ONLINE RENTAL BOOK SYSTEM

A PROJECT REPORT

Submitted by

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Under the Guidance of

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BONAFIDE CERTIFICATE

Certified that this project report titled "**ONLINE RENTAL BOOK SYSTEM"** is the bonafide work of **"MEGHAVI RATHOD [Reg. No.: RA2112704010012]"**carried out the project work under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion for this or any other candidate.

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ABSTRACT

Online Rental Book system provides a simple interface for maintaining student and book details. The whole system runs with GUI. The system is written in SQL, NETBEANS IDE. Online Rental Book System contains of adding new student and book and issuing and returning book.

Online Rental Book System is mainly focused on giving book to students or people who cannot (doesn't want to) purchase the book physically. They can purchase the book in less price via online. They just need to issue book and return it on time to the shop. The book will be provided online.

It works just like Library System, the difference is that in library we don't pay for issuing book but in this system we need to pay for the book.

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MEGHAVI RATHOD

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LIST OF ABBREVATIONS

JDK	Java Development Kit
JVM	Java Virtual Machine
JRE	Java Runtime Environment
API	Application Programming Interface

CHAPTER 1

INTRODUCTION

These days' people prefer renting over buying. Now, people have realized that those items are not just meant to lie in the formal, but can be a source of some extra wealth in the pocket. Every new or used item has a value. You must have heard of various online renting platforms. They have a great market and business owners are earning a good amount of money by investing in them. But all of them are niche-specific like car renting, property renting, book renting etc.

That's what we are going to build in our project. We are going to introduce a website named "ONLINE RENTAL BOOK SYSTEM".

Our system contains 3 modules:

1. Student Module
2. Book Module
3. Issue and Return Book Module

Online rental book system is a web application system. It is a platform where a person can rent the desirable book over a reasonable price. So, by using this web application a person, who cannot afford to buy expensive books, can rent his desirable book for a specific period on a specific price.

OBJECTIVES OF THE PROJECT:

- Provide a platform for customer to rent the book in reasonable price.
- Provide a user-friendly interface.
- This application can be used anywhere, anytime just needed a strong internet connection.
- Customer just has to make an account to enter his information in the database for better usage.

NEED OF THE PROJECT:

This web application provides a platform for everyone to be able to get books on rent at the lowest price and for some periodic time.

CHAPTER 2

LITERATURE SURVEY

A literature review is a text of a scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. Literature review are the secondary sources and do not report new or original experimental work.

Integrated rental book system: selection and design

Author Name: Indira Koneru

Year of Publish: 2005

Inference:

Online Rental Book System is similar to the Library Management System. So, that's why we are using literature survey for the library management system. The wide use of computer and communicating systems in the recent past facilitated the design and development of 'integrated library systems'. Dr Ralph Halsted Parker, pioneer in library mechanization coined the term `Library Information Systems' around 1968, envisioned LIS as not only 'automating' existing library procedures, such as circulation, cataloguing, etc., but also providing access to materials held electronically even by other libraries and information centres across the globe. Currently, the systems librarians have been endeavouring to develop 'Integrated Library Systems' (ILS), by creating the technologic landscape for supporting and enhancing end-user access to digitally recorded document surrogates and content. Analysing and designing an LIS aims at enhancing patron satisfaction by providing just-in-time access to appropriate information. Survey findings across North America and Europe reveal that the rationale for migrating from one system to another is for increased functionality of book shop's information system for the benefit of end-user, side lining the cost issues.

Rental Book Automation Status

Author Name: Manipal Dutt

Year of Publish: 2021

Inference:

The literature currently available on library automation and information and communication technology. The literature review method is defined and the scope of the literature on this subject is summarized. On this basis, the paper describes the idea of automation and ICT in the library as well as future research challenges. It focuses on the automation of libraries, their status, needs, significance, various ILMS modules and the role of ILMSs in enhanced library services. ICT tools and infrastructures have also been identified. It underlines the need for library professionals to provide a thorough understanding of emerging problems, developments and challenges related to library automation and ICT tools to best support library users. The paper concludes by suggesting that library professionals need to update and update new trends, tools and techniques to provide better library services. Library automation and Information and Communication Technology (ICT) are the need of the hour to provide better library services. Both are the key factors in the provision of library services and resources. Library Automation is the process of automating the traditional functions/activities of libraries and its services, such as acquisition, cataloguing, circulation, serial control system, and other related activities. The current information age demands libraries to adapt to automation services in library operations and services for the enhancement of effective and efficient services to the user community. Such automation not only provides considerable support for the library staff for their regular work performance but also provides facilities like smooth operations through database connectivity across geographies using the internet. A review of the literature is a summary of the literature applicable to a particular subject. It gives an overview of suitable and appropriate methods and methodologies for a researcher while researching a specific subject.

Evaluation of Software Packages

Author Name: S.C. Saxena, R.K. Srivastava

Year of Publish: 1998

Some of the important library software packages such as Granthalaya, Libsys, Sanjay, Suchika, Basisplus-Techlibplus, etc, have been evaluated by the authors. Parameters selected for evaluation of software packages include facilities provided in the software packages, hardware requirements, operating system platforms, language of software development, search facilities, etc.

CHAPTER 3

SYSTEM ANALYSIS

System Analysis is a detailed study of the various operations performed by a system and their relationships within and outside of the system. Here the key question is what all problems exist in the present system? What must be done to solve the problem? Analysis begins when a user or manager begins a study of the program using existing system.

3.1 EXISTING SYSTEM

In the available Online Rental Book System, the owner of the shop maintains the details of each book on the registers so to find out the number of books available in the shop they need to go to check the entire entry which makes the process slow. While they need to spend an extra hour to maintain the records of books. For a student who wants to know about a book in the shop need to search the entire book section. The student needs to check the status of the book means the last date of book, how many books has issued.

3.2 PROPOSED SYSTEM

The proposed Online Rental Book System project will help the students and owner to maintain the details of the shop. It will assist the owner before the shortage of books while they can know the details of the number of currently available in the shop according to the author by accessing the system. A student can view the details of the book issued by them, and the system will notify the students about the last date of submission of books. At the time of issue of a book, the student will get assisted by the system about different authors of a similar book so that they can get the best available book from the shop.

3.3 PROBLEM STATEMENT:

- Creating a database.
- High chance of disconnection of data
- Creating separate modules.

CHAPTER 4
SYSTEM SPECIFICATIONS

4.1 INTRODUCTION

Requirement analysis determines the requirements of a new system. This project analyses on product and resource requirement, which is required for this successful system. The product requirement includes input and output requirements it gives the wants in term of input to produce the required output. The resource requirements give in brief about the software and hardware that are needed to achieve the required functionality.

4.2 HARDWARE REQUIREMENTS

The hardware requirements may serve as the basis for a contract for the implementation of the system and should therefore be a complete and consistent specification of the whole system.

- Hard disk : 50 GB
- RAM : 1 GB
- Processor : Intel Core i5

4.3 SOFTWARE REQUIREMENTS

- Windows 9 and above
- JDK 19
- NETBEANS IDE
- MySQL

4.4 TECHNOLOGIES USED

- MySQL
- Java Programming Language

4.4.1 MySQL

MySQL is a widely used relational database management system (RDBMS). MySQL is free and open-source. MySQL is ideal for both small and large applications. A relational database organizes data into one

or more data tables in which data may be related to each other; these relations help structure the data. SQL is a language programmers use to create, modify and extract data from the relational database, as well as control user access to the database. In addition to relational databases and SQL, an RDBMS like MySQL works with an operating system to implement a relational database in a computer's storage system, manages users, allows for network access and facilitates testing database integrity and creation of backups.

4.4.2 JAVA

Java is a programming language and a platform. Java is a high level, robust, object-oriented and secure programming language. Java was developed by Sun Microsystems (which is now the subsidiary of Oracle) in the year 1995. James Gosling is known as the father of Java. Before Java, its name was Oak. Since Oak was already a registered company, so James Gosling and his team changed the name from Oak to Java.

Platform: Any hardware or software environment in which a program runs, is known as a platform. Since

For those who are new to object-oriented programming, the concept of a class will be new to you. Simplistically, a class is the definition for a segment of code that can contain both data (called attributes) and functions (called methods).

