

A CS814 Course Project Report

submitted by

**YASH KARKHUR
PRATIK PARIDA**

**202IS031
202IS018**



Department of Computer Science Engineering
National Institute of Technology, Karnataka
P.O. Srinivas Nagar, Surathkal, Mangalore-575025
Karnataka, India
January 2021

Contents

1	Introduction	3
1.1	How It Performs?	3
1.1.1	Admin	3
1.1.2	Reader	4
1.2	Use of Application	4
2	Authorization	5
2.1	Need of RBAC based authorization	5
2.2	Components of RBAC	5
3	Conclusion	6

Chapter 1

Introduction

Being a student we all need books for respective subjects. Now-a-days buying hard copy of book is being too costlier. So someone can either use the feature of borrowing book or can go to library for book. But sometimes it is not trustworthy to borrow book from any franchise by giving some money and sometime owner won't allow to lend his book. So how is the idea of an online library. Where one can read book anytime with very lower affordable cost.

1.1 How It Performs?

Before proceeding further let's know what are the technologies used to design this. We have used HTML to design the user interaction interface. Server Pages are designed using JSP and Servlet. Database is covered using MySQL, while its manipulation actions, like fetching from database, deleting from database and adding to database are done using Servlet.

While you just start our application, it will show the login page. After a successful login, it shows options according to what kind of user you are.

1.1.1 Admin

If you are an admin, you will get the "Delete User" as home screen. You will get a menu where you can select among "Home", "Delete User", "Add User", "Add Book", "Delete Book", "Logout".

Home

This contains only "Delete User" as option.

Delete User

In this tab you will get the list of users available with their id, name, role and password. You will get a delete button in every users' row. Selecting which the user will be deleted.

Add User

In this tab you will get an form where you need to enter details of user i.e. name, id, role, password. After filling these you can select add user to add him to the database.

Add Book

Here you will get an form to add book by giving the required details. The required fields here are id, book name, subject, author name and link. This link will fetch book from your stored location.

Delete Book

This tab works similar to "Delete User" tab. Instead user it shows all the books with its all field.

Logout

Clicking on this you will be logout of the session.

1.1.2 Reader

For reader you will get a menu from which you will get to select subject. Selecting on subject it will show the list of books available for that subject. With the name of book a link is also there. On clicking it a PDF file will open. That is te required book for reader.

1.2 Use of Application

As we have stated in introduction that our application is used as an online library. It will provide you books according to your need. You just have to select the subject and book then you will get that.

Chapter 2

Authorization

Authorization is the security function that performs an inception of users and their roles and accordingly assign the job. There are so many authorization techniques. In our application we are asking to enter "user name" and "password" to authorize an user.

2.1 Need of RBAC based authorization

In normal case, there are some roles that are to be performed by some specific user. Its violation will incur a lots of loss to the organization. Like in any institution a student is not allowed to enter exam scores into the database.

Similarly in our application there are some scenarios exist in which a loss may hamper the motive of our application. Suppose a scenario we are not having the Role Based Access Control(RBAC) in our application. An adversary can easily enter and delete any book from database without anyone's notice. That may incur a huge loss. So before giving access to anything we are checking whether that user is a "reader" or an "admin".

2.2 Components of RBAC

Role-based access control (RBAC) is a policy-neutral access-control mechanism defined around roles and privileges. So here it is important that we have role-permission,user-roles,role-role relationship as components to make it simpler.

In our application, as an admin can add user, delete user, add books, delete books. Admin can add books and delete books is an role-permission relationship. Admin can add user and delete user is a role-role relationship.

Chapter 3

Conclusion

Overall stating about our application that, anyone can join to our application by contacting any admin. He has to specify whether he wants to be admin or wants to be a reader. If he chooses to be admin then the role assigned will be "admin" otherwise it is "reader". If an admin login then he will get to add user or remove user and add books or remove books. If a reader login then he can choose the book by choosing subject first to read it. After logout the session will be ended. So here with 2 roles admin and reader, add book and delete book as role-permission for admin and add user and delete user as role-role relationship.

References

- [1] Computer Security: Art And Science by Matt Bishop, Elisabeth Sullivan, Michelle Ruppel, <https://b-ok.asia/book/5517358/a21913>
- [2] RAVI S. SANDHU, Role-based Access Control Model https://www.profsandhu.com/cs5323_s17/sandhu-1998.pdf