DBMS PROJECT REPORT

LIBRARY MANAGEMENT SYSTEM

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TABLE OF CONTENTS

Abstract :

Online Library Management System is a system which maintains the information about the books present in the library, their authors, the members of the library to whom books are issued, library staff and all. This is very difficult to organize manually. Maintenance of all this information manually is a very complex task.

Owing to the advancement of technology, organization of an Online Library becomes much simple. The Online Library Management has been designed to computerize and automate the operations performed over the information about the members, book issues and returns and all other operations. This computerization of the library helps in many instances of its maintenance. It reduces the workload of management as most of the manual work done is reduced.

CHAPTER 1
INTRODUCTION

This chapter gives an overview about the aim, objectives, back- ground and operation environment of the system.

1.1 PROJECT AIMS AND OBJECTIVES

The project aims and objectives that will be achieved after completion of this project are discussed in this subchapter.
The aims and objectives are as follows:

- Student can issue book
- Staff can note issue date
- Student can return book
- Staff can note the return date
- Staff can add new students to access the system
- Staff can add new books to library

1.2 BACKGROUND OF PROJECT

Library Management System is an application which refers to library systems which are generally small or medium in size. It is used by librarian to manage the library using a computerized system where he/she can add new books, students.

Books and student maintenance modules are also included in this system which would keep track of the students using the library and also a detailed description about the books a library contains. With this computerized system there will be no loss of book record or member record which generally happens when a non computerized system is used.

All these modules are able to help librarian to manage the library with more convenience and in a more efficient way as compared to library systems which are not computerized.

PROCESSOR	INTEL CORE PROCESSOR OR BETTER PERFORMANCE
OPERATING SYSTEM	WINDOWS10 ,WINDOWS7, UBUNTU
MEMORY	1GB RAM OR MORE
HARD DISK SPACE	MINIMUM 3 GB FOR DATABASE USAGE FOR FUTURE
DATABASE	MY SQL

CHAPTER 2

SYSTEM ANALYSIS

In this chapter, we will discuss and analyze about the developing process of Library Management System including software requirement specification (SRS) and comparison between existing and proposed system . The functional and nonfunctional requirements are included in SRS part to provide complete description and overview of system requirement before the developing process is carried out. Besides that, existing vs proposed provides a view of how the proposed system will be more efficient than the existing one.

2.1 SOFTWARE REQUIREMENT SPECIFICATION

2.1.1 GENERAL DESCRIPTION

PRODUCT DESCRIPTION:

Library Management System is a computerized system which helps user(librarian) to manage the library daily activity in electronic format. It reduces the risk of paper work such as file lost, file damaged and time consuming.

It can help user to manage the transaction or record more effectively and time- saving.

PROBLEM STATEMENT:

The problem occurred before having computerized system includes:

- File lost, When computerized system is not implemented file is always lost because of human environment.Some times due to some human error there may be a loss of records.
- File damaged When a computerized system is not there file is

always lost due to some accident like spilling of water by some member on file accidentally. Besides some natural disaster like floods or fires may also damage the files.

- Difficult to search record, When there is no computerized system there is always a difficulty in searching of records if the records are large in number .
- Space consuming, After the number of records become large the space for physical storage of file and records also increases if no computerized system is implemented.
- Cost consuming, As there is no computerized system the to add each record paper will be needed which will increase the cost for the management of library.

2.1.2 SYSTEM OBJECTIVES

- Improvement in control and performance. The system is developed to cope up with the current issues and problems of library. The system can add user, validate user and is also bug free.
- Save cost, After computerized system is implemented less human force will be required to maintain the library thus reducing the overall cost.
- Save time, Librarian is able to search record by using few clicks of mouse and few search keywords thus saving his valuable time.

2.1.3 SYSTEM REQUIREMENTS

2.1.3.1 NON FUNCTIONAL REQUIREMENTS

Product Requirements

EFFICIENCY REQUIREMENT

When a library management system will be implemented librarian and user will easily access library as searching and book transaction will be very faster .

RELIABILITY REQUIREMENT

The system should accurately performs member registration ,member validation , report generation, book transaction and search

USABILITY REQUIREMENT

The system is designed for a user friendly environment so that student and staff of library can perform the various tasks easily and in an effective way.

ORGANIZATIONAL REQUIREMENT IMPLEMENTATION REQUIREMENTS

In implementing whole system it uses java in front end with java as server side scripting language which will be used for database connectivity and the backend ie the database part is developed using mysql.

2.1.3.2 FUNCTIONAL REQUIREMENTS

1.1 USER LOGIN

Description of feature

This feature used by the user to login into system. They are required to enter user id and password before they are allowed to enter the system .The user id and password will be verified and if invalid id is there user is allowed to not enter the system.

Functional requirements

- ➔ user id is provided when they register
- ➔ The system must only allow user with valid id and password to enter the system

- ➔ The system performs authorization process which decides what user level can access to.
- ➔ The user must be able to logout after they finished using system.

1.2 REGISTER NEW USER

Description of feature

This feature can be performed by all users to register new user to create account.

Functional requirements

- ➔ System must be able to verify information
- ➔ System must be able to delete information if information is wrong

1.3 REGISTER NEW BOOK

Description of feature

This feature allows to add new books to the library.

Functional requirements

- ➔ System must be able to verify information
- ➔ System must be able to enter number of copies into table.
- ➔ System must be able to not allow two books having same book id.

1.4 FORGET PASSWORD

Description of feature

This feature allows to retrieve the forgotten password.

Functional requirements

- ➔ System must be able to verify username
- ➔ System must be able to verify security question.
- ➔ System must be able to verify the correct answer to the question .

1.5 ISSUE BOOK

Description of feature

This feature allows to issue new book for the student.

Functional requirements

- ➔ System must be able to verify student id
- ➔ System must be able to verify book id.
- ➔ System will also be able to store issue date .

1.5 RETURN BOOK

Description of feature

This feature allows to return a book for the student.

Functional requirements

- ➔ System must be able to verify student id
- ➔ System must be able to verify book id.
- ➔ System will also be able to store the return date .

2.1.4 SOFTWARE AND HARDWARE REQUIREMENTS

This section describes the software and hardware requirements of the system

2.1.4.1 SOFTWARE REQUIREMENTS

- Operating system- Windows 10 is used as the operating system as it is stable and supports more features and is more user friendly
- Database MYSQL-MYSQL is used as a database as it is easy to maintain and retrieve records by simple queries which are in English language which are easy to understand and easy to write.
- Development tools and Programming language- Java is used to write the whole code and develop pages.

2.1.4.2 HARDWARE REQUIREMENTS

- Intel core i5 2 generation is used as a processor because it is fast than other processors and provide reliable and stable and we can run our pc for longtime. By using this processor we can keep on developing our project without any worries.
- Ram 1 gb is used as it will provide fast reading and writing capabilities and will in turn support in processing.

Existing System:

- Early days Libraries are managed manually. It required a lot of time to record or to retrieve the details. The employees who have to record the details must perform their job very carefully. Even a small mistake would create a lot of problems. Security of information is very less. Report generations of all the information is very tough task.
- Maintenance of Library catalogue and arrangement of the books to the catalogue is very complex task. In addition to its maintenance of member details, issue dates and return dates etc. manually is a

complex task.

- All the operations must be performed in perfect manner for the maintenance of the library with out any degradation which may finally result in the failure of the entire system.

Proposed System:

- To solve the inconveniences as mentioned in the existing system, an Online Library is proposed. The proposed system contains the following features:
- The students will register them.
- Individually each member will have his account through which he can access the information he needs.
- Book details like authors, number of copies totally maintained by library, present available number of books, reference books, non-reference books etc. all this information can be made handy.
- Regarding the members designation, number of books was issued.
- Issue dates and returns of each member is maintained separately and fine charged if there is any delay in returning the book.
- Administrator can add, update the books.
- Time consuming is low, gives accurate results, reliability can be improved with the help of security.