Java Platforms / Editions

There are 4 platforms or editions of Java:

1) Java SE (Java Standard Edition)
2) Java EE (Java Enterprise Edition)
3) Java ME (Java Micro Edition)
4) JavaFX

CHAPTER 5

SYSTEM DESIGN

System design is the process architecture, components, modules, interfaces and data for a system to satisfy specified requirements. System design could be seenas the application of systems theory to product development. System design is the process of defining the elements of a system such as architecture, modules, and components, the different interfaces of those components and the data goes through that system. It is meant to satisfy specific needs and requirements of a business or organization through the engineering of a coherent and well-running system.

5.1 UML DIAGRAMS

5.1.1 USE CASE DIAGRAM

A use case diagram in the Unified Modeling Language (UML) is a type ofbehavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases.

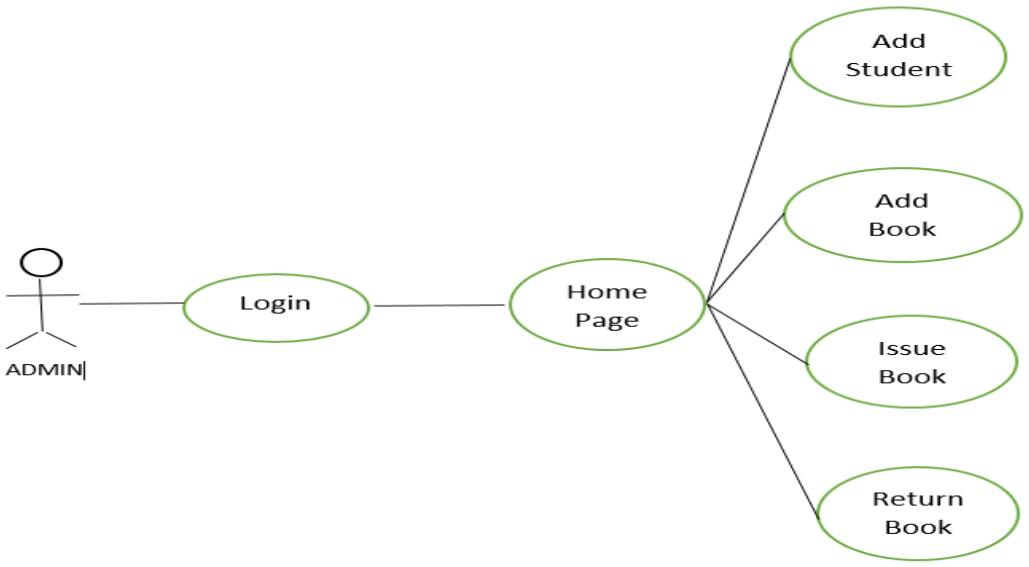

Figure 5.1.1.1 - Use Case diagram

5.2.2 CLASS DIAGRAM

The class diagram depicts a static view of an application. It represents the types of objects residing in the system and the relationships between them. A class consists of its objects, and also it may inherit from other classes. A class diagram is used to visualize, describe, document various different aspects of the system, and also construct executable software code. It shows the attributes, classes, functions, and relationships to give an overview of the software system. It constitutes class names, attributes, and functions in a separate compartment that helps in software development. Since it is a collection of classes, interfaces, associations, collaborations, and constraints, it is termed as a structural diagram.

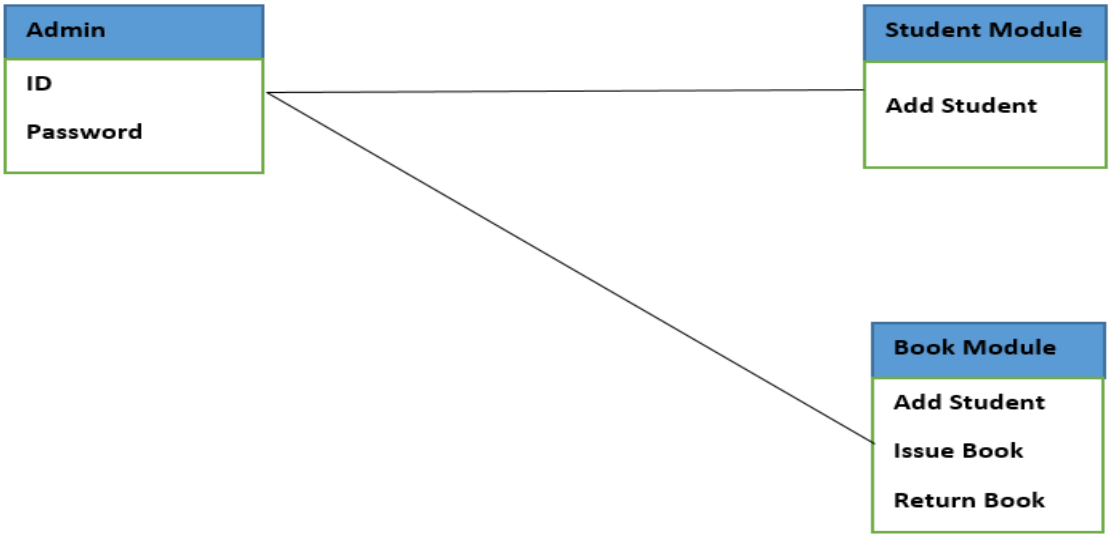

Figure 5.1.2.1 - Class diagram

5.2.3 ACTIVITY DIAGRAM

An activity diagram is a loosely defined diagram to show workflows of stepwise activities and actions, with support for choice, iteration and concurrency. UML, activity diagrams can be used to describe the business and operational step- by-step workflows of components in a system. UML activity diagrams could potentially model the internal logic of a complex operation. In many ways, UML activity diagrams are the object-oriented equivalent of flow charts and data flow diagrams (DFDs) from structural development.

