Library Management System

Name – Haneet Arya
Reg. No. – 20BIT0153
Subject – Java Programming (CSE1007)
Faculty – Anitha A

Aim and Objective – To create an Application for managing any Library with proper details of Address, Member, Issues, Books, Student.

Introduction –

A library management is a project that manages and stores books information electronically according to students needs. The system helps both students and library manager to keep a constant track of all the books available in the library. It allows both the admin and the student to search for the desired book. It becomes necessary for institutions to keep a continuous check on the books issued and returned. This task if carried out manually will be tedious and includes chances of mistakes. These errors are avoided by allowing the system to keep track of information such as issue date, last date to return the book and thus there is no need to keep manual track of this information which thereby avoids chances of mistakes.

Thus this system reduces manual work to a great extent allows smooth flow of library activities by removing chances of errors in the details.
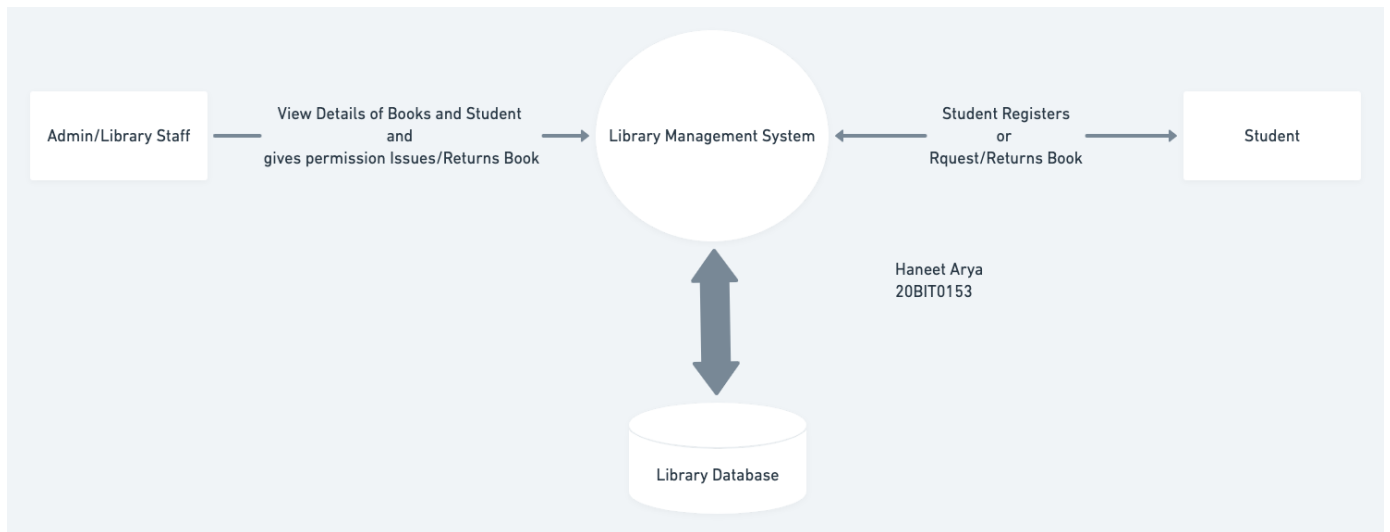
Hardware Specifications –
- Macbook Air (Intel i5, Intel HD Graphics 6000, 8 GB ram, 128 GB SSD Storage)

Software Specifications –
- Operating System – MacOS (OSX)
  Compiler – IntelliJ Community
  Database – MySQL with Xampp

Architecture –

- DFD –

- Modules –
  1. Admin/Staff login: These are the one who administers the system by adding or removing books into and from the system respectively and also responsible for issuing and taking returns of books.
  2. Add and Update Books: The admin/staff can add books to the system by entering the details of the books and can even update the details.
  3. Issue: The admin/staff can view details for the book issuance
  4. Return: The admin/staff can view details for the book returns

Experimental Analysis –

- Coding –

db.java

```java
package com.haneetarya.librarymanagementsystem;
import javafx.collections.FXCollections;
import javafx.collections.ObservableList;

import java.sql.*;

public class db {
    public static Connection con;
    public static Statement s;
    public static String FALSE="1";
    public static String True="0";

    public static boolean logIn(String userId, String pwd){
        try {
            con =
DriverManager.getConnection("jdbc:mysql://172.16.233.3:3306/Library",userId
,pwd);
            s= con.createStatement();
            System.out.println("Success");
            return true;

        } catch (SQLException e) {
            System.out.println(e.getMessage());
        }
        return false;
    }
    public static void logOut(){
        try {
            con.close();
        } catch (SQLException e) {
            e.printStackTrace();
        }
    }

    public static ObservableList<Student> studentList(){
        String query = "select * from student";
        ObservableList<Student> ls = FXCollections.observableArrayList();
        try {
            ResultSet rs = s.executeQuery(query);
            while(rs.next()){
                ls.add(new Student(Integer.toString(rs.getInt("sid")),
rs.getString("sname"), rs.getString("phone")));

            }
        } catch (SQLException e) {
            e.printStackTrace();
        }
        return ls;
    }
```

```java
    public static ObservableList<Borrow> borrowList(){
        String query = "SELECT * from student natural join(borrow natural
join book);";
        ObservableList<Borrow> ls = FXCollections.observableArrayList();
        try {
            ResultSet rs = s.executeQuery(query);
            while(rs.next()){
                ls.add(new Borrow(rs.getInt("sid"), rs.getInt("bid"),
rs.getString("bname")
                        , rs.getString("sname"), rs.getString("bauthor"),
rs.getString("bpublisher"),
                        rs.getString("phone")));


            }
        } catch (SQLException e) {
            e.printStackTrace();
        }
        return ls;
    }
public static ObservableList<Book> bookList(){
        String query = "select * from book";
        ObservableList<Book> ls = FXCollections.observableArrayList();
        try {
            ResultSet rs = s.executeQuery(query);
            while(rs.next()){
                ls.add(new Book(rs.getInt("bid"), rs.getString("bname"),
rs.getString("bauthor"), rs.getString("bpublisher")));
            }
        } catch (SQLException e) {
            e.printStackTrace();
        }
        return ls;
    }

    public static String submitBook(String sid, String bid){
        String query = "delete from borrow where bid = '"+bid+"' and sid =
'"+sid+"';";
        String query1 = "select sname,bname from student natural
join(borrow natural join book) where bid = '" + bid + "' and sid ='" + sid
+ "';";
        try {

            String ret="";
            if(checkBook(bid) && checkStudent(sid)){
                ResultSet rs = s.executeQuery(query1);
                if(rs.next()){
                    ret = rs.getString("bname") + " has been submitted by "
+ rs.getString("sname");
                    s.execute(query);
                    return ret;
                }
                else {
                    ret = "This book is not issued to the Student";
                    return ret;
                }
            }
            else {
                return "Student or Book not registered";
            }

        } catch (SQLException e) {
```

```java
            e.printStackTrace();
        }
        return FALSE;
    }
    public static String insertStudent(String name, String phone){
        String query = "insert into student(sname, phone)
values('"+name+"','"+phone+"');";
        String query1 = "select sid from student where phone='"+phone+"';";
        try {
            s.execute(query);
            ResultSet rs = s.executeQuery(query1);
            String id = "";
            while (rs.next())
            {
                id = rs.getString("sid");


            }
            return id;

        } catch (SQLException e) {
            e.printStackTrace();
        }
        return FALSE;
    }

    public static String issueBook(String sid, String bid){
        String query = "insert into borrow(bid, sid)
values('"+bid+"','"+sid+"');";
        String query2 = "select * from borrow where bid='"+bid+"';";
        String query1 = "select sname,bname from student natural
join(borrow natural join book) where bid = '"+bid+"';";
        try {
            ResultSet rs1 = s.executeQuery(query2);
            if(rs1.next()){
                ResultSet rs = s.executeQuery(query1);
                String ret = "";
                rs.next();
                ret = rs.getString("sname");
                return "This Book has been already borrowed by " + ret;
            }
            if(checkStudent(sid) && checkBook(bid)){
                s.execute(query);
                ResultSet rs = s.executeQuery(query1);
                String ret = "";
                while (rs.next())
                {
                    ret = rs.getString("sname")+","+rs.getString("bname");

                }
                String[] r = ret.split(",");
                return r[1] + " has been borrowed by " + r[0];
            }
            else
                return  "Book or Student not registered";


        } catch (SQLException e) {
            e.printStackTrace();
        }
        return FALSE;
    }
```

```java
    public static String insertBook(String name, String author,String
publisher){
        String query = "insert into book(bname, bauthor,bpublisher)
values('"+name+"','"+author+"','"+publisher+"');";
        String query1 = "select bid from book where bauthor='"+author+"'
and bpublisher='"+publisher+"';";
        try {
            s.execute(query);
            ResultSet rs = s.executeQuery(query1);
            String id = "";
            while (rs.next())
            {
                id = rs.getString("bid");


            }
            return id;

        } catch (SQLException e) {
            e.printStackTrace();
        }
        return FALSE;
    }
    public static boolean checkStudent(String sid){
        String query = "select * from student where sid = '"+sid+"';";
        ResultSet rs;
        try {
            Statement s2 = con.createStatement();
            rs = s2.executeQuery(query);
            if(rs.next()){
                rs.close();
                return true;
            }
            rs.close();
        } catch (SQLException e) {

            e.printStackTrace();
        }

        return false;
    }
    public static boolean checkBook(String bid){
        String query = "select * from book where bid = '"+bid+"';";

        try {
            Statement s1 = con.createStatement();
            ResultSet rs = s1.executeQuery(query);
            if(rs.next()){
                return true;
            }
            rs.close();
        } catch (SQLException e) {
            e.printStackTrace();
        }
        return false;
    }

}
```