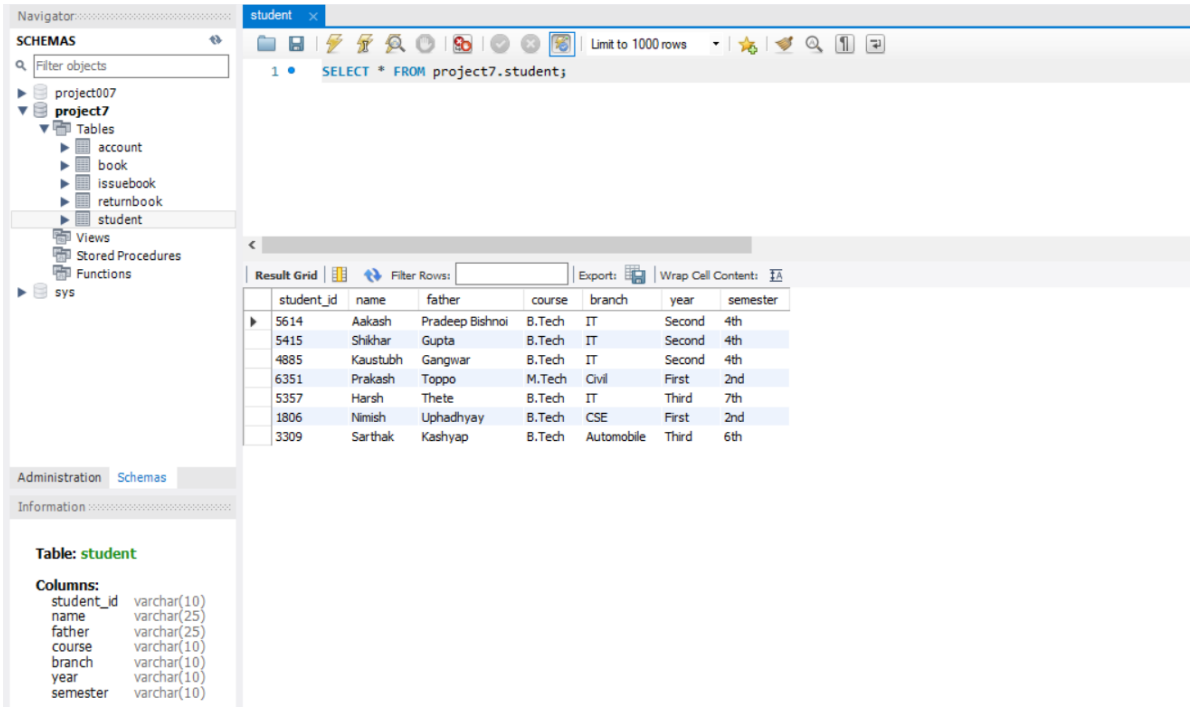
CHAPTER 3

SYSTEM DESIGN

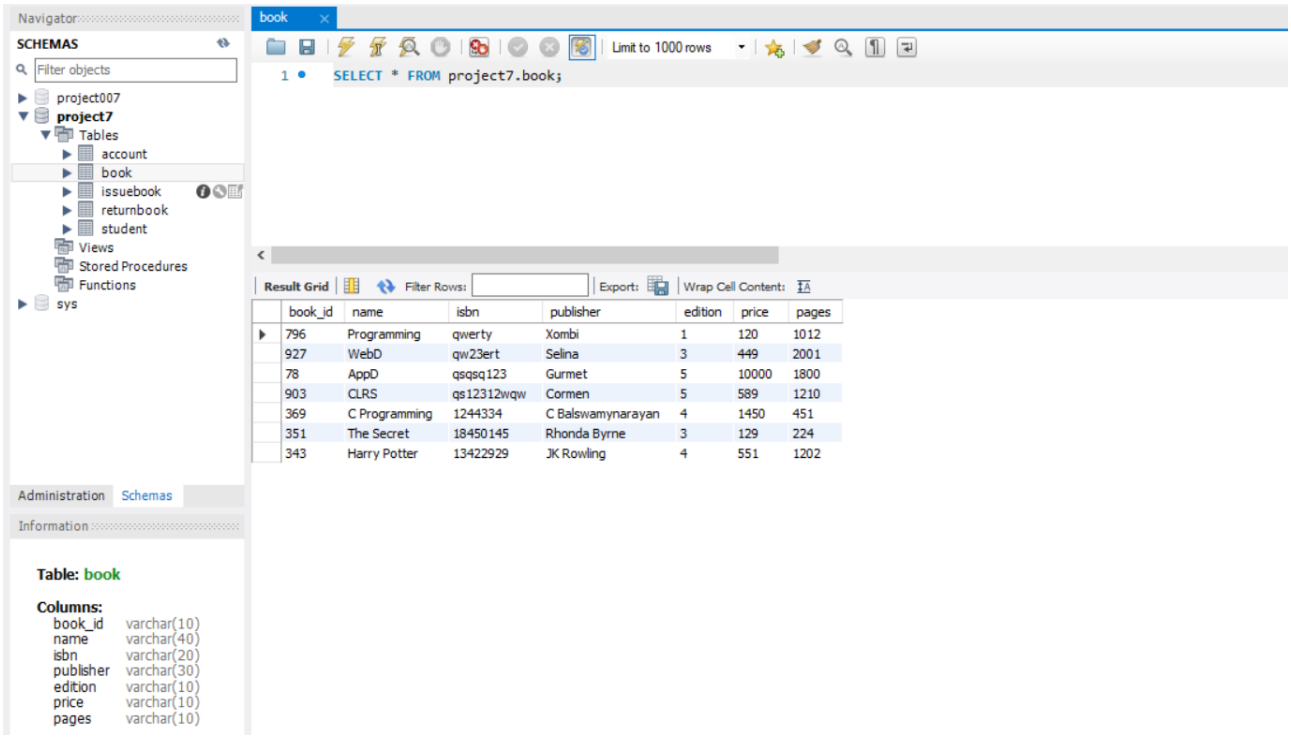
3.1 TABLE DESIGN

VARIOUS TABLES TO MAINTAIN INFORMATION

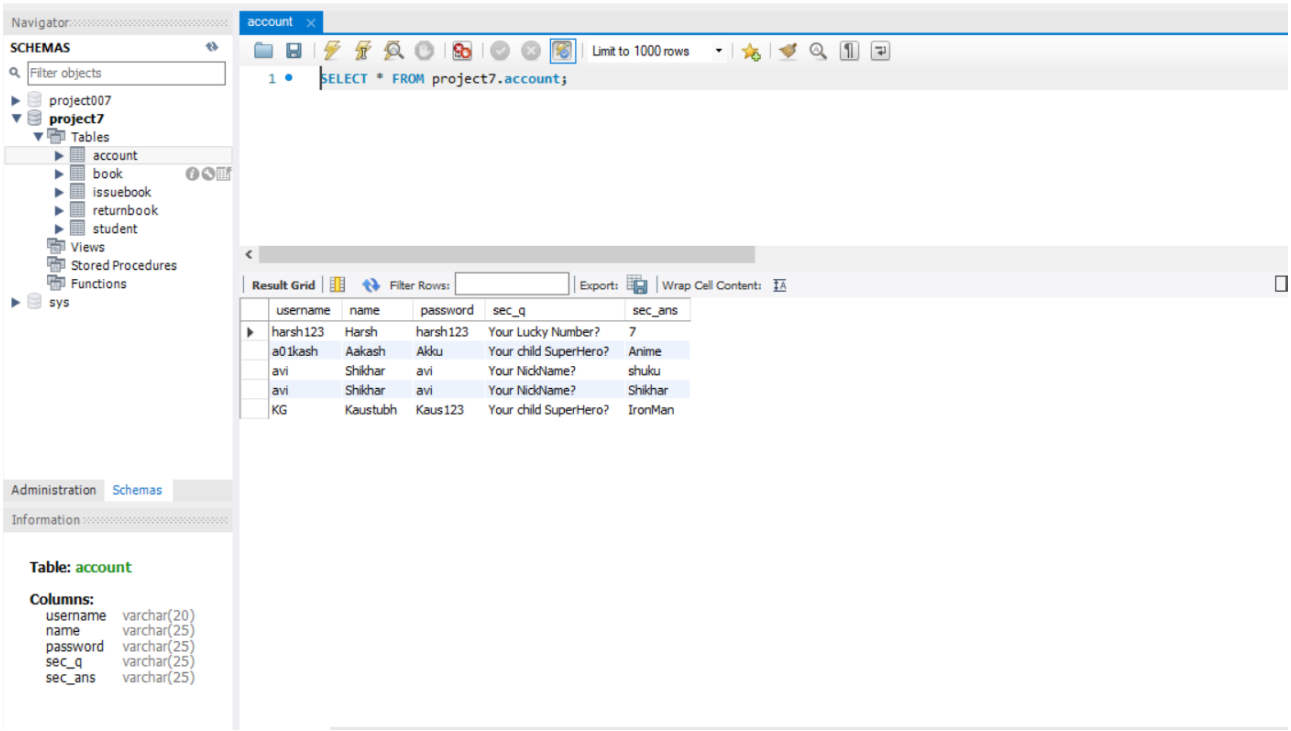
Student Table from Database



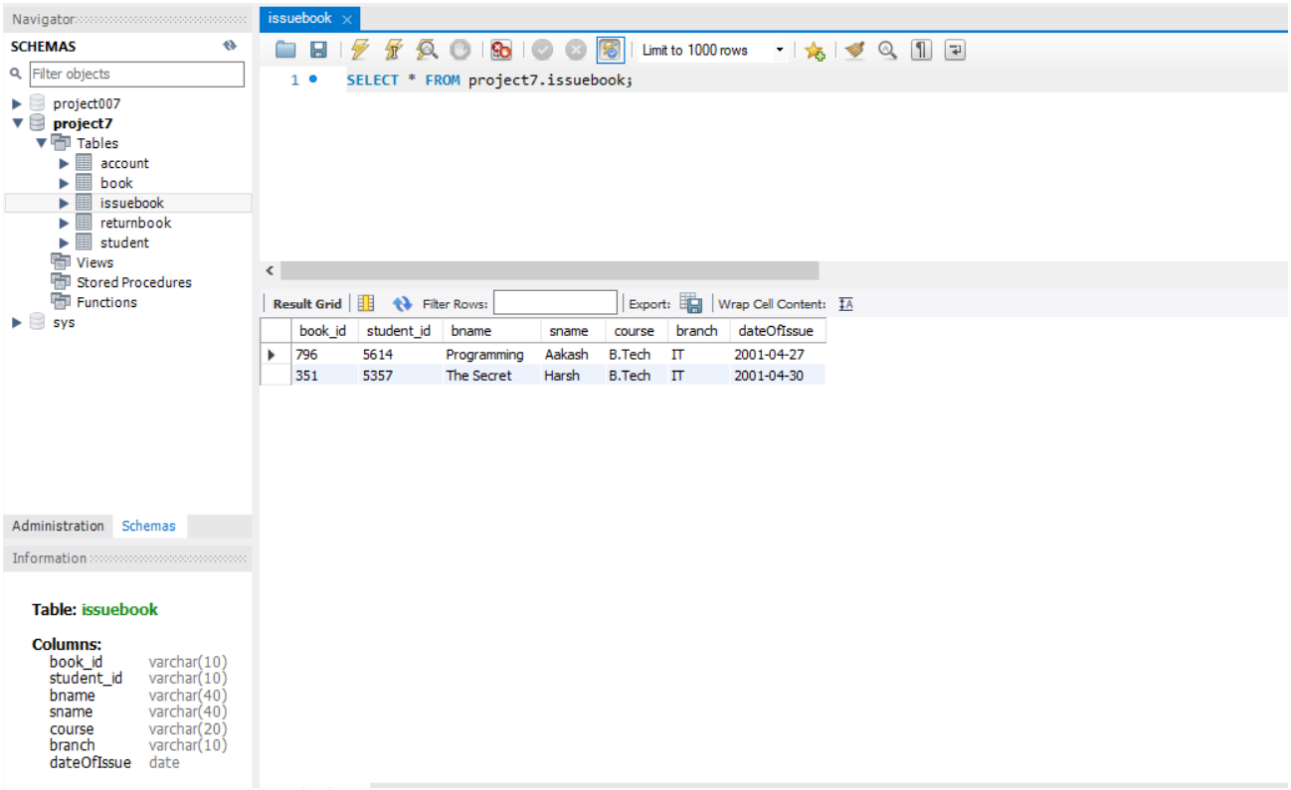