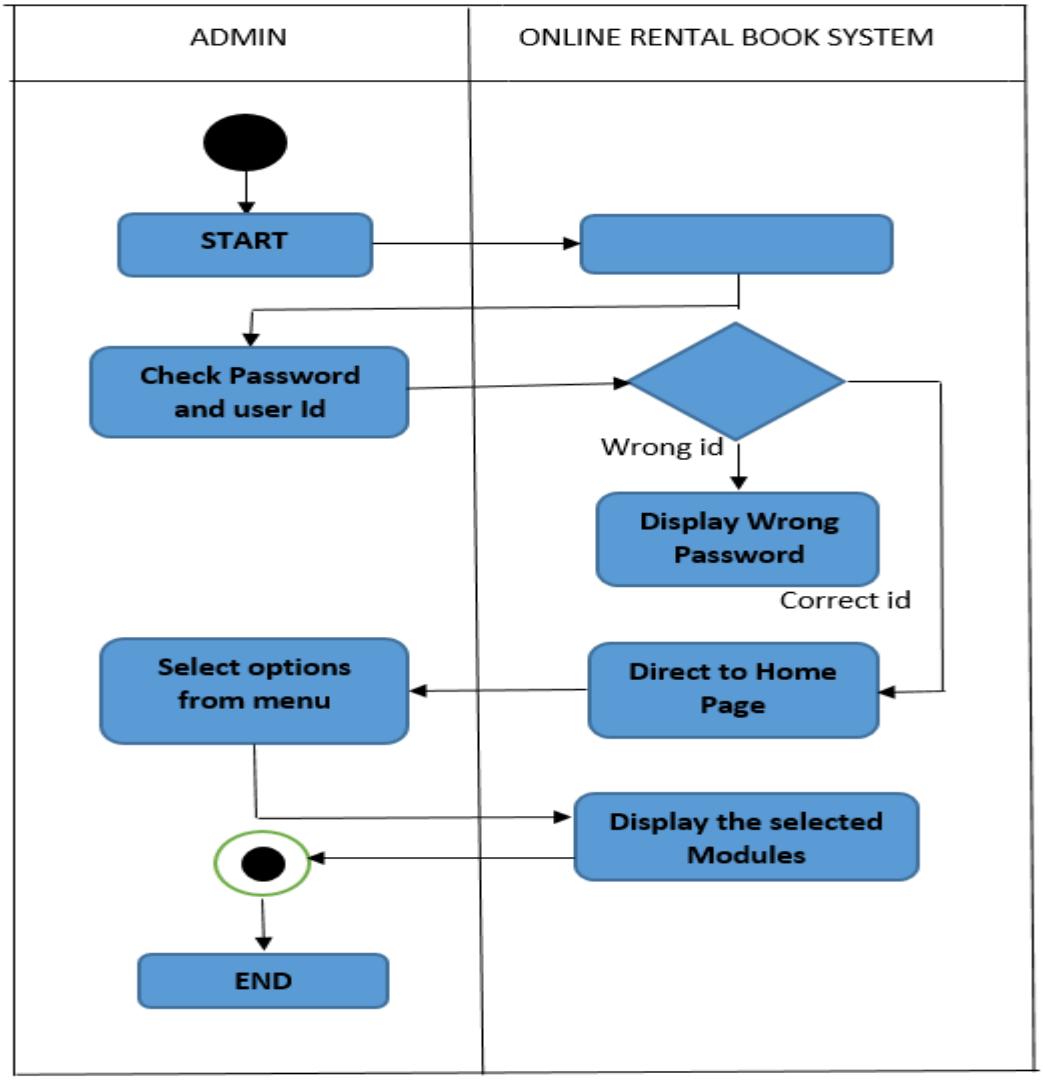

Figure 5.1.3.1 – Activity diagram

CHAPTER 6
SYSTEM MODULES

6.1 MODULES IMPLEMENTATION

A modular design reduces complexity, facilities change (a critical aspect of software maintainability), and results in easier implementation by encouraging parallel development of different part of system. Software with effective modularity is easier to develop because function may be compartmentalized and interfaces are simplified. Software architecture embodies modularity that is software is divided into separately named and addressable components called modules that are integrated to satisfy problem requirements.

6.2 MODULE DESCRIPTION

- Student module
- Book Module
- Issue and Return Book Module

6.2.1 STUDENT MODULE

In this module, we will add new student with student ID, name, course and branch in the system, so that it can be easy for the student to access to the system and he/she does not need to register for renting the book every time.

6.2.2 BOOK MODULE

In this module, we will add a new book with its book ID, name and price, so that students can see that which new book is available in the shop so that they can take it on rent.

6.2.3 ISSUE AND RETURN BOOK MODULE

In these modules, student can issue book for the selected period of time and with reasonable price. And at the time of returning the book he/she can return the book, so that other students can take advantage of reading the book.

6.3ALGORITHMS

6.3.1 ONLINE RENTAL BOOK SYSTEM

- First the admin enters the user id and password to access the system. If the credentials are satisfied it directs the admin to the Home Page

- Else it will close the system.
- The home page displays options such as new student, new book, issue book and return book.
- If New Student module is selected it will display the page to add the new student.
- If New Book is selected it will display the page to add book.
- If Issue Book is selected it will display the page for issuing the book.
- If Return Book is selected it will display the page to return the book.

CHAPTER 7

SYSTEM TESTING

7.1 CODING STANDARDS

Coding standards are guidelines to programming that focuses on the physical structure and appearance of the program. They make the code easier to read,understand and maintain. This phase of the system actually implements the blueprint developed during the design phase. The coding specification should be in such a way that any programmer must be able to understand the code and can bring about changes whenever felt necessary

TEST PROCEDURE

Testing is performed to identify errors. It is used for quality assurance.Testing is an integral part of the entire development and maintenance process. The goal of the testing during phase is to verify that the specification has been accurately and completely incorporated into the design, as well as to ensure the correctness of the design itself. For example, the design must not have any logic faults in the design is detected before coding commences, otherwise the cost of fixing the faults will be considerably higher as reflected. Detection of design faults can be achieved by means of inspection as well as walkthrough.

INTEGRATION TESTING

Integration testing is a systematic technique for construction the program structure while at the same time conducting tests to uncover errors associated with interfacing. i.e., integration testing is the complete testing of the set of modules which makes up the product. The objective is to take untested modules and build a program structure tester should identify critical modules. Critical modules should betested as early as possible. One approach is to wait until all the units have passed testing, and then combine them and then tested. This approach is evolved from unstructured testing of small programs. Another strategy is to construct the product in increments of tested units.

WHITE BOX TESTING

This testing is also called as Glass box testing. In this testing, by knowingthe specific functions that a product has been design to perform test can be conducted that demonstrate each function is fully operational at the same time searching for errors in each function. It is a test case design method that uses the control structure of the procedural design to derive test cases. Basis path testing is awhite box

testing.

BLACK BOX TESTING

In this testing by knowing the internal operation of a product, test can be conducted to ensure that "all gears mesh", that is the internal operation performs according to specification and all internal components have been adequately exercised. It fundamentally focuses on the functional requirements of the software.

SECURITY TESTING

Security testing attempts to verify the protection mechanisms built in to a system well, in fact, protect it from improper penetration. The system security must be tested for invulnerability from frontal attack must also be tested forinvulnerability from rear attack. During security, the tester places the role of individual who desires to penetrate system.

VALIDATION TESTING

At the culmination of integration testing, software is completely assembledas a package. Interfacing errors have been uncovered and corrected and a final series of software test-validation testing begins. Validation testing can be defined inmany ways, but a simple definition is that validation succeeds when the software functions in manner that is reasonably expected by the customer. After validation test has been conducted, one of two conditions exists.

Deviation or errors discovered at this step in this project is corrected prior to completion of the project with the help of the user by negotiating to establish a method for resolving deficiencies. Thus, the proposed system under consideration has been tested by using validation testing and found to be working satisfactorily.

USER ACCEPTANCE TESTING

User acceptance of the system is key factor for the success of any system.The system under consideration is tested for user acceptance by constantly keeping in touch with prospective system and user at the time of developing and making changes whenever require.

CHAPTER 8

CONCLUSION

Online Rental Book System lead to a better organization structure since the information management of the students and books is well structured and also lead to better as well as efficient utilization of resources. Online Rental Book Information System can be used by libraries and shops maintain the records of students and books and records of issuing and returning book easily. Achieving this objective is difficult using a manual system as the information is scattered, can be redundant and collecting relevant information may be very time consuming. All these problems are solved using this project.

FUTURE ENHANCEMENT

The Online Rental Book System (ORBS) can be enhanced to include some other functionality like marks, attendance management.

- Can evolve as an online institution.
- Functionality of chat and messages can be added.

APPENDIX-1

SAMPLE CODING

LOGIN PAGE:

```
import javax.swing.JFrame;
import javax.swing.JOptionPane;
public class Login extends javax.swing.JFrame {
    /**
     * Creates new form Login
     */
    public Login() {
        initComponents();
        setExtendedState(JFrame.MAXIMIZED_BOTH);
    }
private void initComponents() {
        jPanel1 = new javax.swing.JPanel();
        jLabel3 = new javax.swing.JLabel();
        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        t1 = new javax.swing.JTextField();
        p1 = new javax.swing.JPasswordField();
        b1 = new javax.swing.JButton();
        b2 = new javax.swing.JButton();
```

```
setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
setBackground(new java.awt.Color(255, 255, 255));
jPanel1.setBackground(new java.awt.Color(153, 153, 153));
jLabel3.setFont(new java.awt.Font("Times New Roman", 1, 24)); // NOI18N
jLabel3.setText("SIGN IN");
jLabel1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
jLabel1.setText("User Name:");
jLabel2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
jLabel2.setText("Password:");
t1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
p1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
b1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
b1.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\login_icon(2).jpg")); // NOI18N
b1.setText("Login");
b1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        b1ActionPerformed(evt);
    }
});
b2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
```

```
b2.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\close_icon(2).jpg")); // NOI18N
        b2.setText("Close");
        b2.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                b2ActionPerformed(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()
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addGap(36, 36, 36)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 77, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 77, javax.swing.GroupLayout.PREFERRED_SIZE))
                        .addGap(71, 71, 71)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                            .addComponent(p1)
```

```
                    .addComponent(t1)
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addComponent(b1)
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 43, Short.MAX_VALUE)
                        .addComponent(b2))))
                .addGroup(jPanel1Layout.createSequentialGroup()
                    .addGap(194, 194, 194)
                    .addComponent(jLabel3)))
            .addContainerGap(90, Short.MAX_VALUE))
        );
        jPanel1Layout.setVerticalGroup(
            jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addGap(37, 37, 37)
                .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 26,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(41, 41, 41)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(t1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel1))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 35,
Short.MAX_VALUE)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
```

```
                .addComponent(p1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(jLabel2))
            .addGap(45, 45, 45)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(b1)
                .addComponent(b2))
            .addGap(63, 63, 63))
        );

        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.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 b1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        if(t1.getText().equals("admin") && p1.getText().equals("admin"))
        {
            setVisible(false);
            new Home().setVisible(true);
        }
        else JOptionPane.showMessageDialog(null,"Incorrect Username or Password.");
    }
    private void b2ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        System.exit(0); }
    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 b1;
    private javax.swing.JButton b2;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JPanel jPanel1;
    private javax.swing.JPasswordField p1;
    private javax.swing.JTextField t1;
    // End of variables declaration
}
```