App.java

```java
package com.haneetarya.librarymanagementsystem;

import javafx.application.Application;
import javafx.fxml.FXMLLoader;
import javafx.scene.Scene;
import javafx.stage.Stage;

import java.io.IOException;

public class App extends Application {
    @Override
    public void start(Stage stage) throws IOException {
        FXMLLoader fxmlLoader = new
FXMLLoader(App.class.getResource("Login.fxml"));
        Scene scene = new Scene(fxmlLoader.load());
        stage.setTitle("Library Management Tool");
        stage.setScene(scene);
        stage.show();
    }

    public static void main(String[] args) {
        launch();
    }
}
```

Login.java

```java
package com.haneetarya.librarymanagementsystem;

import javafx.event.ActionEvent;
import javafx.fxml.FXML;
import javafx.fxml.FXMLLoader;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.control.Label;
import javafx.scene.control.TextField;
import javafx.stage.Stage;

import javax.swing.*;
import java.awt.*;

public class LogIn {
    public Button exit;
    @FXML
    private TextField pwd;
    @FXML
    private Button login;
    @FXML
    private TextField userid;
    @FXML
    private Label failed;

    private Stage stage;
    private Scene scene;
    private FXMLLoader root;

    public void login(ActionEvent actionEvent) {
```

```java
            if(!userid.getText().equals("") && !pwd.getText().equals("")){
                if(!db.logIn(userid.getText(),pwd.getText())){
                    showMessage("Please Check your user ID or Password",
JOptionPane.ERROR_MESSAGE );

                }else {
                    try {
                        root = new
FXMLLoader(getClass().getResource("homepage.fxml"));
                        stage = (Stage) (login.getScene().getWindow());
                        stage.setScene(new Scene(root.load()));
                        stage.show();

                    } catch (Exception e) {
                        e.printStackTrace();
                    }
                }
            }
            else {
                showMessage("Enter the User Id and Password",
JOptionPane.WARNING_MESSAGE );
//          failed.setText();
            }
        }

    public void exit(ActionEvent actionEvent) {
        System.exit(0);
    }
    private void showMessage(String message, int type) {
        EventQueue.invokeLater(new Runnable() {
            @Override
            public void run() {
                JOptionPane.showMessageDialog(null, message, "Login
Failed",type);
            }
        });
    }
}
```

login .fxml

```xml
<?xml version="1.0" encoding="UTF-8"?>

<?import javafx.scene.control.Button?>
<?import javafx.scene.control.Label?>
<?import javafx.scene.control.PasswordField?>
<?import javafx.scene.control.TextField?>
<?import javafx.scene.layout.AnchorPane?>
<?import javafx.scene.text.Font?>

<AnchorPane prefHeight="720.0" prefWidth="1080.0" style="-fx-background-
color: lightblue;" xmlns="http://javafx.com/javafx/17"
xmlns:fx="http://javafx.com/fxml/1"
fx:controller="com.haneetarya.librarymanagementsystem.LogIn">
    <children>
        <Label alignment="CENTER" layoutY="-17.0" prefHeight="173.0"
prefWidth="1158.0" style="-fx-background-color: #b4826b;" text="Login"
AnchorPane.leftAnchor="0.0" textFill="blue">
            <font>
                <Font name="System Bold" size="41.0" />
            </font>
```

```xml
        </Label>
        <TextField fx:id="userid" layoutX="457.0" layoutY="286.0"
prefHeight="35.0" prefWidth="250.0" promptText="Enter your UserID">
            <font>
                <Font size="20.0" />
            </font></TextField>
        <PasswordField fx:id="pwd" layoutX="455.0" layoutY="398.0"
prefHeight="35.0" prefWidth="250.0" promptText="Enter your Password">
            <font>
                <Font size="20.0" />
            </font></PasswordField>
        <Label layoutX="463.0" layoutY="237.0" text="User Id">
            <font>
                <Font size="23.0" />
            </font>
        </Label>
        <Label layoutX="458.0" layoutY="365.0" text="Password">
            <font>
                <Font size="23.0" />
            </font>
        </Label>

        <Button fx:id="login" layoutX="532.0" layoutY="489.0"
mnemonicParsing="false" onAction="#login" text="LogIn">
            <font>
                <Font size="26.0" />
            </font>
        </Button>
        <Label fx:id="failed" layoutX="468.0" layoutY="441.0" textFill="red"
/>
        <Button fx:id="exit" layoutX="897.0" layoutY="604.0"
mnemonicParsing="false" onAction="#exit" text="Exit">
            <font>
                <Font size="26.0" />
            </font>
        </Button>
    </children>
</AnchorPane>
```