Books Table from Database



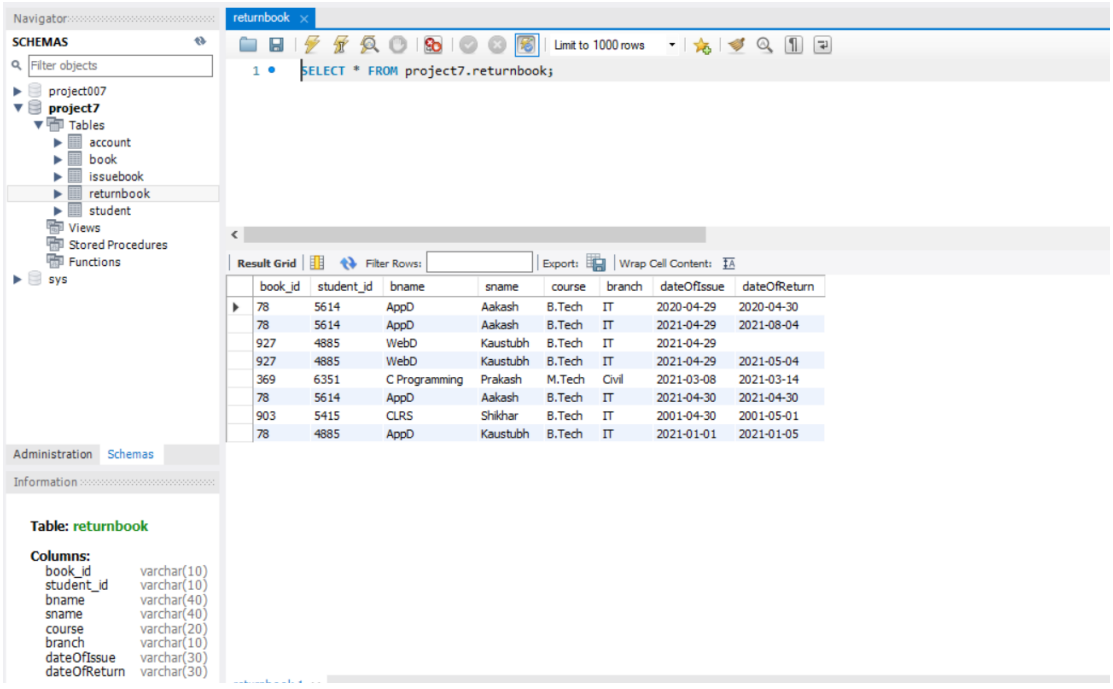
Accounts Table from Database



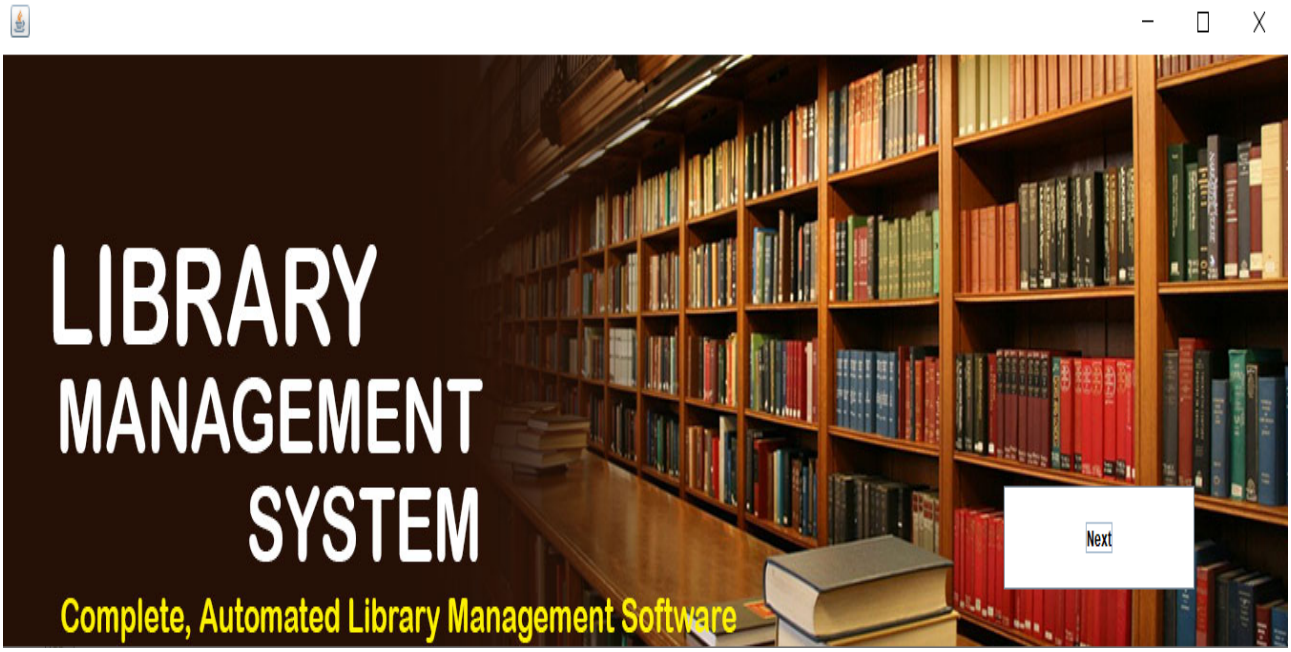
Issue Book Table from Database

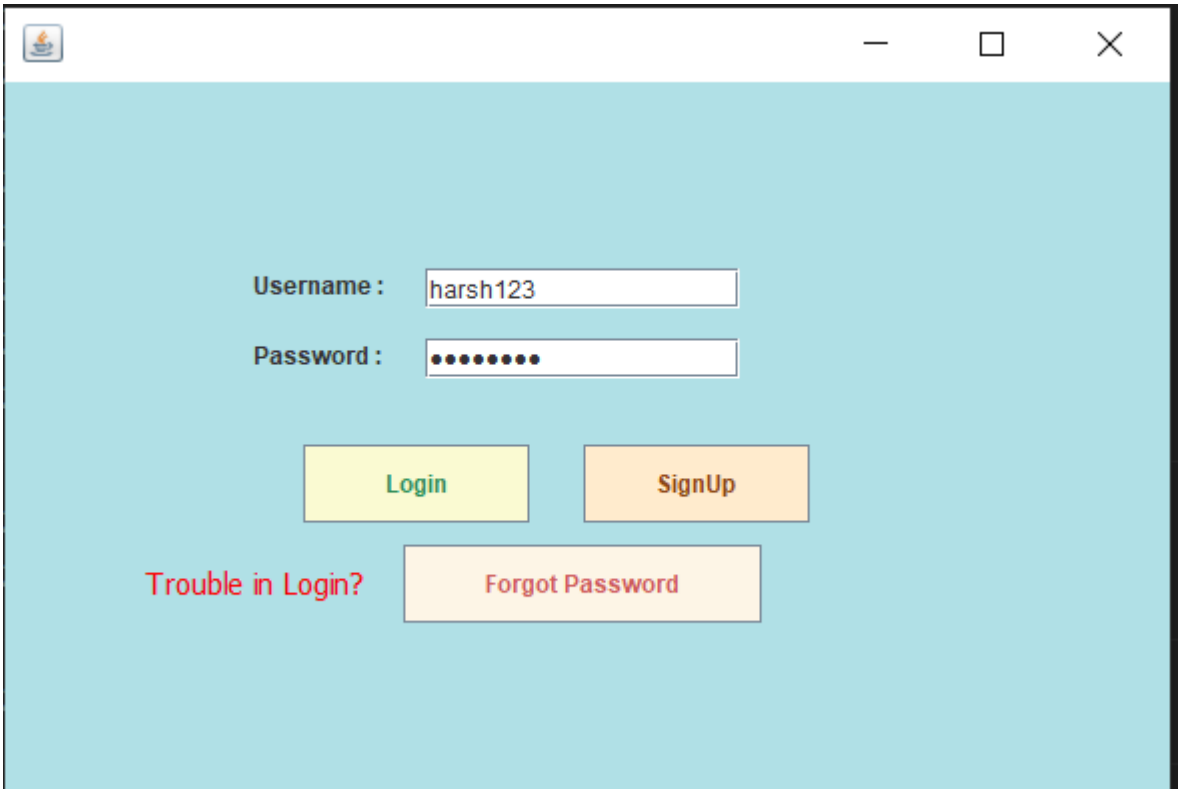


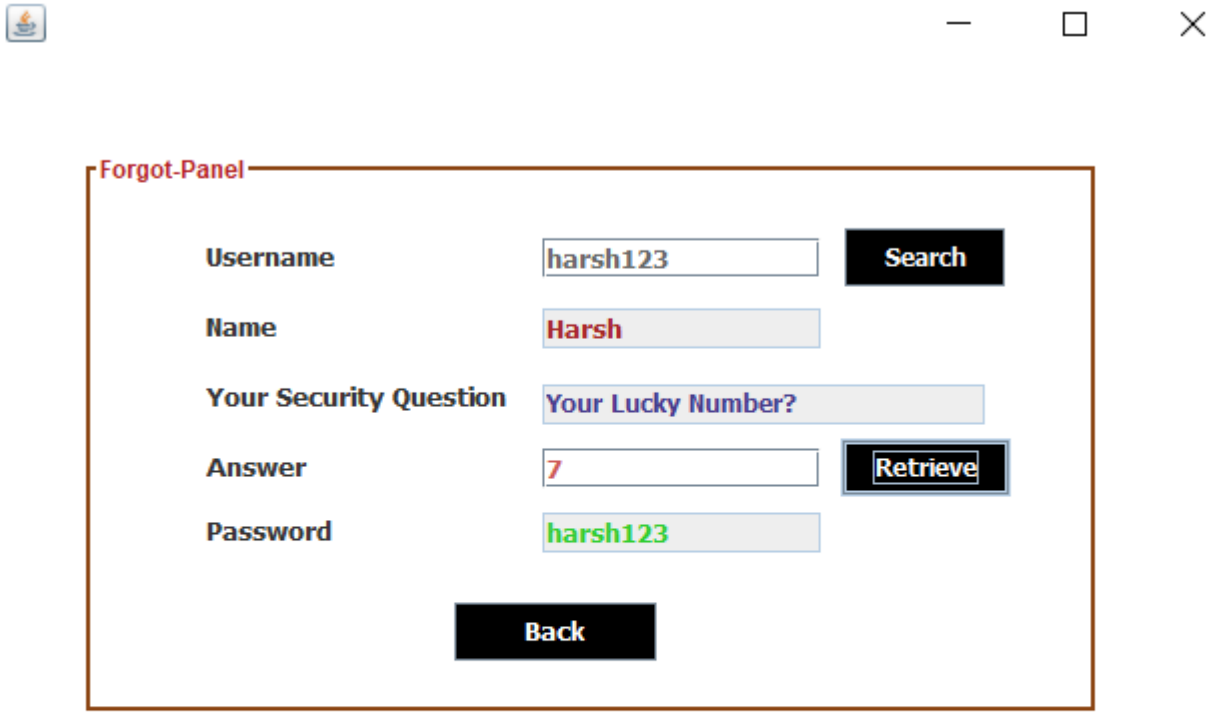