Home Page:

```
import javax.swing.JFrame;
public class Home extends javax.swing.JFrame {
    /**
     * Creates new form Home
     */
    public Home() {
        initComponents();
        setExtendedState(JFrame.MAXIMIZED_BOTH);
    }
    /**
```

```
     * 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();
        b1 = new javax.swing.JButton();
        b2 = new javax.swing.JButton();
        b4 = new javax.swing.JButton();
        b5 = new javax.swing.JButton();
        b6 = new javax.swing.JButton();
        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
        jPanel1.setBackground(new java.awt.Color(153, 153, 153));
        b1.setFont(new java.awt.Font("Times New Roman", 1, 18)); // NOI18N
        b1.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\student_icon(2).jpg")); // NOI18N
        b1.setText("New Student");
        b1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                b1ActionPerformed(evt);
            }
```

```
        });
        b2.setFont(new java.awt.Font("Times New Roman", 1, 18)); // NOI18N
        b2.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\book_icon(3).jpg")); // NOI18N
        b2.setText("New Book");
        b2.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                b2ActionPerformed(evt);
            }
        });
        b4.setFont(new java.awt.Font("Times New Roman", 1, 18)); // NOI18N
        b4.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\issuebook_icon(3).jpg")); // NOI18N
        b4.setText("Issue Book");
        b4.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                b4ActionPerformed(evt);
            }
        });
        b5.setFont(new java.awt.Font("Times New Roman", 1, 18)); // NOI18N
        b5.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\returnbook_icon(2).png")); // NOI18N
```

```
b5.setText("Return Book");
b5.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        b5ActionPerformed(evt);
    }
});
b6.setFont(new java.awt.Font("Times New Roman", 1, 18)); // NOI18N
b6.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\logout_icon(2).png")); // NOI18N
b6.setText("Logout");
b6.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        b6ActionPerformed(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(22, 22, 22)
        .addComponent(b1)
        .addGap(33, 33, 33)
```

```
            .addComponent(b2)
            .addGap(28, 28, 28)
            .addComponent(b4)
            .addGap(30, 30, 30)
            .addComponent(b5)
            .addGap(29, 29, 29)
            .addComponent(b6)
            .addContainerGap(54, 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(b1)
                .addComponent(b2)
                .addComponent(b4)
                .addComponent(b5)
                .addComponent(b6))
            .addContainerGap(340, 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.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 b4ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        new IssueBook().setVisible(true);
    }
    private void b5ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        new ReturnBook().setVisible(true);
    }
    private void b6ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        setVisible(false);
        new Login().setVisible(true);
```

```
    }
 private void b1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        new NewStudent().setVisible(true);
    }
    private void b2ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        new NewBook().setVisible(true);
    }
    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
    private javax.swing.JButton b1;
    private javax.swing.JButton b2;
    private javax.swing.JButton b4;
    private javax.swing.JButton b5;
    private javax.swing.JButton b6;
```

```
    private javax.swing.JPanel jPanel1;
    // End of variables declaration
}
```

New Student:

```
import java.sql.*;
import Project.ConnectionProvider;
import javax.swing.JOptionPane;
public class NewStudent extends javax.swing.JFrame {
    /**
     * Creates new form NewStudent
     */
    public NewStudent() {
        initComponents();
    }
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {
        jPanel1 = new javax.swing.JPanel();
        jLabel5 = new javax.swing.JLabel();
        t1 = new javax.swing.JTextField();
        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        t2 = new javax.swing.JTextField();
```

```
        jLabel3 = new javax.swing.JLabel();
        cb1 = new javax.swing.JComboBox<>();
        jLabel4 = new javax.swing.JLabel();
        cb2 = new javax.swing.JComboBox<>();
        b1 = new javax.swing.JButton();
        b2 = new javax.swing.JButton();
        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
        jPanel1.setBackground(new java.awt.Color(153, 153, 153));
        jLabel5.setFont(new java.awt.Font("Times New Roman", 1, 24)); // NOI18N
        jLabel5.setText("NEW STUDENT");
        t1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
        jLabel1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
        jLabel1.setText("Student ID:");
        jLabel2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
        jLabel2.setText("Name:");
        t2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
        jLabel3.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
        jLabel3.setText("Course:");
        cb1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
        cb1.setModel(new javax.swing.DefaultComboBoxModel<>(new String[] { "B.Tech", "M.Tech",
"B.Sc", "M.Sc" }));
        cb1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
```

```
            cb1ActionPerformed(evt);
        }
    });
    jLabel4.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
    jLabel4.setText("Branch:");
    cb2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
    cb2.setModel(new javax.swing.DefaultComboBoxModel<>(new String[] { "CSE", "IT", "Mechanical",
"Civil" }));
    cb2.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            cb2ActionPerformed(evt);
        }
    });
    b1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
    b1.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi
Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\save_icon(1).png")); //
NOI18N
    b1.setText("Save");
    b1.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            b1ActionPerformed(evt);
        }
    });
    b2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
```

```
b2.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\close_icon(2).jpg")); // NOI18N
        b2.setText("Close");
        b2.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                b2ActionPerformed(evt);
            }
        });
        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)
                .addComponent(jLabel5)
                .addGap(181, 181, 181))
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, jPanel1Layout.createSequentialGroup()
                .addGap(45, 45, 45)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                    .addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE, 86, Short.MAX_VALUE)
```

.addComponent(jLabel2, javax.swing.GroupLayout.DEFAULT_SIZE, 86, Short.MAX_VALUE)

.addComponent(jLabel3, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))

.addComponent(jLabel4, javax.swing.GroupLayout.PREFERRED_SIZE, 86, javax.swing.GroupLayout.PREFERRED_SIZE))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 73, Short.MAX_VALUE)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING, false)

.addGroup(jPanel1Layout.createSequentialGroup()

.addComponent(b1)

.addGap(64, 64, 64)

.addComponent(b2))

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

.addComponent(cb2, javax.swing.GroupLayout.Alignment.LEADING, 0, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

.addComponent(cb1, javax.swing.GroupLayout.Alignment.LEADING, 0, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

.addComponent(t2, javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(jPanel1Layout.createSequentialGroup()

.addGap(0, 0, Short.MAX_VALUE)

.addComponent(t1, javax.swing.GroupLayout.PREFERRED_SIZE, 214, javax.swing.GroupLayout.PREFERRED_SIZE))))

