

BOOK BANK WEB APPLICATION

(Principles of Information Security Project Report)

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Abstract

In colleges student face problems related to books in every semester. The new books are quite expensive and for some students it is not possible to buy such expensive books. Also the college library does not provide books for whole semester. So this project Book Bank help students to sell and buy used books. It is a web platform for students where they can view all the available books from various categories like Engineering, Management, Magazines, Aptitude and General Knowledge added by the students who wants to sell them. Users can view the available books without any account but if they want to sell and buy books then they have to create account to use the services. Book Bank implemented the Role Based Access Control (RBAC) policies for authorization.

Book Bank has two type of user admin and normal user. Normal user has two type of services. Normal user can sell and buy the book. In order to sell book normal user has two facilities. One is to add new books and other is to modify the existing book details. To buy books user search the book by selecting the book category. Book details include name of book, author, edition, quantity and price. After finding the book the user ID of user who wants to sell the book displayed to the user. By searching the user through his user ID all details of the user displayed. The details of user include his/her first name, last name, address, email id and contact number. After getting the user details the user if wants to buy book can contact the seller. Admin user manage the system by managing user records, book's record, manage roles in the system assigned to the users.

Book Bank is a web application build using Php for backend and HTML, CSS for frontend. All details of the user and books are stored in the SQL database. Role Based Access Control (RBAC) Policies are used to manage the authorization and implemented using SQL database relations. Admin role user can edit the book details as well as user details and manage roles in the system.

INTRODUCTION

Students in the college facing problems for the books. Some books are too costly that for some students it is not possible for them to buy. Also some senior students want to sell the books to juniors. But due to not having platform which help both juniors and seniors to buy and sell books they face problem. So this project which is a web application help students to get the information of available books with in college. It help student to buy used books at cheaper price. Also seller make money without too much struggle for finding buyers. Project contains the information of books belonging to different categories like engineering, management, aptitude, general knowledge and magazines.

Book Bank is a web application which is build using Php at backend and HTML, CSS at the frontend. The details of the user and the books are stored in the SQL database. To manage authorization this project implemented the Role Based access control policies. There are two type of user. One is admin user and other is normal user. The information regarding the availability of the books are available publicly. User can see the available books without create account in the application. But to buy and sell the books user have to create account in the system. For normal user to services are offered. One is add new books details and other is to modify the existing book details. If user want to buy book then user has to select the buy service and then search the book through book category. After find the book user Id of the user who want to sell book is displayed. After getting the user Id the user get the seller details to buy the book. Admin user manage user records and books records. Admin user can manage other admin role in the system. Also manages the normal user role in the system.

SQL database contain tables such as signup, book details, role, admin role, user role assignment. Signup table store user details such as first name, last name, address, contact number, year, role. Books details table contains different fields to store the book details like book name, author name, edition, price and quantity. Admin role table contain information regarding various admin user and normal user role information stored in the role table.