Return Book Table from Database



CHAPTER 4
SYSTEM IMPLEMENTATION



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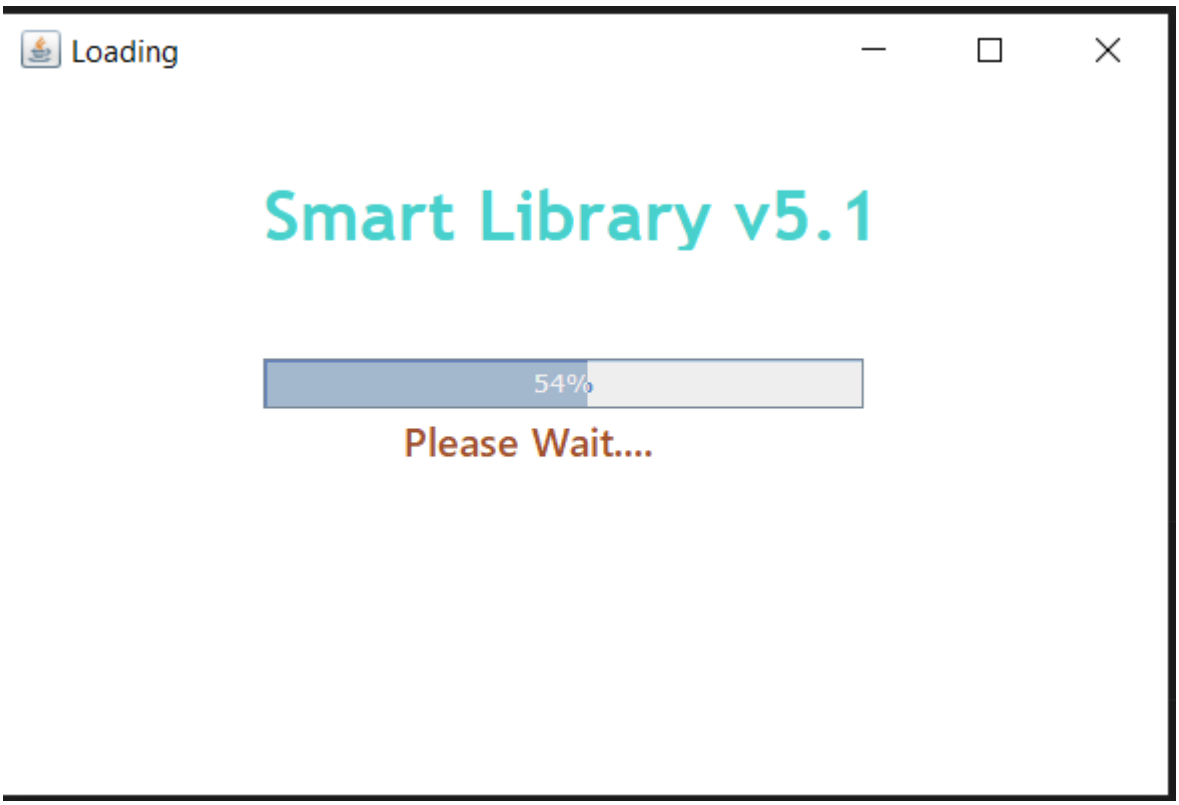
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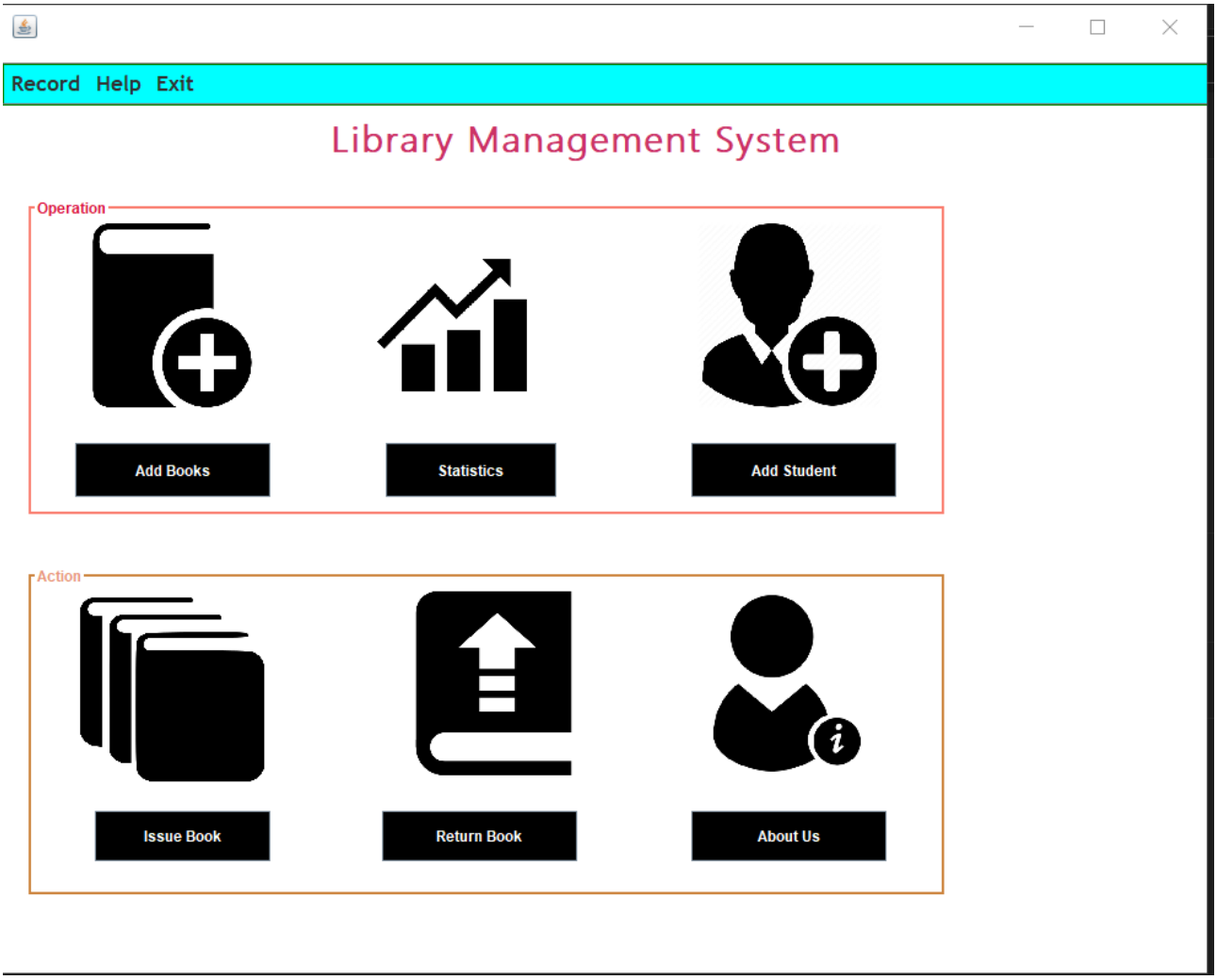