.addGap(135, 135, 135))

```
        );

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

            .addGroup(jPanel1Layout.createSequentialGroup()

                .addGap(32, 32, 32)

                .addComponent(jLabel5)

                .addGap(37, 37, 37)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

                    .addComponent(jLabel1)

                    .addComponent(t1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))

                .addGap(25, 25, 25)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

                    .addComponent(jLabel2)

                    .addComponent(t2, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))

                .addGap(28, 28, 28)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

                    .addComponent(jLabel3)

                    .addComponent(cb1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))

                .addGap(27, 27, 27)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

                    .addComponent(jLabel4)
```

```
                .addComponent(cb2, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(39, 39, 39)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(b1)
                .addComponent(b2))
            .addContainerGap(30, 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.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
        );
        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 cb2ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
```

```
    }
    private void b1ActionPerformed(java.awt.event.ActionEvent evt) {
// TODO add your handling code here:
            String studentID = t1.getText();
            String name = t2.getText();
            String course = (String)cb1.getSelectedItem();
            String branch = (String)cb2.getSelectedItem();
            try
            {
              Connection con=ConnectionProvider.getCon();
              Statement st=con.createStatement();
              st.executeUpdate("Insert Into Student
Values('"+studentID+"','"+name+"','"+course+"','"+branch+"')");
              JOptionPane.showMessageDialog(null,"Successfully Updated");
              setVisible(false);
              new NewStudent().setVisible(true);
            }
            catch(Exception e)
            {
             JOptionPane.showMessageDialog(null,"Student ID already exist");
             setVisible(false);
             new NewStudent().setVisible(true);
            }
```

```
    }
    private void b2ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        setVisible(false);
    }
    private void cb1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
    }
    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(NewStudent.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (InstantiationException ex) {
java.util.logging.Logger.getLogger(NewStudent.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (IllegalAccessException ex) {
java.util.logging.Logger.getLogger(NewStudent.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
java.util.logging.Logger.getLogger(NewStudent.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 NewStudent().setVisible(true);
            }
        });
    }
    // Variables declaration - do not modify
    private javax.swing.JButton b1;
    private javax.swing.JButton b2;
    private javax.swing.JComboBox<String> cb1;
```

```
    private javax.swing.JComboBox<String> cb2;
    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.JTextField t1;
    private javax.swing.JTextField t2;
    // End of variables declaration
}
```

New Book:

```
import java.sql.*;
import Project.ConnectionProvider;
import javax.swing.JOptionPane;
public class NewBook extends javax.swing.JFrame {
    /**
     * Creates new form NewBook
     */
    public NewBook() {
        initComponents();
    }
```

```
@SuppressWarnings("unchecked")
// <editor-fold defaultstate="collapsed" desc="Generated Code">
private void initComponents() {
    jPanel1 = new javax.swing.JPanel();
    jLabel4 = new javax.swing.JLabel();
    jLabel1 = new javax.swing.JLabel();
    t1 = new javax.swing.JTextField();
    jLabel2 = new javax.swing.JLabel();
    t2 = new javax.swing.JTextField();
    jLabel3 = new javax.swing.JLabel();
    t3 = new javax.swing.JTextField();
    b1 = new javax.swing.JButton();
    b2 = new javax.swing.JButton();
    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
    jPanel1.setBackground(new java.awt.Color(153, 153, 153));
    jLabel4.setFont(new java.awt.Font("Times New Roman", 1, 24)); // NOI18N
    jLabel4.setText("NEW BOOK");
    jLabel1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
    jLabel1.setText("Book ID:");
    t1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
    jLabel2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
    jLabel2.setText("Name:");
    t2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
```

```
jLabel3.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
jLabel3.setText("Price:");
t3.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
b1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
b1.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\save_icon(1).png")); // NOI18N
b1.setText("Save");
b1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        b1ActionPerformed(evt);
    }
});
b2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
b2.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\close_icon(2).jpg")); // NOI18N
b2.setText("Close");
b2.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        b2ActionPerformed(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(61, 61, 61)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

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

.addComponent(jLabel2, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

.addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE, 69, Short.MAX_VALUE))

.addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 61, javax.swing.GroupLayout.PREFERRED_SIZE))

.addGap(48, 48, 48)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(jPanel1Layout.createSequentialGroup()

.addComponent(b1)
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

.addComponent(b2))

.addComponent(t3)

.addComponent(t1)

.addComponent(t2))

.addGap(101, 101, 101))

```
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGap(157, 157, 157)
            .addComponent(jLabel4)
            .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );
        jPanel1Layout.setVerticalGroup(
            jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addGap(35, 35, 35)
                .addComponent(jLabel4)
                .addGap(38, 38, 38)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel1)
                    .addComponent(t1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(34, 34, 34)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2)
                    .addComponent(t2, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(35, 35, 35)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel3)
                    .addComponent(t3, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
```

```
            .addGap(32, 32, 32)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(b1)
                .addComponent(b2))
            .addContainerGap(36, 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.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
        );
        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 b2ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        setVisible(false);
    }
```

```
private void b1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    String bookID=t1.getText();
    String name=t2.getText();
    String price=t3.getText();
    try {
        Connection con=ConnectionProvider.getCon();
        Statement st=con.createStatement();
        st.executeUpdate("Insert into Book Values('"+bookID+"','"+name+"','"+price+"')");
        JOptionPane.showMessageDialog(null,"Successfully Updated");
        setVisible(false);
        new NewBook().setVisible(true);
    }
    catch(Exception e)
    {
        JOptionPane.showMessageDialog(null,"Book ID already existed");
        setVisible(false);
        new NewBook().setVisible(true);
    }
}
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(NewBook.class.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
        } catch (InstantiationException ex) {
java.util.logging.Logger.getLogger(NewBook.class.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
        } catch (IllegalAccessException ex) {
java.util.logging.Logger.getLogger(NewBook.class.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
java.util.logging.Logger.getLogger(NewBook.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 NewBook().setVisible(true);
            }
        });
    }
    // Variables declaration - do not modify
    private javax.swing.JButton b1;
    private javax.swing.JButton b2;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JPanel jPanel1;
    private javax.swing.JTextField t1;
    private javax.swing.JTextField t2;
    private javax.swing.JTextField t3;
    // End of variables declaration
}
```

Issue Book:

```
import java.sql.*;
```

```
import Project.ConnectionProvider;
import java.text.SimpleDateFormat;
import javax.swing.JOptionPane;
public class IssueBook extends javax.swing.JFrame {
    /**
     * Creates new form IssueBook
     */
    public IssueBook() {
        initComponents();
    }
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jPanel1 = new javax.swing.JPanel();
        jLabel5 = new javax.swing.JLabel();
        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jLabel3 = new javax.swing.JLabel();
        jLabel4 = new javax.swing.JLabel();
        t1 = new javax.swing.JTextField();
        t2 = new javax.swing.JTextField();
        dc1 = new com.toedter.calendar.JDateChooser();
```

```
dc2 = new com.toedter.calendar.JDateChooser();
b1 = new javax.swing.JButton();
b2 = new javax.swing.JButton();
setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
jPanel1.setBackground(new java.awt.Color(153, 153, 153));
jLabel5.setFont(new java.awt.Font("Times New Roman", 1, 24)); // NOI18N
jLabel5.setText("ISSUE BOOK");
jLabel1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
jLabel1.setText("Book ID:");
jLabel2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
jLabel2.setText("Student ID:");
jLabel3.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
jLabel3.setText("Issue Date:");
jLabel4.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
jLabel4.setText("Due Date:");
t1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
t1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        t1ActionPerformed(evt);
    }
});
t2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
b1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
```

```
b1.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\issuebook_icon(2).jpg")); // NOI18N
b1.setText("Issue");
b1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        b1ActionPerformed(evt);
    }
});
b2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
b2.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\close_icon(2).jpg")); // NOI18N
b2.setText("Close");
b2.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        b2ActionPerformed(evt);
    }
});
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(27, Short.MAX_VALUE)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING, false)

.addComponent(jLabel3, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

.addComponent(jLabel2, javax.swing.GroupLayout.DEFAULT_SIZE, 86, Short.MAX_VALUE)

.addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

.addComponent(jLabel4, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 71,
Short.MAX_VALUE)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(jPanel1Layout.createSequentialGroup()

.addComponent(b1)
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)

.addComponent(b2))
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)

.addComponent(t2, javax.swing.GroupLayout.PREFERRED_SIZE, 165,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addComponent(dc1, javax.swing.GroupLayout.DEFAULT_SIZE, 166, Short.MAX_VALUE)

.addComponent(t1, javax.swing.GroupLayout.PREFERRED_SIZE, 165,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addComponent(dc2, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)))

.addGap(81, 81, 81))

.addGroup(jPanel1Layout.createSequentialGroup()

.addGap(127, 127, 127)

.addComponent(jLabel5)

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

);

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

.addGroup(jPanel1Layout.createSequentialGroup()