Homepage.java

```java
package com.haneetarya.librarymanagementsystem;

import javafx.event.ActionEvent;
import javafx.event.EventHandler;
import javafx.fxml.FXML;
import javafx.fxml.FXMLLoader;
import javafx.fxml.Initializable;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.control.RadioButton;
import javafx.scene.control.ToggleGroup;
import javafx.stage.Stage;

import java.io.IOException;
import java.net.URL;
import java.util.ResourceBundle;

public class Homepage implements Initializable {
```

```java
    @FXML
    public RadioButton issue;
    @FXML
    public RadioButton addBook;
    @FXML
    public RadioButton addStudent;
    @FXML
    public RadioButton submit;
    @FXML
    public Button logout;
    @FXML
    public Button go;
    public Button studentList;
    public Button booklist;
    public Button borrowlist;
    ToggleGroup tg;
    private FXMLLoader root;
    private Stage stage;


    public void submit(ActionEvent actionEvent) {
        RadioButton rb = (RadioButton) tg.getSelectedToggle();
        String sltd = rb.getText();
        if (sltd.equals("Issue Book")){
            root = new
FXMLLoader(getClass().getResource("issuebook.fxml"));
            stage = (Stage) (logout.getScene().getWindow());
            try {
                stage.setScene(new Scene(root.load()));
            } catch (IOException e) {
                e.printStackTrace();
            }
            stage.show();
        }else if(sltd.equals("Submit Book")){
            root = new
FXMLLoader(getClass().getResource("submitbook.fxml"));
            stage = (Stage) (logout.getScene().getWindow());
            try {
                stage.setScene(new Scene(root.load()));
            } catch (IOException e) {
                e.printStackTrace();
            }
            stage.show();

        }else if(sltd.equals("Add Student")){
            root = new
FXMLLoader(getClass().getResource("addstudent.fxml"));
            stage = (Stage) (logout.getScene().getWindow());
            try {
                stage.setScene(new Scene(root.load()));
            } catch (IOException e) {
                e.printStackTrace();
            }
            stage.show();
        }else{
            root = new FXMLLoader(getClass().getResource("addbook.fxml"));
            stage = (Stage) (logout.getScene().getWindow());
            try {
                stage.setScene(new Scene(root.load()));
            } catch (IOException e) {
                e.printStackTrace();
```

```java
            }
            stage.show();
        }
    }


    @Override
    public void initialize(URL url, ResourceBundle resourceBundle) {
        tg = new ToggleGroup();
        issue.setToggleGroup(tg);
        addBook.setToggleGroup(tg);
        addStudent.setToggleGroup(tg);
        submit.setToggleGroup(tg);
        logout.setOnAction(new EventHandler<ActionEvent>() {
            @Override
            public void handle(ActionEvent actionEvent) {
                root = new
FXMLLoader(getClass().getResource("Login.fxml"));
                stage = (Stage) (logout.getScene().getWindow());
                try {
                    stage.setScene(new Scene(root.load()));
                } catch (IOException e) {
                    e.printStackTrace();
                }
                db.logOut();
                stage.show();
            }
        });
    }

    public void getBorrowList(ActionEvent actionEvent) {
        root = new FXMLLoader(getClass().getResource("borrowlist.fxml"));
        stage = (Stage) (logout.getScene().getWindow());
        try {
            stage.setScene(new Scene(root.load()));
        } catch (IOException e) {
            e.printStackTrace();
        }
        stage.show();
    }

    public void getBookList(ActionEvent actionEvent) {
        root = new FXMLLoader(getClass().getResource("booklist.fxml"));
        stage = (Stage) (logout.getScene().getWindow());
        try {
            stage.setScene(new Scene(root.load()));
        } catch (IOException e) {
            e.printStackTrace();
        }
        stage.show();
    }

    public void getStudentList(ActionEvent actionEvent) {
        root = new FXMLLoader(getClass().getResource("studentlist.fxml"));
        stage = (Stage) (logout.getScene().getWindow());
        try {
            stage.setScene(new Scene(root.load()));
        } catch (IOException e) {
            e.printStackTrace();
        }
        stage.show();
```

```
        }
}
```

homepage.fxml

```xml
<?xml version="1.0" encoding="UTF-8"?>

<?import javafx.scene.control.Button?>
<?import javafx.scene.control.ButtonBar?>
<?import javafx.scene.control.Label?>
<?import javafx.scene.control.RadioButton?>
<?import javafx.scene.layout.AnchorPane?>
<?import javafx.scene.text.Font?>

<AnchorPane prefHeight="720.0" prefWidth="1080.0" style="-fx-background-
color: lightblue;" xmlns="http://javafx.com/javafx/17"
xmlns:fx="http://javafx.com/fxml/1"
fx:controller="com.haneetarya.librarymanagementsystem.Homepage">
   <children>
      <RadioButton fx:id="issue" layoutX="212.0" layoutY="274.0"
mnemonicParsing="false" prefHeight="40.0" text="Issue Book">
         <font>
            <Font size="24.0" />
         </font></RadioButton>
      <RadioButton fx:id="submit" layoutX="391.0" layoutY="272.0"
mnemonicParsing="false" prefHeight="40.0" text="Submit Book">
         <font>
            <Font size="24.0" />
         </font></RadioButton>
      <RadioButton fx:id="addStudent" layoutX="569.0" layoutY="268.0"
mnemonicParsing="false" prefHeight="40.0" text="Add Student">
         <font>
            <Font size="24.0" />
         </font></RadioButton>
      <RadioButton fx:id="addBook" layoutX="774.0" layoutY="267.0"
mnemonicParsing="false" prefHeight="40.0" text="Add Book">
         <font>
            <Font size="24.0" />
         </font></RadioButton>
      <Button fx:id="go" layoutX="514.0" layoutY="369.0"
mnemonicParsing="false" onAction="#submit" prefHeight="45.0"
prefWidth="131.0" text="Go">
         <font>
            <Font size="34.0" />
         </font></Button>
      <Label alignment="CENTER" layoutX="-3.0" layoutY="-3.0"
prefHeight="164.0" prefWidth="1083.0" style="-fx-background-color:
#b4826b;" text="Choose the Option below" textFill="blue">
         <font>
            <Font name="System Bold" size="40.0" />
         </font>
      </Label>
      <Button fx:id="logout" layoutX="803.0" layoutY="616.0"
mnemonicParsing="false" prefHeight="50.0" prefWidth="181.0" text="Log Out">
         <font>
            <Font size="30.0" />
         </font>
      </Button>
      <ButtonBar layoutX="11.0" layoutY="524.0" prefHeight="40.0"
prefWidth="445.0">
         <buttons>
```

```xml
            <Button fx:id="studentList" mnemonicParsing="false"
onAction="#getStudentList" text="Student List">
                <font>
                    <Font size="19.0" />
                </font>
            </Button>
            <Button fx:id="booklist" mnemonicParsing="false"
onAction="#getBookList" text="Book List">
                <font>
                    <Font size="19.0" />
                </font>
            </Button>
            <Button fx:id="borrowlist" mnemonicParsing="false"
onAction="#getBorrowList" text="Borrow List">
                <font>
                    <Font size="19.0" />
                </font>
            </Button>
        </buttons>
      </ButtonBar>
   </children>
</AnchorPane>
```