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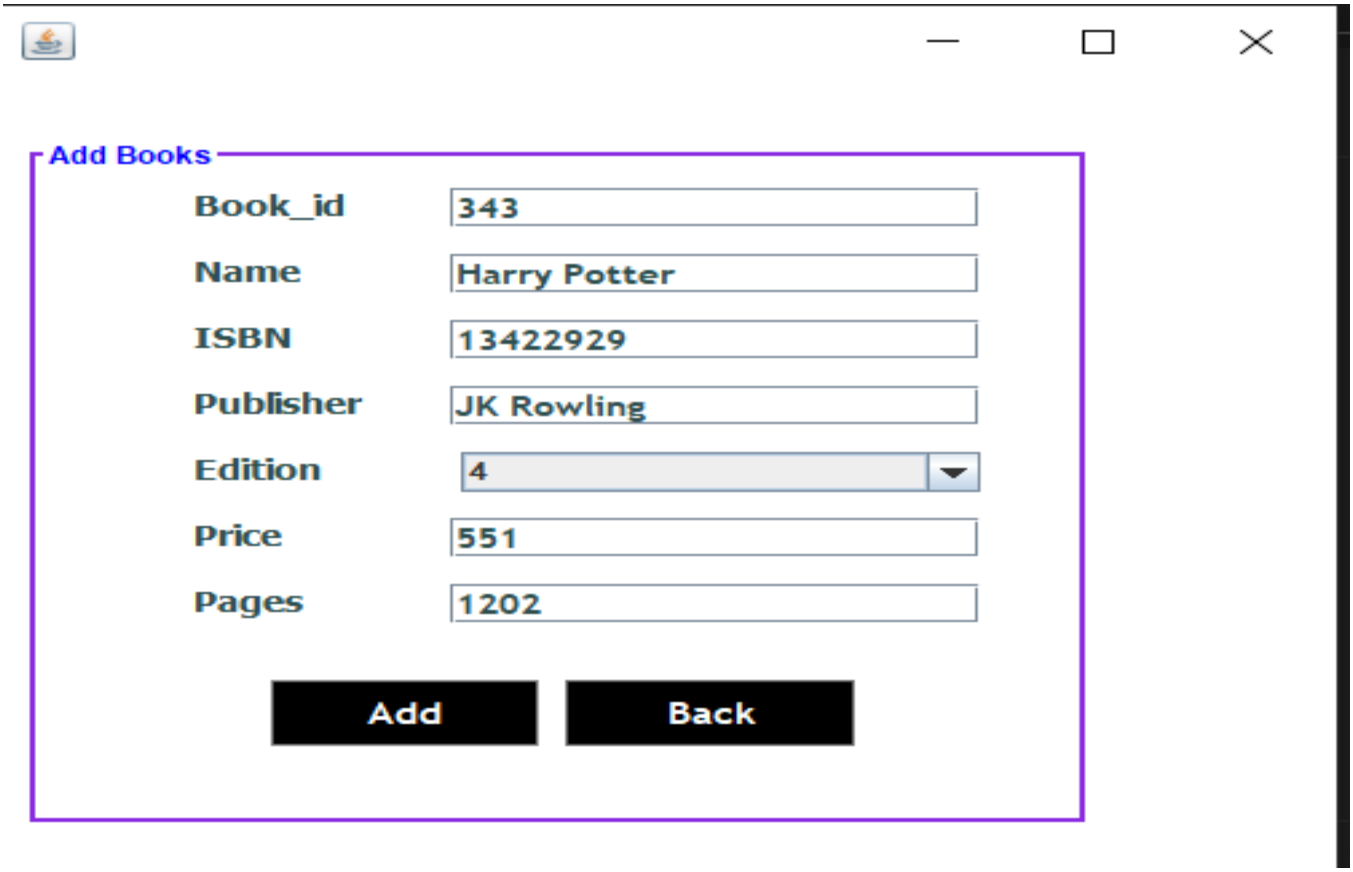
About Us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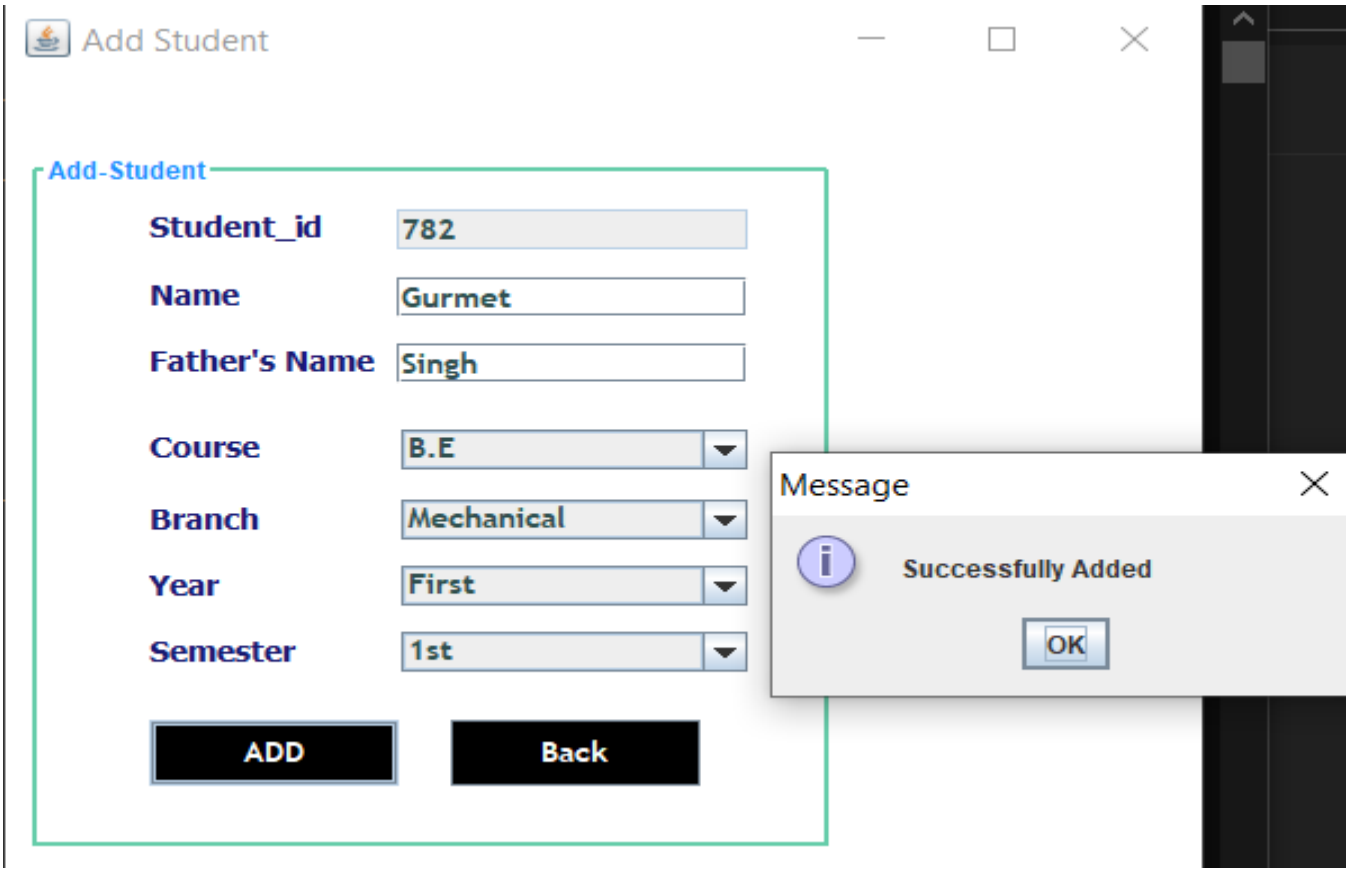
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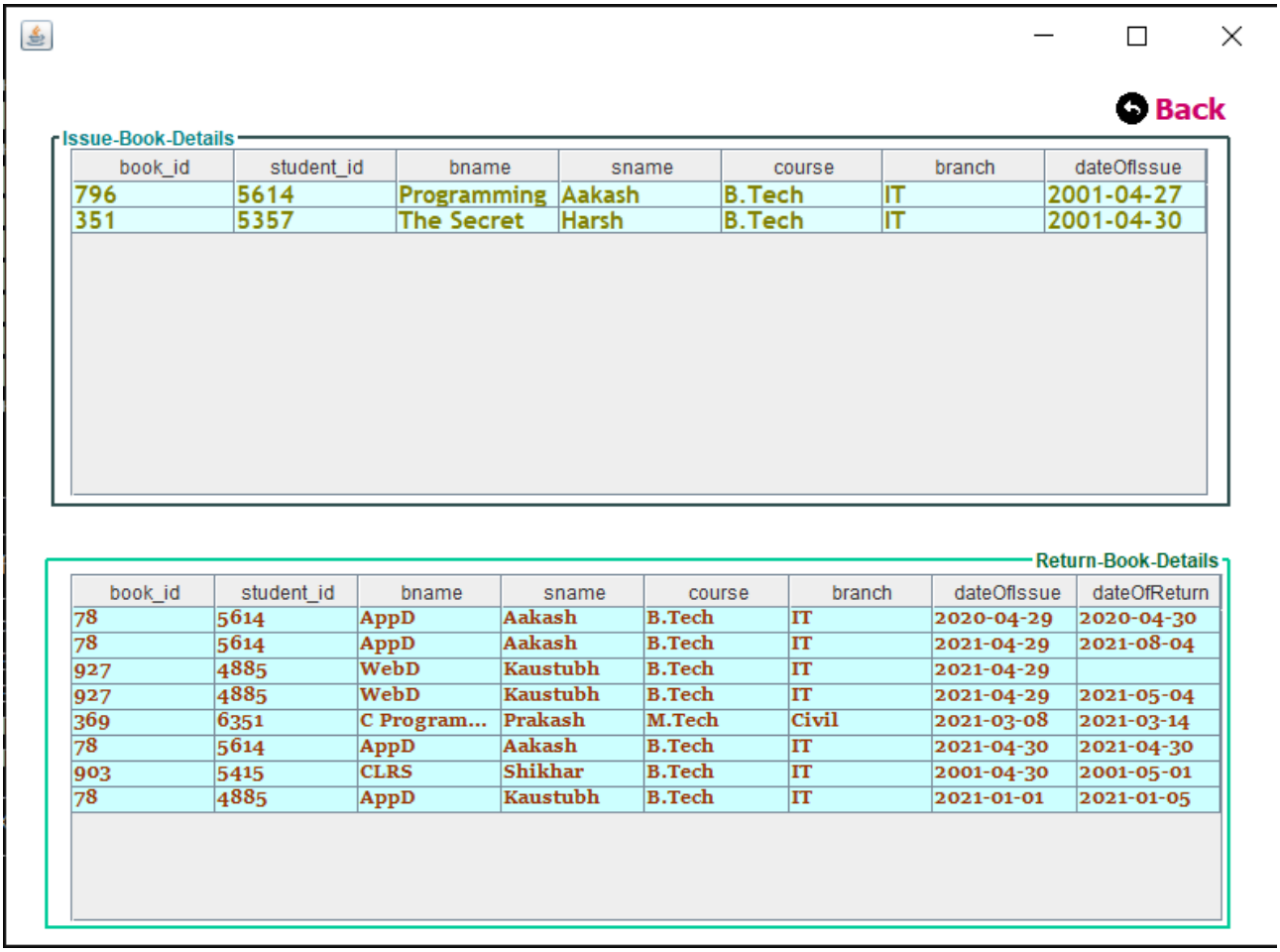
