MIDTERM REPORT

OF

SIX MONTH INDUSTRIAL TRAINING

UNDERTAKEN

AT

“**Defense Research and Development Organization(DRDO)**”

ON

“E-BOOKS PROJECT”

SUBMITTED IN PARTIAL FULFILLMENT OF THE DEGREE

OF

BACHELOR OF TECHNOLOGY

IN

Computer Science and Engineering

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ABSTRACT

This report encapsulates the inception and execution of a specialized Technical Information Resource Center (TIRC) tab within the Centre for Fire, Explosive, and Environment Safety (CFEES), a constituent laboratory of the esteemed Defense Research and Development Organization (DRDO). The initiative is strategically designed to facilitate enhanced access to scholarly resources tailored to the needs of CFEES personnel. Acknowledging the criticality of staying updated with the latest advancements in defense technologies, the project centers on the establishment of a dedicated online platform for the seamless retrieval of e-books, journals, research papers, and allied academic materials.

The primary objective of the project is to craft an intuitive and user-friendly interface that ensures effortless navigation and efficient information retrieval. Methodologies employed in the development process are meticulously outlined, shedding light on the systematic approach adopted. Key features and functionalities of the platform are comprehensively elucidated, emphasizing their significance in fostering a conducive environment for research and innovation. Furthermore, the report delves into prospective avenues for future enhancements and expansion, providing a roadmap for sustained growth and evolution.

In essence, the creation of this specialized tab underscores CFEES's unwavering commitment to fostering research excellence and innovation among its workforce. By equipping personnel with the requisite resources to remain at the forefront of defense technology, CFEES aims to make meaningful contributions towards national security objectives while solidifying its position as a beacon of research excellence within the DRDO framework.

ABOUT THE COMPANY

The **Defence Research and Development Organisation (DRDO)** is the premier agency under the Department of Defence Research and Development in Ministry of Defence of the Government of India, charged with the military's research and development, headquartered in Delhi, India. It was formed in 1958 by the merger of the Technical Development Establishment and the Directorate of Technical Development and Production of the Indian Ordnance Factories with the Defence Science Organisation under the administration of Jawaharlal Nehru. Subsequently, Defence Research & Development Service (DRDS) was constituted in 1979 as a service of Group 'A' Officers / Scientists directly under the administrative control of Ministry of Defence.

The Centre for Fire, Explosive and Environment Safety (CFEES) is a laboratory under the **Department of Research and Development Organisation (DRDO).** It works in the areas of fire protection, explosive safety, and environmental safety. CFEES develops technologies to protect against these threats, trains personnel in these areas, and enforces safety standards in the use of hazardous materials. CFEES also plays a regulatory and advisory role in MoD, such as safety advice, audit, regulations and compliance of Storage and Transport of Explosive Committee (STEC), siting of explosive storages facilities, and fire advisory.

CFEES is part of the System Analysis and Modelling (SAM) cluster of DRDO labs. In 2000, CFEES merged with the Defence Institute of Fire Research (DIFR) and was renamed in 2003 to emphasize the lab's key role in Fire ScienceCETPA INFOTECH PVT LTD focuses on providing industry-oriented training to its participants. The company's team of technical trainers offers personalized attention and guidance to students, aiming to enhance their skills and prepare them for the demands of the professional world.

CONTENTS

CHAPTER 01: INTRODUCTION

Introduction To Web Technology

Web technology encompasses a range of tools and techniques facilitating communication among various devices via the internet. Central to this technology is the web browser, which serves as the interface for accessing web pages, displaying text, data, multimedia, and facilitating navigation through hyperlinks.

Components of Web Technology

- **World Wide Web (WWW):** The World Wide Web relies on several key technologies, including web browsers, Hypertext Markup Language (HTML), and Hypertext Transfer Protocol (HTTP).
- **Web Browser:** A web browser is software designed to explore the World Wide Web, facilitating the interaction between servers and clients by requesting and displaying web documents and services.
- **Web Server:** Acting as a mediator between users and web pages, a web server processes network requests and delivers files that create web pages, utilizing Hypertext Transfer Protocol (HTTP) for communication.
- **Web Pages:** Web pages are digital documents accessible via the internet and viewable through a web browser by anyone connected to the web.
- **Web Development:** This encompasses the creation, building, and maintenance of websites, including web design, web publishing, web programming, and database management. It involves the development of applications functioning over the internet, i.e., websites.

Classification of Web Development

Frontend Development: This refers to the part of a website directly interacted with by users, also known as the 'client-side' of the application.