Flow chart of Book Bank

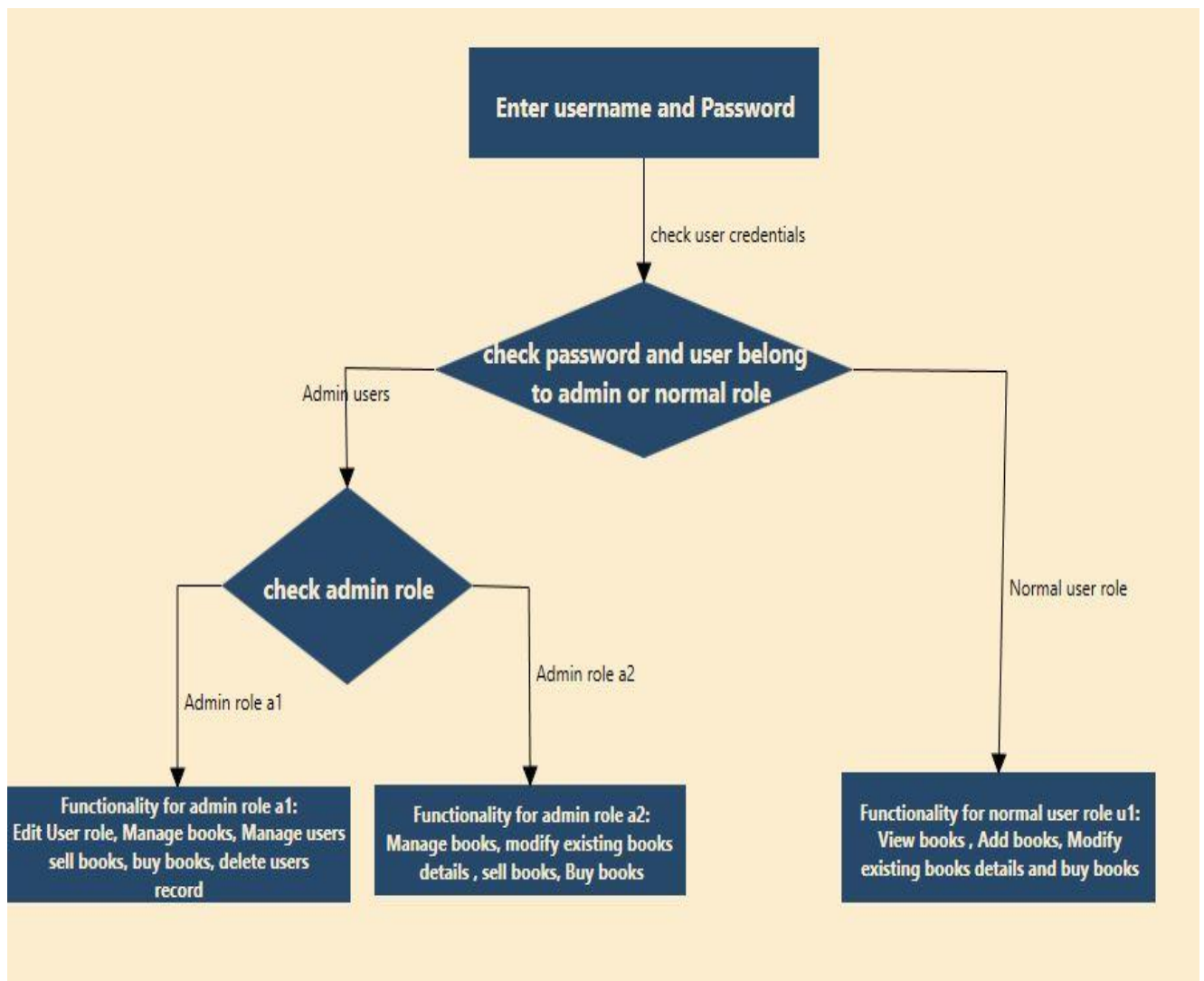


Figure: Work flow of Book Bank application

First user has to enter the User name and password to use the services of the book bank. After entering the user credentials the user's credential are check with the store credentials in the database. After the username and password matched application check if the user belongs to admin roles or the normal user role. If the user belongs to the normal user then application display the interface which shows the services which are not belong to admin users. Services for normal includes buy and sell books. In sell books user has two services. One is add new book details and other is to modify the existing books details. In buy books service the user search the book by category from which the book belongs. After locate the books the application display all the book details and user name of the user who want to sell the book. Application show a text field after enter the user name in the field press search all the details of the seller displayed to the user. The user details includes his first name, last name, address, contact number and email id. The buyer contact the seller to buy the book.

After checking the credentials if user belongs to admin roles then system check if user belong to which admin role. Depending on the admin role system display the interface which shows only service which belongs to that admin role. Admin role user has all the services which

belongs normal user. By this application maintain the service hierarchy. Admin role can edit user records, edit roles and delete books details.

Authorization

To manage the authorization in the application the Role Based Access Control (RBAC) Policies are used. The Role Base Access Control Policies are implemented with the help of Database relations. The application has “u1” role for the normal user who can buy and sell books. The user with “u1” can add new books and modify existing books details. Also this role user can buy the books by using the buy book service of the application. The application has two administrative user’s role “a1” and “a2”. The admin user with role “a2” can only manage books in the system. This role admin user able to delete books records and inherit all the permissions which is assigned to the normal user “u1”. The admin user with role “u1” can edit user’s record (delete, insert, update) all operations. Also this role admin user can manage the roles. This user can add new roles in the system. The “a1” admin role user inherits all the permissions assigned to the role “a2” and “u1”.

Components of RBAC in the system:

Users and Roles, User Role assignment (UA), Permission role assignment (PA), Role Hierarchy (RH).

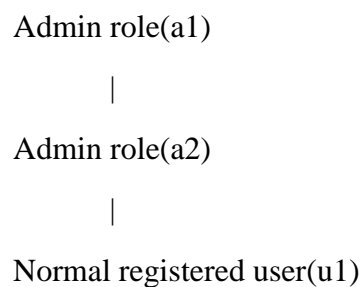


Figure: Hierarchy of roles in the system.

Implementation

The front end of the application is implemented in the HTML, CSS. The back end of the application is build using the Php. The SQL database is used to store the user details, book details, role details and admin role details. All the relation details are given below under the heading Database relation use in the application. The information of available books in the system is public. The registered user as well as non-registered user can see all the available books in the system but in order to buy and sell books they have to create account.