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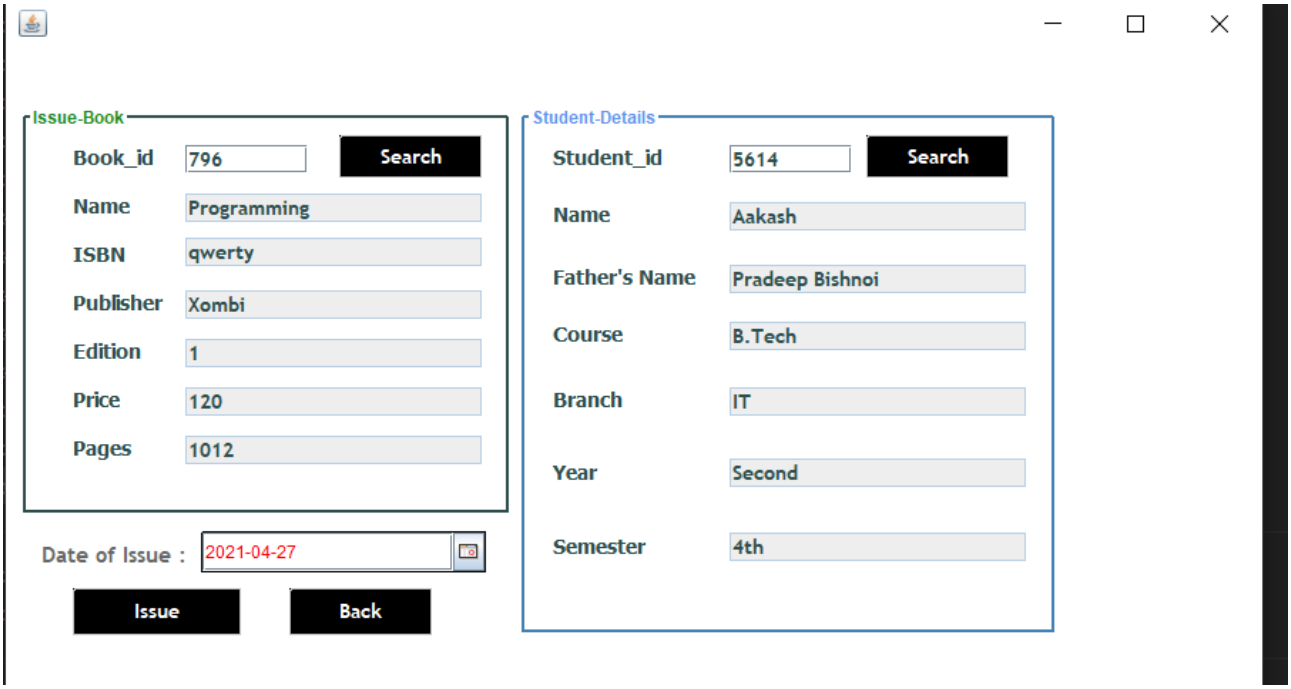
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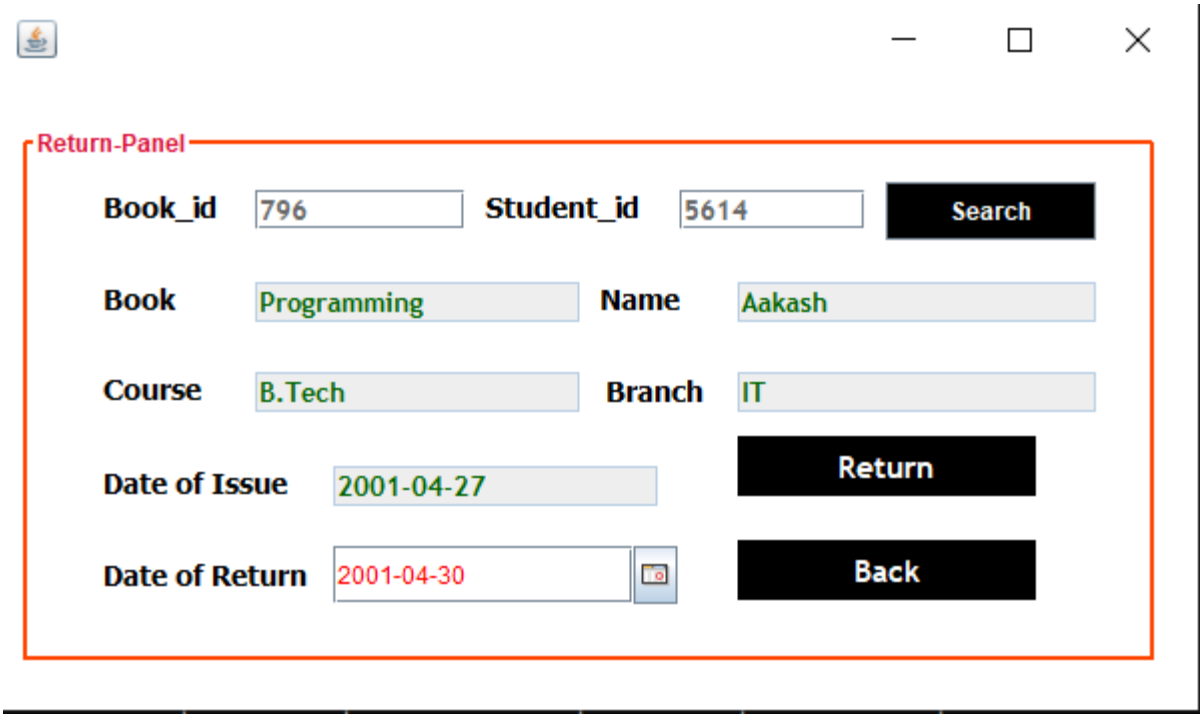
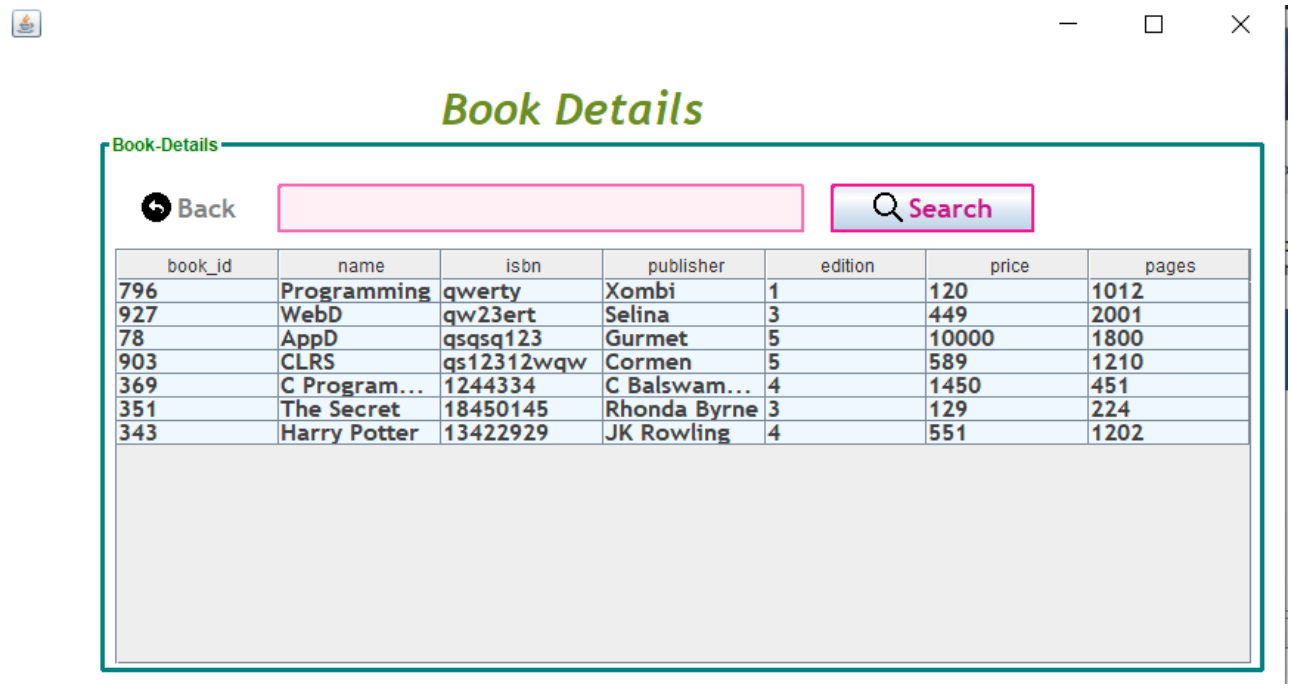
Course B.Tech
Branch IT
Year Second
Semester 4th