AddBook.java

```java
package com.haneetarya.librarymanagementsystem;

import javafx.event.ActionEvent;
import javafx.fxml.FXML;
import javafx.fxml.FXMLLoader;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.control.Label;
import javafx.scene.control.TextField;
import javafx.scene.input.MouseEvent;
import javafx.stage.Stage;

import javax.swing.*;
import java.awt.*;
import java.io.IOException;

public class Addbook {
    @FXML
    public TextField bookname;
    @FXML
    public TextField authorname;
    @FXML
    public TextField publisher;
    @FXML
    public Button addbook;
    @FXML
    public Label back;
    @FXML
    public Label message;
    private FXMLLoader root;
    private Stage stage;

    public void backToHome(MouseEvent mouseEvent) {
        root = new FXMLLoader(getClass().getResource("homepage.fxml"));
```

```java
        stage = (Stage) (message.getScene().getWindow());
        try {
            stage.setScene(new Scene(root.load()));
        } catch (IOException e) {
            e.printStackTrace();
        }
        stage.show();
    }

    public void addBook(ActionEvent actionEvent) {
        String nam = bookname.getText();
        String author = authorname.getText();
        String publish = publisher.getText();
        if(!nam.equals("") && !author.equals("") && !publish.equals("")){
            String ins = db.insertBook(nam, author,publish);

            if(!ins.equals(db.FALSE)){
                showMessage("Book Added: Book ID is " + ins, "Student
Added",JOptionPane.INFORMATION_MESSAGE);
//              message.setText( + ins);
            }
            else {
                showMessage("Can't Connect to Database","Database
Error",JOptionPane.ERROR_MESSAGE);
//              message.setText("Database Error");
            }
        }
        else {
            showMessage("Please Enter the correct Book Name, Author and
Publisher","Wrong Details",JOptionPane.WARNING_MESSAGE);

//          message.setText("Please Enter the correct Book Name, Author
and Publisher");
        }
    }
    private void showMessage(String message, String title, int type) {
        EventQueue.invokeLater(new Runnable() {
            @Override
            public void run() {
                JOptionPane.showMessageDialog(null, message,title,type);
            }
        });
    }
}
```

addbook.fxml

```xml
<?xml version="1.0" encoding="UTF-8"?>

<?import javafx.scene.control.Button?>
<?import javafx.scene.control.Label?>
<?import javafx.scene.control.TextField?>
<?import javafx.scene.layout.AnchorPane?>
<?import javafx.scene.text.Font?>

<AnchorPane prefHeight="720.0" prefWidth="1080.0" style="-fx-background-
color: lightblue;" xmlns="http://javafx.com/javafx/17"
xmlns:fx="http://javafx.com/fxml/1"
fx:controller="com.haneetarya.librarymanagementsystem.Addbook">
<children>
```

```xml
        <Label alignment="CENTER" layoutX="-3.0" layoutY="-3.0"
prefHeight="164.0" prefWidth="1083.0" style="-fx-background-color:
#b4826b;" text="Enter the Book Details" textFill="blue">
          <font>
             <Font name="System Bold" size="48.0" />
          </font>
       </Label>
    <Label fx:id="back" layoutX="75.0" layoutY="60.0"
onMouseClicked="#backToHome" text="&lt;- back">
          <font>
             <Font size="31.0" />
          </font>
    </Label>
       <Label layoutX="116.0" layoutY="259.0" text="Book Name">
          <font>
             <Font size="25.0" />
          </font>
       </Label>
       <Label layoutX="434.0" layoutY="254.0" text="Author Name">
          <font>
             <Font size="25.0" />
          </font>
       </Label>
       <Label layoutX="750.0" layoutY="254.0" text="Publisher Name">
          <font>
             <Font size="25.0" />
          </font>
       </Label>
       <TextField fx:id="bookname" layoutX="87.0" layoutY="344.0"
promptText="Enter Book Name">
          <font>
             <Font size="19.0" />
          </font>
       </TextField>
       <TextField fx:id="authorname" layoutX="418.0" layoutY="342.0"
promptText="Enter Author Name">
          <font>
             <Font size="19.0" />
          </font>
       </TextField>
       <TextField fx:id="publisher" layoutX="736.0" layoutY="341.0"
promptText="Enter Publisher Name">
          <font>
             <Font size="19.0" />
          </font>
       </TextField>
       <Button fx:id="addbook" layoutX="480.0" layoutY="476.0"
mnemonicParsing="false" onAction="#addBook" text="Add Book">
          <font>
             <Font name="System Bold" size="27.0" />
          </font>
       </Button>
    <Label fx:id="message" alignment="CENTER" layoutX="519.0"
layoutY="552.0" prefHeight="28.0" textAlignment="CENTER" textFill="RED">
          <font>
             <Font size="23.0" />
          </font>
    </Label>
</children>
</AnchorPane>
```

AddStudent.java

```java
package com.haneetarya.librarymanagementsystem;

import javafx.event.ActionEvent;
import javafx.fxml.FXML;
import javafx.fxml.FXMLLoader;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.control.Label;
import javafx.scene.control.TextField;
import javafx.scene.input.MouseEvent;
import javafx.stage.Stage;
import javax.swing.JOptionPane;

import java.awt.*;
import java.io.IOException;

public class Addstudent {
    @FXML
    public Label back;
    @FXML
    public TextField name;
    @FXML
    public TextField phone;
    @FXML
    public Button submit;
    @FXML
    public Label message;
    private FXMLLoader root;
    private Stage stage;
    public void backToHome(MouseEvent mouseEvent) {
        root = new FXMLLoader(getClass().getResource("homepage.fxml"));
        stage = (Stage) (message.getScene().getWindow());
        try {
            stage.setScene(new Scene(root.load()));
        } catch (IOException e) {
            e.printStackTrace();
        }
        stage.show();
    }

    public void submit(ActionEvent actionEvent) {
        String nam = name.getText();
        String phon = phone.getText();
        if(!nam.equals("") && !phon.equals("")){
            String ins = db.insertStudent(nam, phon);

            if(!ins.equals(db.FALSE)){
                showMessage("Student Added: Student ID is " + ins, "Student
Added",JOptionPane.INFORMATION_MESSAGE);


                name.setText("");
                phone.setText("");
            }
            else {
                showMessage("Can't Connect to Database","Database
```

```java
Error",JOptionPane.ERROR_MESSAGE);


                }
            }
        else {
            showMessage("Please Enter the correct Name and Phone
Number","Wrong Details",JOptionPane.WARNING_MESSAGE);
//          message.setText("Please Enter the correct Name and Phone
Number");
        }
    }
    private void showMessage(String message, String title, int type) {
        EventQueue.invokeLater(new Runnable() {
            @Override
            public void run() {
                JOptionPane.showMessageDialog(null, message,title,type);
            }
        });
    }
}
```

addstudent.fxml

```xml
<?xml version="1.0" encoding="UTF-8"?>

<?import javafx.scene.control.Button?>
<?import javafx.scene.control.Label?>
<?import javafx.scene.control.TextField?>
<?import javafx.scene.layout.AnchorPane?>
<?import javafx.scene.text.Font?>

<AnchorPane prefHeight="720.0" prefWidth="1080.0" style="-fx-background-
color: lightblue;" xmlns="http://javafx.com/javafx/17"
xmlns:fx="http://javafx.com/fxml/1"
fx:controller="com.haneetarya.librarymanagementsystem.Addstudent">
<children>
    <Label alignment="CENTER" layoutX="-3.0" layoutY="-3.0"
prefHeight="164.0" prefWidth="1083.0" style="-fx-background-color:
#b4826b;" text="Enter the Student Details" textFill="blue">
        <font>
            <Font size="40.0" />
        </font>
    </Label>
    <Label fx:id="back" layoutX="75.0" layoutY="60.0"
onMouseClicked="#backToHome" text="&lt;- back">
        <font>
            <Font size="31.0" />
        </font>
    </Label>
      <Label layoutX="261.0" layoutY="268.0" text="Name">
        <font>
            <Font size="28.0" />
        </font>
    </Label>
      <Label layoutX="637.0" layoutY="278.0" text="Phone No.">
        <font>
            <Font size="28.0" />
        </font>
    </Label>
```

```
        <TextField fx:id="name" layoutX="223.0" layoutY="341.0"
prefWidth="293.0" promptText="Enter Student Name">
          <font>
            <Font size="20.0" />
          </font></TextField>
        <TextField fx:id="phone" layoutX="588.0" layoutY="341.0"
prefWidth="325.0" promptText="Enter Student Contact Number">
          <font>
            <Font size="20.0" />
          </font></TextField>
        <Button fx:id="submit" layoutX="466.0" layoutY="450.0"
mnemonicParsing="false" onAction="#submit" text="Submit">
          <font>
            <Font size="28.0" />
          </font>
        </Button>
        <Label fx:id="message" alignment="CENTER" layoutX="519.0"
layoutY="552.0" prefHeight="28.0" textAlignment="CENTER" textFill="RED">
          <font>
            <Font size="23.0" />
          </font>
        </Label>
</children>
</AnchorPane>
```