When user create account then all details enter by the user saved in to the signup relation and application implicitly assign the role as “u1” which provide the basic services which is given to all the registered user of the system. Admin user can assign special services to registered user to manage the system. In this application admin role “a2” has service to manage books details and delete books from system. The application has admin role “a1” which have all

services such managing user records, delete user records, manage role, assign user to specific roles and manage books details.

Application implemented role base authorization policies for the authentication of the database. The Role based policies are implemented with the help of database relations. Roles hierarchy is maintained by the system.

Database Relations used in the application

1) signup relation contain user details: Username, First name, Last name, email Id, Year, Address, Contact number, password, role.

Primary Key: username.

2) bookdetails relation contains books details: book Id, category, bookname, author, edition, quantity, price, username.

Primary Key: book Id.

3) role relation contains normal user role details: role_id, role_name, role_user_cardinality and role_permission_cardinality.

Primary Key: role_id.

4)admin role relation containd admin role details: adminrole_id, adminrole_name, adminrole_user_cardinality, adminrole_permission_cardinality.

Primary Key: adminrole_id.

Application Screenshots

BOOK BANK

[Engineering](#)

[Novel](#)

[Magazine](#)


[Management](#)

[Mathematics](#)

[General](#)

[Knowledge](#)

[Apptitude](#)



Username

Password

Login

SignUp

Username

Password

FirstName

LastName

email.id

year

Select

▼

Address

ContactNo.

SignUp

Figure: First page of the Application for user login and signup.

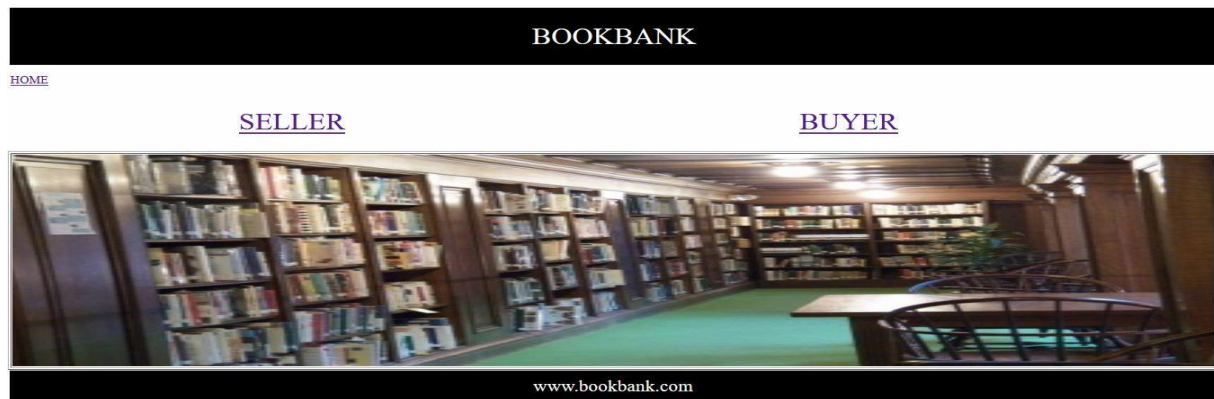


Figure: Buy and sell services for the user.

BOOK BANK

HOME

DELETE USER DETAILS

EDIT USER DETAILS

MANAGE ROLES

SELLER

BUYER

Manage Books

Category	Bookname	Author	Edition	Quantity	Price	Username	Delete
Engineering	Computer Architecture	William Stallings	10	1	700	abcd	Delete
Engineering	Let us C	Dennis Ritchie	4	1	300	abcd	Delete
Apptitude	Verbal Reasoning	RS Gupta	3	1	200	abcd	Delete
Management	Marketing Analytics	Gorge	4	1	400	abcd	Delete
GeneralKnowledge	Jagran Josh	BN News	3	1	100	abcd	Delete
Magazine	Fashion is Art	Hinz	3	1	100	abcd	Delete

Figure: services for the admin user to manage the platform.

The above screenshots highlight the main services of the application.

Conclusions

This application Book Bank help students who do not have enough resources to manage their studies. Students have many books which they want to sell when they go from one semester to the next. But due to lack of resources and not having common platform they are not able to sell books. By this platform students can sell their books and earn money to buy books for next semester. So this platform help students to manage their studies.

Future Scope

This platform now only provides sell and buy services. We can make use of this platform for knowledge sharing also. We can include chat and video conference services by which juniors can interact with seniors and get guidance from seniors. Also seniors can host various workshops to their juniors which help juniors to improve their skills. We can include document sharing service also. By document sharing service seniors can make folders related to subjects and put all study materials and soft copies related to subjects. So that juniors cannot waste their time in searching and collecting the study material. We can make technical profile service in which user can put all details regarding their technical skills. So seniors and juniors both can see their technical details and can contact each other to work on some project.

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