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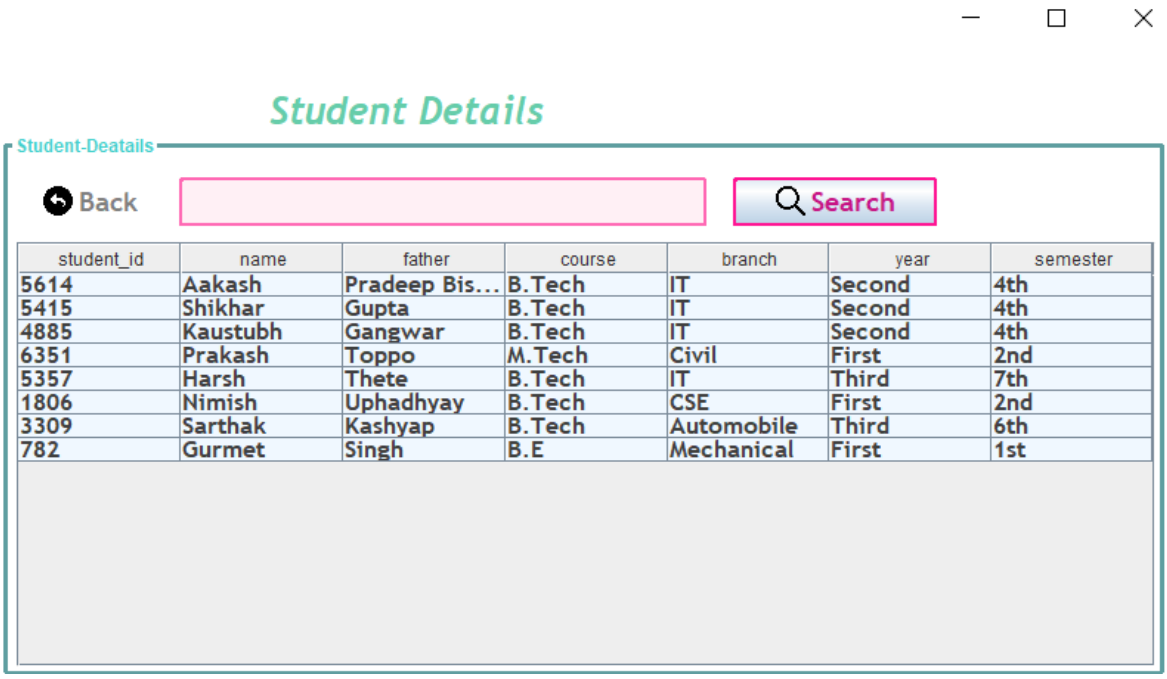
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About Us - Code for Interview
Library
Mangement System
v5.1
CODE
Developed By : Group-10
Contact Us : iit2019137@iiita.ac.in, iit2019125@iiita.ac.in
: iit2019118@iiita.ac.in, iit2019115@iiita.ac.in
Github : https://github.com/harsh01thete
** Thank You **