IssueBook.java

```java
package com.haneetarya.librarymanagementsystem;

import javafx.event.ActionEvent;
import javafx.fxml.FXML;
import javafx.fxml.FXMLLoader;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.control.Label;
import javafx.scene.control.TextField;
import javafx.scene.input.MouseEvent;
import javafx.stage.Stage;

import javax.swing.*;
import java.awt.*;
import java.io.IOException;

public class Issuebook {
    @FXML
    public TextField studentid;
    @FXML
    public Button issuebook;
    @FXML
    public TextField bookid;
    @FXML
    public Label back;
    public Label message;
    private FXMLLoader root;
    private Stage stage;

    public void backToHome(MouseEvent mouseEvent) {
        root = new FXMLLoader(getClass().getResource("homepage.fxml"));
        stage = (Stage) (issuebook.getScene().getWindow());
```

```java
        try {
            stage.setScene(new Scene(root.load()));
        } catch (IOException e) {
            e.printStackTrace();
        }
        stage.show();
    }

    public void issueBook(ActionEvent actionEvent) {
        String sid = studentid.getText();
        String bid = bookid.getText();
        if(!sid.equals("") && !bid.equals("")){
            String ins = db.issueBook(sid,bid);

            if(!ins.equals(db.FALSE)){
                showMessage(ins,"",JOptionPane.INFORMATION_MESSAGE);
//                message.setText(ins);
                bookid.setText("");
                studentid.setText("");
            }
            else {
                showMessage("Can't Connect to Database","Database
Error",JOptionPane.ERROR_MESSAGE);
//                message.setText("Database Error");
            }
        }
        else {
            showMessage("Please Enter the correct Details","Wrong
Details",JOptionPane.WARNING_MESSAGE);

//            message.setText("Please Enter the correct Details");
        }
    }

    public void newBook(ActionEvent actionEvent) {
        root = new FXMLLoader(getClass().getResource("addbook.fxml"));
        stage = (Stage) (message.getScene().getWindow());
        try {
            stage.setScene(new Scene(root.load()));
        } catch (IOException e) {
            e.printStackTrace();
        }
        stage.show();
    }
    private void showMessage(String message, String title, int type) {
        EventQueue.invokeLater(new Runnable() {
            @Override
            public void run() {
                JOptionPane.showMessageDialog(null, message,title,type);
            }
        });
    }
}
```

issuebook.fxml

```xml
<?xml version="1.0" encoding="UTF-8"?>

<?import javafx.scene.control.Button?>
```

```xml
<?import javafx.scene.control.Label?>
<?import javafx.scene.control.TextField?>
<?import javafx.scene.layout.AnchorPane?>
<?import javafx.scene.text.Font?>

<AnchorPane prefHeight="720.0" prefWidth="1080.0" style="-fx-background-
color: lightblue;" xmlns="http://javafx.com/javafx/17"
xmlns:fx="http://javafx.com/fxml/1"
fx:controller="com.haneetarya.librarymanagementsystem.Issuebook">
   <children>

      <Label alignment="CENTER" layoutX="-3.0" layoutY="-3.0"
prefHeight="164.0" prefWidth="1083.0" style="-fx-background-color:
#b4826b;" text="Issue Book" textFill="BLUE">
         <font>
            <Font size="26.0" />
         </font>
      </Label>
      <Label fx:id="back" layoutX="75.0" layoutY="60.0"
onMouseClicked="#backToHome" text="&lt;- back">
         <font>
            <Font size="31.0" />
         </font>
      </Label>
      <Label layoutX="537.0" layoutY="177.0" text="Enter the Student ID">
         <font>
            <Font size="26.0" />
         </font>
      </Label>
      <TextField fx:id="bookid" layoutX="156.0" layoutY="273.0"
prefWidth="241.0" promptText="BID">
         <font>
            <Font size="20.0" />
         </font></TextField>
      <TextField fx:id="studentid" layoutX="557.0" layoutY="273.0"
prefWidth="241.0" promptText="SID">
         <font>
            <Font size="20.0" />
         </font></TextField>
      <Button fx:id="issuebook" layoutX="746.0" layoutY="384.0"
mnemonicParsing="false" onAction="#issueBook" text="Issue Book">
         <font>
            <Font size="27.0" />
         </font>
      </Button>
      <Button fx:id="newBook" layoutX="750.0" layoutY="474.0"
mnemonicParsing="false" onAction="#newBook" text="New Book?">
         <font>
            <Font size="20.0" />
         </font>
      </Button>
      <Label fx:id="message" alignment="CENTER" layoutX="155.0"
layoutY="554.0" textAlignment="CENTER" textFill="RED">
         <font>
            <Font size="23.0" />
         </font>
      </Label>
      <Label layoutX="126.0" layoutY="177.0" text="Enter Book ID">
         <font>
            <Font size="26.0" />
         </font>
```

```
        </Label>
    </children>
</AnchorPane>
```

SubmitBook.java

```java
package com.haneetarya.librarymanagementsystem;

import javafx.event.ActionEvent;
import javafx.fxml.FXML;
import javafx.fxml.FXMLLoader;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.control.Label;
import javafx.scene.control.TextField;
import javafx.scene.input.MouseEvent;
import javafx.stage.Stage;

import javax.swing.*;
import java.awt.*;
import java.io.IOException;

public class Submitbook {
    @FXML
    public Label back;
    @FXML
    public Button submitbook;
    @FXML
    public TextField bookid;
    @FXML
    public TextField studentid;
    @FXML
    public Label message;
    private FXMLLoader root;
    private Stage stage;
    public void backToHome(MouseEvent mouseEvent) {
        root = new FXMLLoader(getClass().getResource("homepage.fxml"));
        stage = (Stage) (submitbook.getScene().getWindow());
        try {
            stage.setScene(new Scene(root.load()));
        } catch (IOException e) {
            e.printStackTrace();
        }
        stage.show();
    }

    public void submitBook(ActionEvent actionEvent) {
        String sid = studentid.getText();
        String bid = bookid.getText();
        if(!sid.equals("") && !bid.equals("")){
            String ins = db.submitBook(sid,bid);

            if(!ins.equals(db.FALSE)){
                showMessage(ins,"",JOptionPane.INFORMATION_MESSAGE);
//                message.setText(ins);
                bookid.setText("");
                studentid.setText("");
            }
            else {
```

```java
                showMessage("Can't Connect to Database","Database
Error",JOptionPane.ERROR_MESSAGE);
            }
        }
        else {
            showMessage("Please Enter the correct Details","Wrong
Details",JOptionPane.WARNING_MESSAGE);
//          message.setText("Please Enter the correct Details");
        }
    }
    private void showMessage(String message, String title, int type) {
        EventQueue.invokeLater(new Runnable() {
            @Override
            public void run() {
                JOptionPane.showMessageDialog(null, message,title,type);
            }
        });
    }
}
```