.addGap(35, 35, 35)

.addComponent(jLabel5)

.addGap(32, 32, 32)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

.addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 22,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addComponent(t1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))

.addGap(28, 28, 28)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

.addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 23,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addComponent(t2))

.addGap(28, 28, 28)

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

```
            .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 22,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addComponent(dc1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(29, 29, 29)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
            .addComponent(jLabel4, javax.swing.GroupLayout.PREFERRED_SIZE, 22,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addComponent(dc2, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(38, 38, 38)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
            .addComponent(b1)
            .addComponent(b2))
        .addContainerGap(48, 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.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
```

```
        .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
        );
        pack();
    }// </editor-fold>
    private void t1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
    }
    private void b2ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        setVisible(false);
    }
    private void b1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        SimpleDateFormat dFormat=new SimpleDateFormat("dd-MM-yyyy");
        String bookID=t1.getText();
        String studentID=t2.getText();
        String issueDate=dFormat.format(dc1.getDate());
        String dueDate=dFormat.format(dc2.getDate());
        String returnBook="NO";
        try
        {
            Connection con=ConnectionProvider.getCon();
```

```
        Statement st=con.createStatement();
        ResultSet rs=st.executeQuery("select *from book where bookID='"+bookID+"'");
        if(rs.next())
        {
            ResultSet rs1=st.executeQuery("select *from student where studentID='"+studentID+"'");
            if(rs1.next())
            {
                st.executeUpdate("insert into issue
values('"+bookID+"','"+studentID+"','"+issueDate+"','"+dueDate+"','"+returnBook+"')");
                JOptionPane.showMessageDialog(null,"Book successfully issued");
                setVisible(false);
                new IssueBook().setVisible(true);
            }
            else
                JOptionPane.showMessageDialog(null,"Incorrect studentID");
        }
        else
            JOptionPane.showMessageDialog(null,"Incorrect bookID");
    }
    catch(Exception e)
    {
        JOptionPane.showMessageDialog(null,"Connection Error");
        setVisible(false);
```

```
            new IssueBook().setVisible(true);
        }
    }
    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(IssueBook.class.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
        } catch (InstantiationException ex) {
java.util.logging.Logger.getLogger(IssueBook.class.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
```

```
        } catch (IllegalAccessException ex) {
java.util.logging.Logger.getLogger(IssueBook.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
         java.util.logging.Logger.getLogger(IssueBook.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 IssueBook().setVisible(true);
            }
        });
    }
    // Variables declaration - do not modify
    private javax.swing.JButton b1;
    private javax.swing.JButton b2;
    private com.toedter.calendar.JDateChooser dc1;
    private com.toedter.calendar.JDateChooser dc2;
    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.JTextField t1;
    private javax.swing.JTextField t2;
    // End of variables declaration        }
```

Return Book:

```
import java.sql.*;
import Project.ConnectionProvider;
import javax.swing.JOptionPane;
public class ReturnBook extends javax.swing.JFrame {
    /**
     * Creates new form ReturnBook
     */
    public ReturnBook() {
        initComponents();
    }
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {
        jPanel1 = new javax.swing.JPanel();
        jLabel5 = new javax.swing.JLabel();
        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
```

```
jLabel3 = new javax.swing.JLabel();

jLabel4 = new javax.swing.JLabel();

t1 = new javax.swing.JTextField();

t2 = new javax.swing.JTextField();

t3 = new javax.swing.JTextField();

t4 = new javax.swing.JTextField();

b2 = new javax.swing.JButton();

b3 = new javax.swing.JButton();

b1 = new javax.swing.JButton();

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

jPanel1.setBackground(new java.awt.Color(153, 153, 153));

jLabel5.setFont(new java.awt.Font("Times New Roman", 1, 24)); // NOI18N

jLabel5.setText("RETURN BOOK");

jLabel1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N

jLabel1.setText("Book ID:");

jLabel2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N

jLabel2.setText("Student ID:");

jLabel3.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N

jLabel3.setText("Issue Date:");

jLabel4.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N

jLabel4.setText("Due Date:");

t1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N

t2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
```

```
t3.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
t4.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
b2.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
b2.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\returnbook_icon(1).png")); // NOI18N
b2.setText("Return");
b2.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        b2ActionPerformed(evt);
    }
});
b3.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
b3.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\close_icon(2).jpg")); // NOI18N
b3.setText("Close");
b3.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        b3ActionPerformed(evt);
    }
});
b1.setFont(new java.awt.Font("Times New Roman", 1, 14)); // NOI18N
```

```
b1.setIcon(new javax.swing.ImageIcon("F:\\Drive C\\Users\\Admin\\Downloads\\Meghavi Document\\SRM 1st YEAR\\3rd SEM\\AOOP\\Library Management\\Images\\search_icon(1).png")); // NOI18N
        b1.setText("Search");
        b1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                b1ActionPerformed(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(33, 33, 33)
                .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, jPanel1Layout.createSequentialGroup()
                        .addGap(0, 0, Short.MAX_VALUE)
                        .addComponent(jLabel5)
                        .addGap(178, 178, 178))
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                            .addGroup(jPanel1Layout.createSequentialGroup()
```

.addGap(0, 0, Short.MAX_VALUE)

.addComponent(t2, javax.swing.GroupLayout.PREFERRED_SIZE, 183, javax.swing.GroupLayout.PREFERRED_SIZE))

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

.addComponent(jLabel3, javax.swing.GroupLayout.Alignment.LEADING, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

.addComponent(jLabel2, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

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

.addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 74, javax.swing.GroupLayout.PREFERRED_SIZE)

.addGap(0, 0, Short.MAX_VALUE)))

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

.addGroup(jPanel1Layout.createSequentialGroup()

.addGap(74, 74, 74)

.addComponent(t1, javax.swing.GroupLayout.PREFERRED_SIZE, 183, javax.swing.GroupLayout.PREFERRED_SIZE))

.addGroup(javax.swing.GroupLayout.Alignment.TRAILING, jPanel1Layout.createSequentialGroup()
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addComponent(t3, javax.swing.GroupLayout.PREFERRED_SIZE, 183, javax.swing.GroupLayout.PREFERRED_SIZE))))

.addGroup(javax.swing.GroupLayout.Alignment.LEADING,
jPanel1Layout.createSequentialGroup()
.addComponent(jLabel4, javax.swing.GroupLayout.PREFERRED_SIZE, 77,
javax.swing.GroupLayout.PREFERRED_SIZE)
.addGap(75, 75, 75)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(jPanel1Layout.createSequentialGroup()
.addComponent(b2)
.addGap(18, 18, 18)
.addComponent(b3)
.addGap(0, 0, Short.MAX_VALUE))
.addComponent(t4))))
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 22, Short.MAX_VALUE)
.addComponent(b1)
.addGap(41, 41, 41))))
);
jPanel1Layout.setVerticalGroup(
jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(jPanel1Layout.createSequentialGroup()
.addGap(42, 42, 42)
.addComponent(jLabel5, javax.swing.GroupLayout.PREFERRED_SIZE, 30,
javax.swing.GroupLayout.PREFERRED_SIZE)
.addGap(36, 36, 36)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
.addComponent(jLabel1)

```
                .addComponent(t1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(23, 23, 23)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jLabel2)
                .addComponent(t2, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(b1))
            .addGap(26, 26, 26)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jLabel3)
                .addComponent(t3, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(29, 29, 29)
            .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jLabel4)
                .addComponent(t4, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(32, 32, 32)
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(b2)
                .addComponent(b3))
            .addContainerGap(60, 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.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
        );
        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 b1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        String bookID= t1.getText();
        String studentID=t2.getText();
        try
        {
            Connection con=ConnectionProvider.getCon();
            Statement st=con.createStatement();
            ResultSet rs=st.executeQuery("select * from issue where bookID='"+bookID+"' and
studentID='"+studentID+"'");
            if(rs.next())
```

```
        {
            t3.setText(rs.getString(3));
            t4.setText(rs.getString(4));
            t1.setEditable(false);
            t2.setEditable(false);
        }
        else
        {
            JOptionPane.showMessageDialog(null,"Book is not issued to the student");
            setVisible(false);
            new ReturnBook().setVisible(true);
        }
    }
    catch(Exception e)
    {
        JOptionPane.showMessageDialog(null,"Connection Error");
        setVisible(false);
        new ReturnBook().setVisible(true);
    }
}
private void b2ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    String bookID=t1.getText();
```

```
        String studentID=t2.getText();
        try
        {
            Connection con=ConnectionProvider.getCon();
            Statement st=con.createStatement();
            st.executeUpdate("update issue set returnbook='YES' where studentID='"+studentID+"' and
bookID='"+bookID+"'");
            JOptionPane.showMessageDialog(null,"Book successfully returned");
            setVisible(false);
            new ReturnBook().setVisible(true);
        }
        catch(Exception e)
        {
            JOptionPane.showMessageDialog(null,"Connection Error");
            setVisible(false);
            new ReturnBook().setVisible(true);
        }
    }
    private void b3ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        setVisible(false);
    }
    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(ReturnBook.class.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
        } catch (InstantiationException ex) {
java.util.logging.Logger.getLogger(ReturnBook.class.getName()).log(java.util.logging.Level.SEVERE, null,
ex);
        } catch (IllegalAccessException ex) {
       java.util.logging.Logger.getLogger(ReturnBook.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
     } catch (javax.swing.UnsupportedLookAndFeelException ex) {
java.util.logging.Logger.getLogger(ReturnBook.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 ReturnBook().setVisible(true);
        } });  }
  // Variables declaration - do not modify
  private javax.swing.JButton b1;
  private javax.swing.JButton b2;
  private javax.swing.JButton b3;
  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.JTextField t1;
  private javax.swing.JTextField t2;
  private javax.swing.JTextField t3;
  private javax.swing.JTextField t4;
  // End of variables declaration
}
```