CHAPTER 5
SYSTEM TESTING

The aim of the system testing process was to determine all defects in our project .The program was subjected to a set of test inputs and various observations were made and based on these observations it will be decided whether the program behaves as expected or not. Our Project went through Two levels of testing:

1. Unit testing
2. Integration testing

UNIT TESTING

Unit testing is undertaken when a module has been created and successfully reviewed .In order to test a single module we need to provide a complete environment ie besides the module we would require

- The procedures belonging to other modules that the module under test calls
- Non local data structures that module accesses
- A procedure to call the functions of the module under test with appropriate parameters

Unit testing was done on each and every module that is described under module description of chapter 4

- Testing login form - This form is used for log in of the system.In this we enter the username and password if both are correct administration page will open other wise if any of data is wrong it will show invalid login.
- Student account addition- In this section we can add student details info like name ,degree, branch and year he is studying also we will ask for password and the security question if in case he forgets the password and then add student details to main library database it contains add button if user click add button data will be added to student database .

- Forget Password- If a user forgets password he can retrieve it by clicking on forgot password button present on login page. Then on forget password page the user have to enter the username and click on search. Then he have to enter the answer to the security question and click on retrieve.
- Book Addition- We can enter details of book like name, ISBN no., pages and cost of the book and can add the details to the book table database.
- Issue Book- A student can issue a book by entering the book id and student id. Then click on search ,all student and book details can be seen and finally enter the issue date in YYYY-MM-DD format and click on issue.
- Return Book- A student can return book by entering student id and book id then you can see all book and student details including date of issue. To return the book enter date of return and enter on return book .
- Record - It contains two fields :- View Student Details and View Book Details.
- View Student Details- This field cointains the details of all students present. The table shows student id, name, last name, course, branch and year of the student. We can search any student present in the table.
- View Book Details- This field contains the details of all books present in the library. The table shows book id , name of book, isbn, edition, publisher, pages and cost of the books. We can search any book present.
- View Statistics- This page cointains all the books issued including issue date and the student info to whom it is issued. Also it cointains return book details showing the book issued and returned by a student in the past with issue date and return date.
- About Us- This page cointains details about our group (Group-10) and email ids and github info.
- Exit- On clicking on this button there are two buttons exit and logout. If you want to return to login page click on logout. If you want to close the project click on exit.

INTEGRATION TESTING

In this type of testing we test various integration of the project module by providing the input.
The primary objective is to test the module interfaces in order to ensure that no errors are occurring when one module invokes the other module.

CHAPTER 6
CONCLUSION & FUTURE SCOPE

This website provides a computerized version of library management system which will benefit the students as well as the staff of the library.
It makes entire process online where student can search books, staff can generate reports and do book transactions. It also has a facility for student login where student can login and can see status of books issued as well request for book or give some suggestions.

CHAPTER 7
REFERENCES

https://www.w3schools.com/java/

https://dev.mysql.com/doc/refman/8.0/en/creating-tables.html