submitbook.fxml

```xml
<?xml version="1.0" encoding="UTF-8"?>

<?import javafx.scene.control.Button?>
<?import javafx.scene.control.Label?>
<?import javafx.scene.control.TextField?>
<?import javafx.scene.layout.AnchorPane?>
<?import javafx.scene.text.Font?>

<AnchorPane style="-fx-background-color: lightblue;" prefHeight="720.0"
prefWidth="1080.0" xmlns="http://javafx.com/javafx/17"
xmlns:fx="http://javafx.com/fxml/1"
fx:controller="com.haneetarya.librarymanagementsystem.Submitbook">
    <children>


        <Label fx:id="message" alignment="CENTER" layoutX="323.0"
layoutY="562.0"  textAlignment="CENTER" textFill="RED">
            <font>
                <Font size="23.0" />
            </font>
        </Label>
        <Label textFill="blue" alignment="CENTER" layoutX="-3.0" layoutY="-
3.0" prefHeight="164.0" prefWidth="1083.0" style="-fx-background-color:
#b4826b;" text="Submit book">
            <font>
                <Font name="System Bold" size="49.0" />
            </font>
        </Label>
        <Label fx:id="back" layoutX="75.0" layoutY="60.0"
onMouseClicked="#backToHome" text="&lt;- back">
            <font>
                <Font size="31.0" />
            </font>
        </Label>
        <Label layoutX="162.0" layoutY="239.0" text="Student ID">
         <font>
            <Font size="30.0" />
```

```xml
                        </font>
                    </Label>
                    <Label layoutX="608.0" layoutY="235.0" text="Book ID">
                        <font>
                            <Font size="30.0" />
                        </font>
                    </Label>
                    <TextField fx:id="studentid" layoutX="154.0" layoutY="311.0"
promptText="Enter Student ID">
                        <font>
                            <Font size="20.0" />
                        </font>
                    </TextField>
                    <TextField fx:id="bookid" layoutX="576.0" layoutY="309.0"
promptText="Enter Book ID">
                        <font>
                            <Font size="20.0" />
                        </font>
                    </TextField>
                    <Button fx:id="submitbook" layoutX="420.0" layoutY="451.0"
mnemonicParsing="false" onAction="#submitBook" text="Submit Book">
                        <font>
                            <Font size="31.0" />
                        </font>
                    </Button>
                </children>

</AnchorPane>
```

StudentList.java

```java
package com.haneetarya.librarymanagementsystem;

import javafx.collections.FXCollections;
import javafx.collections.ObservableList;
import javafx.event.ActionEvent;
import javafx.fxml.FXMLLoader;
import javafx.fxml.Initializable;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.control.Label;
import javafx.scene.control.TableColumn;
import javafx.scene.control.TableView;
import javafx.scene.control.cell.PropertyValueFactory;
import javafx.scene.input.MouseEvent;
import javafx.stage.Stage;

import java.io.IOException;
import java.net.URL;
import java.util.ResourceBundle;

public class Studentlist implements Initializable {
    public Label back;
    public TableColumn<Student, String> id;
    public TableColumn<Student, String> name;
    public TableColumn<Student, String> phoneno;
    public Button addstudent;
    public TableView<Student> studetTable;
    private ObservableList<Student> list =
```

```java
    FXCollections.observableArrayList();
    private FXMLLoader root;
    private Stage stage;


    public void backToHome(MouseEvent mouseEvent) {
        root = new FXMLLoader(getClass().getResource("homepage.fxml"));
        stage = (Stage) (addstudent.getScene().getWindow());
        try {
            stage.setScene(new Scene(root.load()));
        } catch (IOException e) {
            e.printStackTrace();
        }
        stage.show();
    }


    public void addStudent(ActionEvent actionEvent) {
        root = new FXMLLoader(getClass().getResource("addstudent.fxml"));
        stage = (Stage) (addstudent.getScene().getWindow());
        try {
            stage.setScene(new Scene(root.load()));
        } catch (IOException e) {
            e.printStackTrace();
        }
        stage.show();
    }

    @Override
    public void initialize(URL url, ResourceBundle resourceBundle) {
        id.setCellValueFactory(new PropertyValueFactory<>("id"));
        name.setCellValueFactory(new PropertyValueFactory<>("name"));
        phoneno.setCellValueFactory(new PropertyValueFactory<>("phone"));

        list = db.studentList();
        studetTable.setItems(list);
    }
}
```

studentlist.fxml

```xml
<?xml version="1.0" encoding="UTF-8"?>

<?import javafx.scene.control.Button?>
<?import javafx.scene.control.Label?>
<?import javafx.scene.control.TableColumn?>
<?import javafx.scene.control.TableView?>
<?import javafx.scene.layout.AnchorPane?>
<?import javafx.scene.text.Font?>

<AnchorPane style="-fx-background-color: lightblue;" prefHeight="720.0"
prefWidth="1080.0" xmlns="http://javafx.com/javafx/17"
xmlns:fx="http://javafx.com/fxml/1"
fx:controller="com.haneetarya.librarymanagementsystem.Studentlist">

    <children>
        <Label fx:id="back" layoutX="75.0" layoutY="60.0"
onMouseClicked="#backToHome" text="&lt;- back">
            <font>
```

```xml
                      <Font size="31.0" />
                  </font>
              </Label>
          <TableView fx:id="studetTable" layoutX="-17.0" layoutY="103.0"
prefHeight="500.0" prefWidth="200.0" AnchorPane.leftAnchor="0.0"
AnchorPane.rightAnchor="17.0" AnchorPane.topAnchor="103.0">
              <columns>
                  <TableColumn fx:id="id" prefWidth="94.23123550415039" text="ID"
/>
                  <TableColumn fx:id="name" prefWidth="176.97265625" text="Name" />
                    <TableColumn fx:id="phoneno" prefWidth="176.97265625"
text="Phone No." />
              </columns>
          </TableView>
          <Button fx:id="addstudent" layoutX="466.0" layoutY="637.0"
mnemonicParsing="false" onAction="#addStudent" text="Add Student">
              <font>
                  <Font size="26.0" />
              </font>
          </Button>
      </children>
</AnchorPane>
```