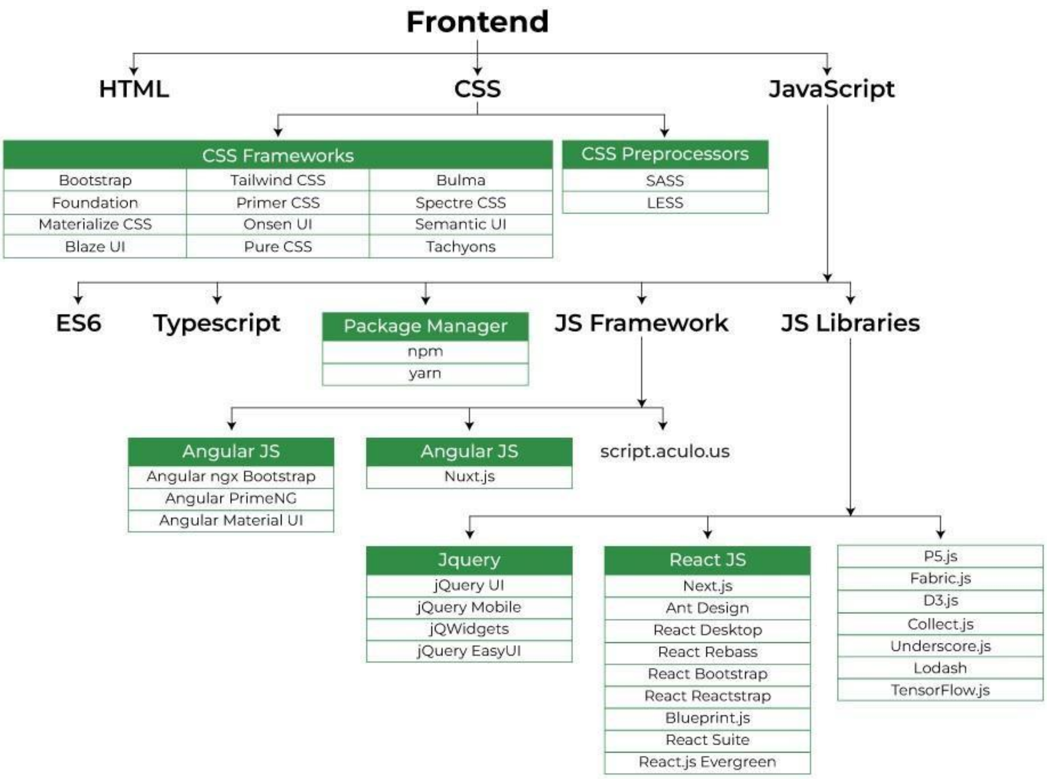


Figure 1.1: Frontend Web Development

Frontend Technologies:

- **HTML (Hypertext Markup Language):** Used to design the structure of web pages.
- **CSS (Cascading Style Sheets):** Facilitates the presentation and styling of web pages.
- **JavaScript:** Enables interactivity and enhanced functionality on websites.

HTML

History and Evolution:
HTML was first proposed by Tim Berners-Lee in 1989 as a markup language for creating documents with hyperlinks. The initial version, HTML 1.0, was released in 1991, followed by subsequent versions that introduced new features and improvements. HTML has evolved significantly over the years, with the latest version being HTML5, standardized by the World Wide Web Consortium (W3C) in 2014.

Features and Capabilities:
1. Structure and Semantics:
HTML provides a structured markup language for creating web pages, defining the structure and content of documents using elements such as headings, paragraphs, lists, links, images, and more. HTML5 introduced semantic elements like `<header>`, `<footer>`, `<nav>`, `<article>`, and `<section>`, which enhance accessibility, search engine optimization (SEO), and document readability.

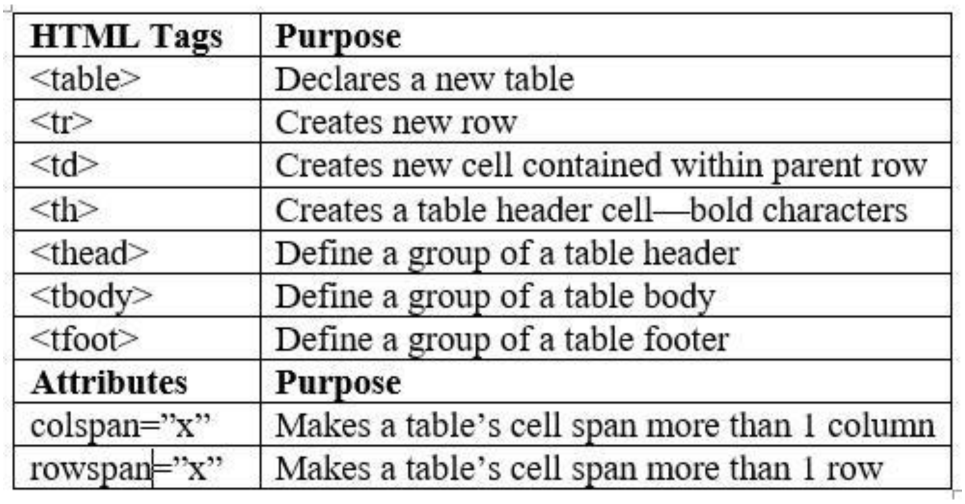
2. Cross-Platform Compatibility:
HTML is platform-independent and compatible with various operating systems and web browsers, ensuring consistent rendering and functionality across different devices and platforms.

