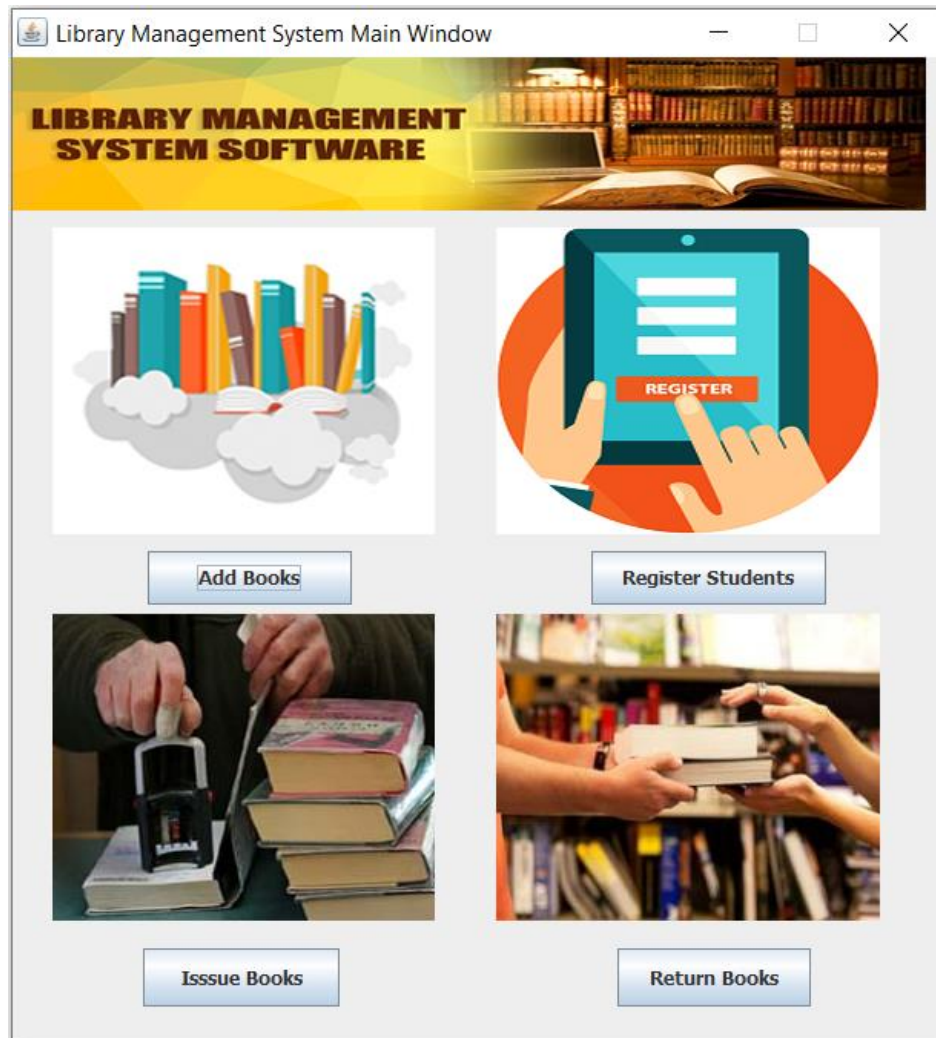


## Library Management System (JAVA based with back-end controlled by JDBC)

Database Software Used: XAMPP (Apache Server)

Database used: MySQL

This project is a Java based application having a main window in which there are four options of Add Books, Register Students, Issue Books & Return Books to the library.



Database for the project Student Feedback System is shown below consisting of four tables.

Table	Action	Rows	Type	Collation	Size	Overhead
books	Browse Structure Search Insert Empty Drop	2	InnoDB	latin1_swedish_ci	16 KIB	-
issuedbooks	Browse Structure Search Insert Empty Drop	4	InnoDB	latin1_swedish_ci	16 KIB	-
register_students	Browse Structure Search Insert Empty Drop	4	InnoDB	latin1_swedish_ci	48 KIB	-
returnedbooks	Browse Structure Search Insert Empty Drop	0	InnoDB	latin1_swedish_ci	16 KIB	-
4 tables	Sum	10	InnoDB	latin1_swedish_ci	96 KIB	0 B

The Add Book window is shown below in which we can Add Books to the library by entering the details of the books. When we click the Add Button then the books details are saved to the database.

The 'Add Books' window contains the following fields and buttons:

- Book Id:** Text input field containing '34456'.
- Book Name:** Text input field containing 'Introduction to Database System'.
- Author:** Text input field containing 'C.J Date'.
- Publication:** Text input field containing 'Pearson Education'.
- Stream:** Dropdown menu with 'B.Tech' selected.
- Buttons:** 'Add', 'Reset', 'Home', and 'Close'.

In the second screenshot, a 'Message' dialog box is displayed with the text 'Book is added Successfully' and an 'OK' button.

The database table for the Add Book is shown below having different columns for different details of books with their attributes.

The screenshot shows the phpMyAdmin interface for the 'library\_management' database. The 'books' table structure is displayed with the following columns:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	BOOK_ID	int(10)			No	None			Change Drop More
2	BOOK_NAME	varchar(40)	latin1_swedish_ci		No	None			Change Drop More
3	AUTHOR	varchar(40)	latin1_swedish_ci		No	None			Change Drop More
4	PUBLICATION	varchar(40)	latin1_swedish_ci		No	None			Change Drop More
5	STREAM	varchar(30)	latin1_swedish_ci		No	None			Change Drop More

The 'BOOK\_ID' column is marked as the primary key. The 'Indexes' section at the bottom shows a primary index on 'BOOK\_ID'.