Booklist.java

```java
package com.haneetarya.librarymanagementsystem;

import javafx.collections.FXCollections;
import javafx.collections.ObservableList;
import javafx.event.ActionEvent;
import javafx.fxml.FXMLLoader;
import javafx.fxml.Initializable;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.control.Label;
import javafx.scene.control.TableColumn;
import javafx.scene.control.TableView;
import javafx.scene.control.cell.PropertyValueFactory;
import javafx.scene.input.MouseEvent;
import javafx.stage.Stage;

import java.io.IOException;
import java.net.URL;
import java.util.ResourceBundle;

public class Booklist implements Initializable {
    public Label back;
    public TableView<Book> bookTable;
    public TableColumn<Book,Integer> bookid;
    public TableColumn<Book, String> bookname;
    public Button addbook;
    public TableColumn<Book,String> publisher;
    public TableColumn<Book,String> author;
    private ObservableList<Book> list =
FXCollections.observableArrayList();
    private FXMLLoader root;
    private Stage stage;

    public void backToHome(MouseEvent mouseEvent) {
```

```java
        root = new FXMLLoader(getClass().getResource("homepage.fxml"));
        stage = (Stage) (addbook.getScene().getWindow());
        try {
            stage.setScene(new Scene(root.load()));
        } catch (IOException e) {
            e.printStackTrace();
        }
        stage.show();
    }

    public void addBook(ActionEvent actionEvent) {
        root = new FXMLLoader(getClass().getResource("addbook.fxml"));
        stage = (Stage) (addbook.getScene().getWindow());
        try {
            stage.setScene(new Scene(root.load()));
        } catch (IOException e) {
            e.printStackTrace();
        }
        stage.show();
    }

    @Override
    public void initialize(URL url, ResourceBundle resourceBundle) {
        bookid.setCellValueFactory(new PropertyValueFactory<>("id"));
        bookname.setCellValueFactory(new
PropertyValueFactory<>("bookName"));
        author.setCellValueFactory(new PropertyValueFactory<>("author"));
        publisher.setCellValueFactory(new
PropertyValueFactory<>("publisher"));

        list = db.bookList();
        bookTable.setItems(list);

    }
}
```

booklist.fxml

```xml
<?xml version="1.0" encoding="UTF-8"?>

<?import javafx.scene.control.Button?>
<?import javafx.scene.control.Label?>
<?import javafx.scene.control.TableColumn?>
<?import javafx.scene.control.TableView?>
<?import javafx.scene.layout.AnchorPane?>
<?import javafx.scene.text.Font?>

<AnchorPane style="-fx-background-color: lightblue;" prefHeight="720.0"
prefWidth="1080.0" xmlns="http://javafx.com/javafx/17"
xmlns:fx="http://javafx.com/fxml/1"
fx:controller="com.haneetarya.librarymanagementsystem.Booklist">
    <children>
        <Label fx:id="back" layoutX="75.0" layoutY="60.0"
onMouseClicked="#backToHome" text="&lt;- back">
            <font>
                <Font size="31.0" />
            </font>
        </Label>
        <TableView fx:id="bookTable" layoutX="-17.0" layoutY="103.0"
```

```xml
      prefHeight="500.0" prefWidth="200.0" AnchorPane.leftAnchor="0.0"
AnchorPane.rightAnchor="0.0" AnchorPane.topAnchor="103.0">
            <columns>
                <TableColumn fx:id="bookid" prefWidth="94.23123550415039"
text="Book ID" />
                <TableColumn fx:id="bookname"
prefWidth="378.77040100097656" text="Book Name" />
                <TableColumn fx:id="author" prefWidth="218.39151000976562"
text="Author" />
            <TableColumn fx:id="publisher" prefWidth="213.89801025390625"
text="Publisher" />
            </columns>
        </TableView>
        <Button fx:id="addbook" layoutX="440.0" layoutY="612.0"
mnemonicParsing="false" onAction="#addBook" text="Add Book">
            <font>
                <Font size="26.0" />
            </font>
        </Button>
    </children>

</AnchorPane>
```

Borrowlist.java

```java
package com.haneetarya.librarymanagementsystem;

import javafx.collections.FXCollections;
import javafx.collections.ObservableList;
import javafx.fxml.FXMLLoader;
import javafx.fxml.Initializable;
import javafx.scene.Scene;
import javafx.scene.control.Label;
import javafx.scene.control.TableColumn;
import javafx.scene.control.TableView;
import javafx.scene.control.cell.PropertyValueFactory;
import javafx.scene.input.MouseEvent;
import javafx.stage.Stage;

import java.io.IOException;
import java.net.URL;
import java.util.ResourceBundle;

public class Borrowlist implements Initializable {
    public Label back;
    public TableView<Borrow> borrowTable;
    public TableColumn<Borrow,Integer> sid;
    public TableColumn<Borrow,String> sname;
    public TableColumn<Borrow,String> bname;
    public TableColumn<Borrow,String> phoneno;
    public TableColumn<Borrow,String> author;
    public TableColumn<Borrow,String> publisher;
    public TableColumn<Borrow,Integer> bid;
    private ObservableList<Borrow> ls =
FXCollections.observableArrayList();
    private FXMLLoader root;
    private Stage stage;
    public void backToHome(MouseEvent mouseEvent) {
        root = new FXMLLoader(getClass().getResource("homepage.fxml"));
```

```java
        stage = (Stage) (back.getScene().getWindow());
        try {
            stage.setScene(new Scene(root.load()));
        } catch (IOException e) {
            e.printStackTrace();
        }
        stage.show();
    }

    @Override
    public void initialize(URL url, ResourceBundle resourceBundle) {
        bid.setCellValueFactory(new PropertyValueFactory<>("bid"));
        bname.setCellValueFactory(new PropertyValueFactory<>("bname"));
        author.setCellValueFactory(new PropertyValueFactory<>("author"));
        publisher.setCellValueFactory(new
PropertyValueFactory<>("publisher"));
        sid.setCellValueFactory(new PropertyValueFactory<>("sid"));
        sname.setCellValueFactory(new PropertyValueFactory<>("sname"));
        phoneno.setCellValueFactory(new PropertyValueFactory<>("phone"));
        ls = db.borrowList();

        borrowTable.setItems(ls);

    }
}
```

borrowlist.fxml

```xml
<?xml version="1.0" encoding="UTF-8"?>

<?import javafx.scene.control.Label?>
<?import javafx.scene.control.TableColumn?>
<?import javafx.scene.control.TableView?>
<?import javafx.scene.layout.AnchorPane?>
<?import javafx.scene.text.Font?>

<AnchorPane style="-fx-background-color: lightblue;" prefHeight="720.0"
prefWidth="1080.0" xmlns="http://javafx.com/javafx/17"
xmlns:fx="http://javafx.com/fxml/1"
fx:controller="com.haneetarya.librarymanagementsystem.Borrowlist">
    <children>
        <Label fx:id="back" layoutX="75.0" layoutY="60.0"
onMouseClicked="#backToHome" text="&lt;- back">
            <font>
                <Font size="31.0" />
            </font>
        </Label>
        <TableView fx:id="borrowTable" layoutX="-17.0" layoutY="103.0"
prefHeight="500.0" prefWidth="200.0" AnchorPane.leftAnchor="0.0"
AnchorPane.rightAnchor="0.0" AnchorPane.topAnchor="103.0">
            <columns>
                <TableColumn fx:id="sid" prefWidth="64.56662845611572"
text="Student ID" />
                <TableColumn fx:id="sname" prefWidth="238.43333435058594"
text="Student Name" />
                <TableColumn fx:id="phoneno" prefWidth="165.26004028320312"
text="Phone No." />
                <TableColumn fx:id="bid" prefWidth="56.78131103515625"
text="Book ID" />
```

```xml
            <TableColumn fx:id="bname" prefWidth="253.0013427734375"
text="Book Name" />
            <TableColumn fx:id="author" minWidth="0.0"
prefWidth="133.9986572265625" text="Author" />
            <TableColumn fx:id="publisher" maxWidth="165.0"
prefWidth="165.0" text="Publisher" />
            </columns>
        </TableView>

    </children>

</AnchorPane>
```