APPENDIX -2

SNAPSHOTS

LOGIN PAGE:

Fig 8.1 USER LOGIN PAGE

HOME PAGE:

Fig 8.2 HOME PAGE

NEW STUDENT:

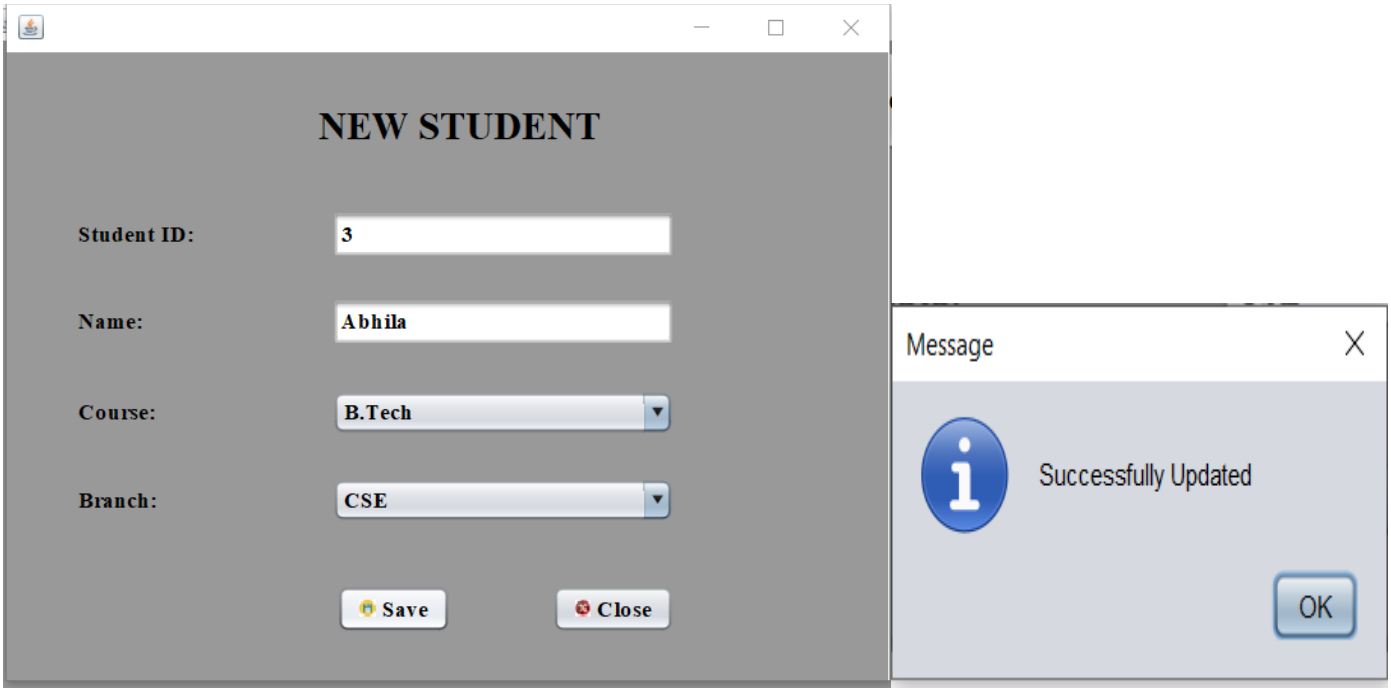

Fig 8.3 NEW STUDENT

New Book:

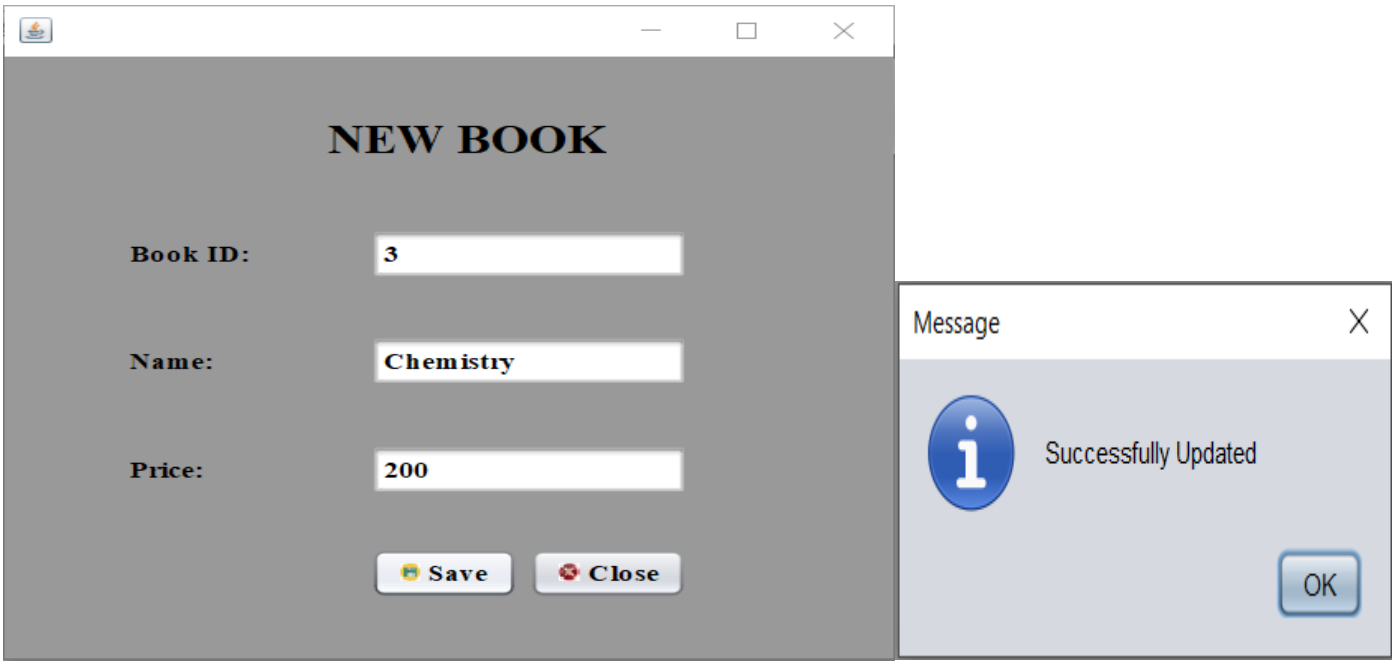

Fig 8.4 NEW BOOK

Issue Book:

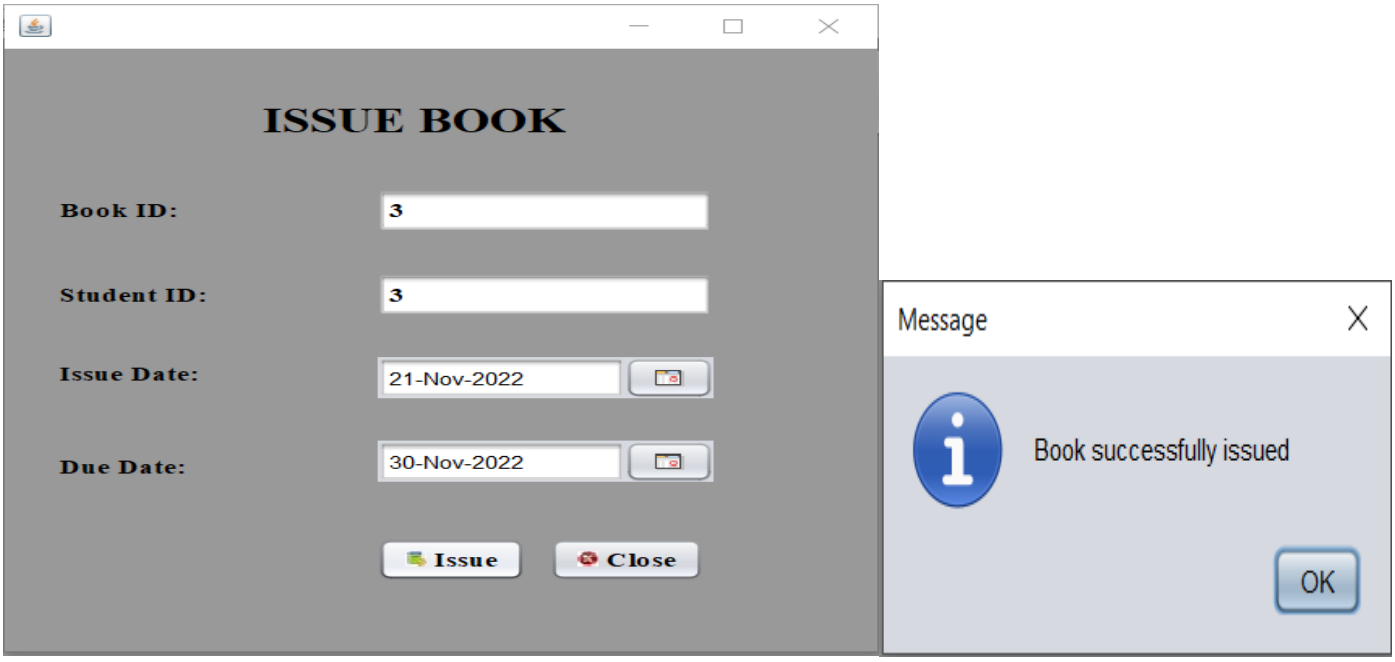

Fig 8.5 ISSUE BOOK

Return Book:

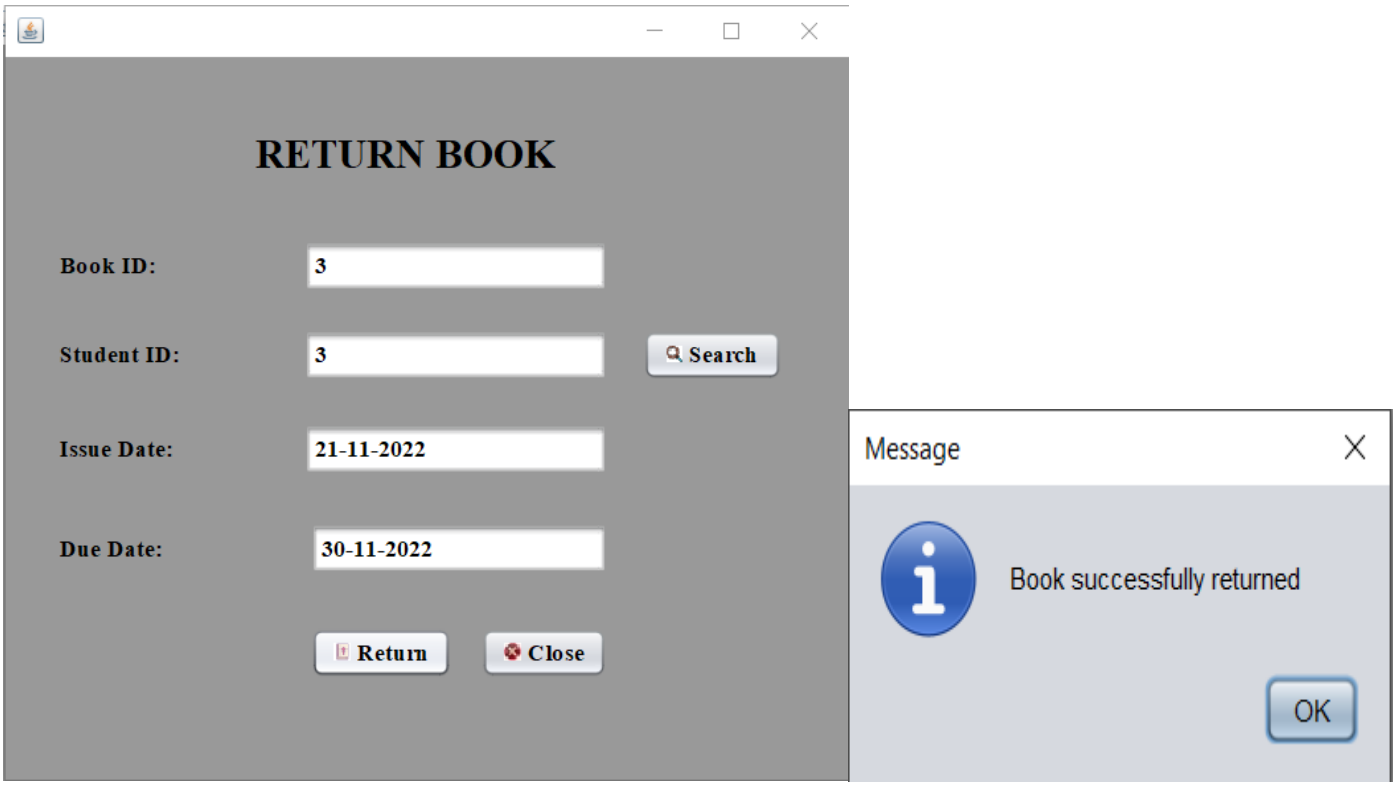

Fig 8.6 RETURN BOOK

My SQL Snapshots:

1. **Student Table:**

```
mysql> select*from student;
+-----------+---------+--------+--------+
| studentID | name    | course | branch |
+-----------+---------+--------+--------+
| 1         | Meghavi | M.Tech | CSE    |
| 2         | Angelin | M.Tech | CSE    |
| 3         | Abhila  | B.Tech | CSE    |
+-----------+---------+--------+--------+
3 rows in set (0.03 sec)
```

Fig 8.7 STUDENT TABLE

2. Book Table:

```
mysql> select*from book;
+--------+-----------+-------+
| bookID | name      | price |
+--------+-----------+-------+
| 1      | Maths     | 500   |
| 2      | Physics   | 500   |
| 3      | Chemistry | 200   |
+--------+-----------+-------+
3 rows in set (0.01 sec)
```

Fig 8.8 BOOK TABLE

3. Issue Table:

```
mysql> select*from issue;
+--------+-----------+------------+------------+------------+
| bookID | studentID | issueDate  | dueDate    | returnBook |
+--------+-----------+------------+------------+------------+
| 1      | 1         | 10-11-2022 | 15-11-2022 | YES        |
| 2      | 2         | 10-11-2022 | 20-11-2022 | YES        |
| 3      | 3         | 21-11-2022 | 30-11-2022 | YES        |
+--------+-----------+------------+------------+------------+
3 rows in set (0.01 sec)
```

Fig 8.9 ISSUE TABLE

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