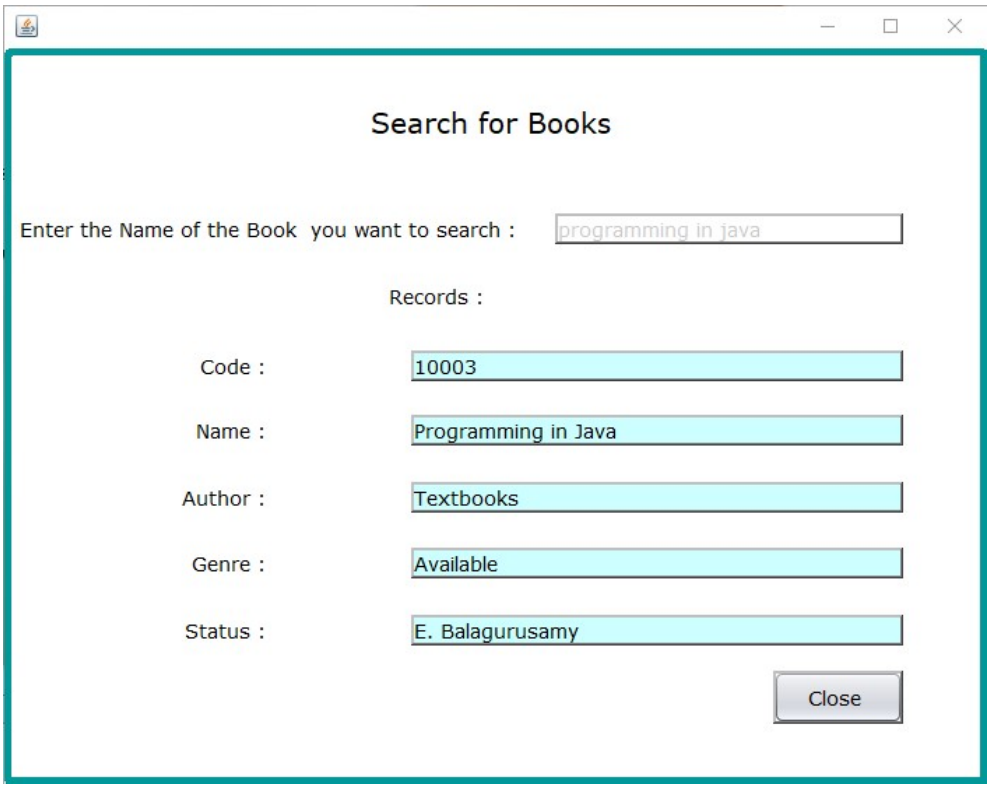


Feedback Form Result





Search Book Result



Conclusion :

Through this Mini Project we learnt about the basics functionalities of Library Management System.We learnt about the concept designing of JFrames in Java, through which we designed all the frames in the Mini Project. We also learnt about addition of database connectivity in our Mini Project, We use the Login form to connect our project to database. My Mini Project is a simple and easy to understand project which could be understood by a beginner and and also a advanced user.

References :

- https://www.javatpoint.com/java-jdbc
- https://www.javatpoint.com/java-swing
- https://www.siteground.com/tutorials/phpmyadmin/
- https://www.latex-project.org/help/documentation/