Book.java

```java
package com.haneetarya.librarymanagementsystem;

public class Book {
    int id;
    String bookName;
    String author;

    public int getId() {
        return id;
    }

    public void setId(int id) {
        this.id = id;
    }

    public String getBookName() {
        return bookName;
    }

    public void setBookName(String bookName) {
        this.bookName = bookName;
    }

    public String getAuthor() {
        return author;
    }

    public void setAuthor(String author) {
        this.author = author;
    }

    public String getPublisher() {
        return publisher;
    }

    public void setPublisher(String publisher) {
        this.publisher = publisher;
    }

    public Book(int id, String bookName, String author, String publisher) {
        this.id = id;
        this.bookName = bookName;
        this.author = author;
        this.publisher = publisher;
```

```
    }

    String publisher;
}
```

Borrow.java

```java
package com.haneetarya.librarymanagementsystem;

public class Borrow {
    int sid,bid;
    String bname;
    String sname;
    String author;
    String publisher;

    public int getSid() {
        return sid;
    }

    public void setSid(int sid) {
        this.sid = sid;
    }

    public int getBid() {
        return bid;
    }

    public void setBid(int bid) {
        this.bid = bid;
    }

    public String getBname() {
        return bname;
    }

    public void setBname(String bname) {
        this.bname = bname;
    }

    public String getSname() {
        return sname;
    }

    public void setSname(String sname) {
        this.sname = sname;
    }

    public String getAuthor() {
        return author;
    }

    public void setAuthor(String author) {
        this.author = author;
    }

    public String getPublisher() {
        return publisher;
    }
```

```java
    public void setPublisher(String publisher) {
        this.publisher = publisher;
    }

    public String getPhone() {
        return phone;
    }

    public void setPhone(String phone) {
        this.phone = phone;
    }

    public Borrow(int sid, int bid, String bname, String sname, String
author, String publisher, String phone) {
        this.sid = sid;
        this.bid = bid;
        this.bname = bname;
        this.sname = sname;
        this.author = author;
        this.publisher = publisher;
        this.phone = phone;
    }

    String phone;
}
```

Student.java

```java
package com.haneetarya.librarymanagementsystem;

public class Student {
    public String id, name, phone;

    public String getId() {
        return id;
    }

    public void setId(String id) {
        this.id = id;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public String getPhone() {
        return phone;
    }

    public void setPhone(String phone) {
        this.phone = phone;
    }

    public Student(String id, String name, String phone) {
```

```
        this.id = id;
        this.name = name;
        this.phone = phone;
    }
}
```

- Result –
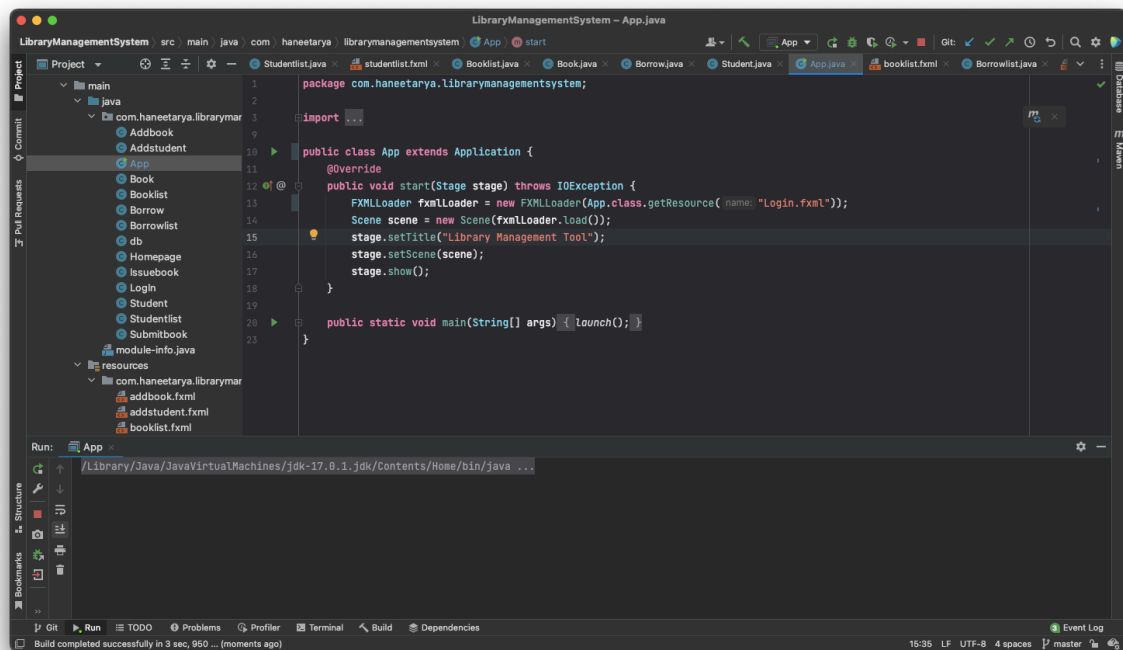
Library Management Tool

Choose the Option below

◉ Issue Book ◯ Submit Book ◯ Add Student ◯ Add Book

[Go]

[Student List] [Book List] [Borrow List]

[Log Out]

Library Management Tool

<- back ## Enter the Book Details

Book Name   Author Name   Publisher Name

[|]   [Enter Author Name]   [Enter Publisher Name]

[Add Book]

<- back **Enter the Student Details**

Name

Phone No.

[   ]   [Enter Student Contact Number]

Submit

<- back **Issue Book**

Enter Book ID   Enter the Student ID

[   ]   [SID   ]

Issue Book

New Book?

Library Management Tool

Submit book

Student ID

Book ID

[   ]   Enter Book ID

Submit Book

Library Management Tool

ID	Name	Phone No.	
1	Rahul Raj	7250554442	
2	Abhishek Raj	7250556660	
3	Rajesh Kumar	8899445609	
4	Pinku	7658930911	
5	Prabhu Deva	6655221133	
6	Shreya	2944342312	
7	Devil	6386346391	
8	Arnav Rathore	7662348791	
9	Riya Khatwani	8877332209	
10	Rishav Raj	8789223123	
11	Yash	7645221234	
12	Priyanshu Baran	1234567890	

Add Student

Library Management Tool

<- back

Book ID	Book Name	Author	Publisher	
1	How to win friends and influence people	Dale Carnegie	FP Classics	
2	Think and Grow Rich	Napolean Hill	FP Classics	
3	Lucifer	Tom Kapinos	DC Comics	
4	Science Today	Lakhmir Singh	S Chand	
5	The Power of Your Subconscious mind	Dr. Joseph Murphy	FP Classics	
6	The BabyLoons	Sahil	FP Classics	
7	Getting Started with Java	Saurav Khushwaha	YT	
8	Spider Man	Stan Lee	Marvel Comics	
9	Los Angeles	Henry Rich	Holy Faith	

Add Book

Library Management Tool

<- back

Student ID	Student Name	Phone No.	Book ID	Book Name	Author	Publisher
1	Rahul Raj	7250554442	3	Lucifer	Tom Kapinos	DC Comics
11	Yash	7645221234	5	The Power of Your Subconscious mind	Dr. Joseph Murphy	FP Classics

Result and Discussion – We get a Library Management Application based on JavaFX and MySQL Database. This will result ease in managing any institutuions Library.

Conclusion – This Application will lead the Institutions to maintain the library in very effective manner having every option to manage the Library.

***