The Register Students window is shown below in which we can Register Students to the library by entering the details of the students. When we click the Register button then the student details are saved to the database.

The Student Registration window contains the following fields and buttons:

- Name: XYZ
- Father's Name: ABC
- Registration No.: 987456
- Course: B.Tech
- Session: 2017-2021
- Date of Birth: 29 Jul, 1999
- Gender: Male
- Address: QWERTY
- Email Address: xyz@gmail.com
- Mobile No.: 9874563210
- Buttons: Register, Reset, Home, Close

In the right screenshot, a 'Message' dialog box is displayed with the text: 'Student Registered Successfully' and an 'OK' button.

The database table for the Register Students is shown below having different columns for different details of the students with their attributes.

The table structure for 'register\_students' is as follows:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Name	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
2	Father's Name	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
3	Registration No.	int(10)		UNSIGNED	No	None			Change Drop More
4	Course	varchar(20)	latin1_swedish_ci		No	None			Change Drop More
5	Session	varchar(20)	latin1_swedish_ci		No	None			Change Drop More
6	DOB	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
7	Gender	varchar(20)	latin1_swedish_ci		No	None			Change Drop More
8	Address	varchar(100)	latin1_swedish_ci		No	None			Change Drop More
9	Email	varchar(50)	latin1_swedish_ci		No	None			Change Drop More
10	Mobile No.	varchar(10)	latin1_swedish_ci		No	None			Change Drop More

The indexes for the table are:

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
Edit Drop	mob	BTREE	Yes	No	Mobile No.	0	A	No	
Edit Drop	email	BTREE	Yes	No	Email	0	A	No	
Edit Drop	reg	BTREE	Yes	No	Registration No.	0	A	No	

The Issue Book window is shown below in which we can Issue Books to the students by entering the details of the student & book. When we click the Issue button then the student & book details are saved to the database.

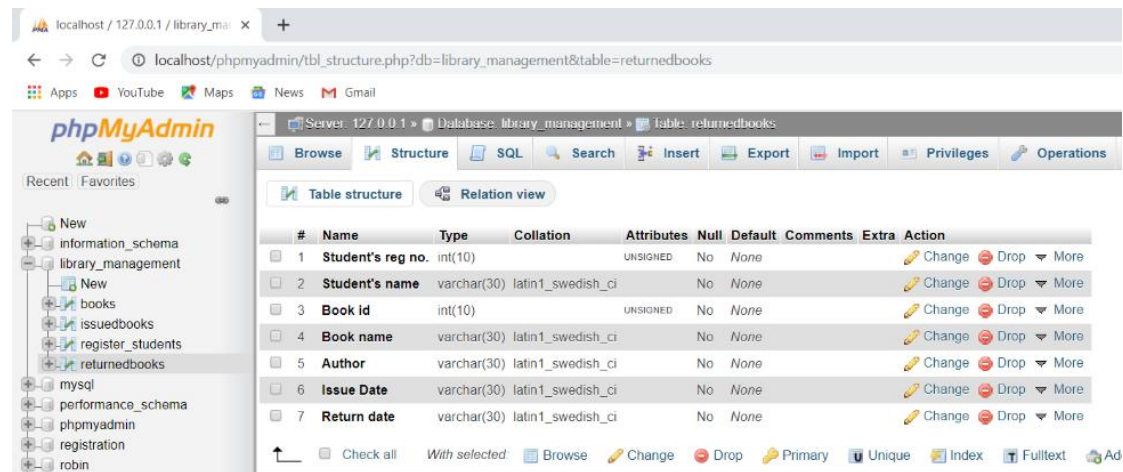
The database table for the Issue Book is shown below having different columns for different details of the student & book with their attributes.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Student's reg no.	int(10)		UNSIGNED	No	None			Change Drop More
2	Student's name	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
3	Book id	int(10)		UNSIGNED	No	None			Change Drop More
4	Book name	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
5	Author	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
6	Issue Date	varchar(30)	latin1_swedish_ci		No	None			Change Drop More

The Return Book window is shown below in which we can return books to the Library by entering the details of the student & book. When we click the Return button then the student & book details are saved to the database.



The database table for the Return Book is shown below having different columns for different details of the student & book with their attributes.



The screenshot shows the phpMyAdmin interface. The left sidebar displays the database structure, with 'library\_management' selected. The main panel shows the 'Structure' tab for the 'returnedbooks' table. The table structure is as follows:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Student's reg no.	int(10)		UNSIGNED	No	None			Change Drop More
2	Student's name	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
3	Book id	int(10)		UNSIGNED	No	None			Change Drop More
4	Book name	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
5	Author	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
6	Issue Date	varchar(30)	latin1_swedish_ci		No	None			Change Drop More
7	Return date	varchar(30)	latin1_swedish_ci		No	None			Change Drop More

The Java Swing components used in the project are JFrames, JLabels, JTextField, JTextBox, JCalender, JDateChooser, JComboBox, JRadioButtons, JButtons, etc. also the concepts of Java Programming is used for performing different functions such as exception handling, ActionListener, JDBC Connectivity, etc.