3. Integration with CSS and JavaScript:
HTML works seamlessly with CSS (Cascading Style Sheets) and JavaScript to enhance the presentation and interactivity of web pages. CSS is used for styling and layout, while JavaScript adds dynamic behavior and interactivity to HTML elements.

4. Multimedia Support:
HTML5 introduced native support for multimedia elements, including `<audio>`, `<video>`, and `<canvas>`, allowing developers to embed audio and video content directly into web pages without relying on third-party plugins like Flash.

5. Forms and Input Controls:
HTML provides a range of form elements and input controls, such as text fields, checkboxes, radio buttons, dropdown menus, and buttons, enabling user input and interaction within web pages.

6. Accessibility Features:
HTML includes features and attributes that support web accessibility, allowing developers to create websites that are usable and accessible to people with disabilities. These features include semantic markup, alternative text for images, keyboard navigation, and ARIA (Accessible Rich Internet Applications) attributes.



HTML Tags	**Purpose**
<table>	Declares a new table
<tr>	Creates new row
<td>	Creates new cell contained within parent row
<th>	Creates a table header cell—bold characters
<thead>	Define a group of a table header
<tbody>	Define a group of a table body
<tfoot>	Define a group of a table footer
Attributes	**Purpose**
colspan=”x”	Makes a table’s cell span more than 1 column
rowspan=”x”	Makes a table’s cell span more than 1 row

CSS (Cascading Style Sheets):

History and Evolution:

CSS, short for Cascading Style Sheets, was proposed by Håkon Wium Lie and Bert Bos in 1994 as a way to separate the presentation from the structure of web documents. The first version of CSS was introduced in 1996, providing web designers with a powerful tool for controlling the visual appearance of web pages. Over the years, CSS has undergone several revisions, with CSS3 being the latest version, offering enhanced features and capabilities for modern web design.

Features and Capabilities:

1. Styling and Layout:
   CSS enables web designers to define the visual presentation of HTML elements, including colors, fonts, spacing, borders, and backgrounds. It provides a wide range of styling options and properties, allowing for precise control over the layout and design of web pages.

2. Responsive Design:
   CSS supports responsive web design principles, allowing designers to create websites that adapt and respond to different screen sizes and devices. Media queries, flexbox, and grid layouts are some of the techniques used in CSS to create responsive and mobile-friendly designs.

3. Modular and Reusable Styles:
   CSS promotes modularity and reusability by allowing designers to define styles in separate style sheets and apply them to multiple web pages. This helps maintain consistency across the website and facilitates easier maintenance and updates.

4. Selectors and Specificity:
   CSS provides a powerful selector mechanism for targeting specific HTML elements based on their attributes, classes, IDs, and relationships with other elements. The specificity of selectors determines which styles take precedence when multiple styles are applied to the same element.

5. Animation and Transitions:
   CSS3 introduced animation and transition properties, allowing designers to create interactive and engaging web experiences without relying on JavaScript or third-party plugins. CSS animations enable smooth transitions, transformations, and keyframe-based animations for various elements on the web page.

6. Vendor Prefixes and Browser Compatibility:
   CSS vendors often implement experimental features with vendor prefixes (-webkit-, -moz-, -ms-, -o-) to enable early adoption and testing. While these prefixes help developers experiment with new features, they require careful consideration for browser compatibility and vendor-specific implementations.

CSS Frameworks and Tools:

1. Bootstrap:
   Bootstrap is a popular CSS framework that provides a collection of pre-designed components, utilities, and styles for building responsive and mobile-first websites. It offers a grid system, typography, forms, buttons, navigation bars, and other UI components that streamline development and ensure consistency.

2. Tailwind CSS:
   Tailwind CSS is a utility-first CSS framework that provides a set of pre-built utility classes for styling HTML elements. It enables rapid prototyping and customization by allowing designers to compose styles using utility classes directly within HTML markup.

3. Sass (Syntactically Awesome Style Sheets):
   Sass is a preprocessor scripting language that extends CSS with features like variables, nesting, mixins, and inheritance. It enhances the maintainability and scalability of CSS code by enabling code reuse, organization, and abstraction.

Javascript:

History and Evolution:
Born in 1995 as a way to add interactivity to static web pages, JavaScript (JS) quickly evolved from a Netscape-developed tool named Mocha to a standardized language (ECMAScript) powering modern web applications. Despite the confusion caused by its Java-like name, JS's ability to manipulate webpages, handle events, and work asynchronously cemented its place as the go-to language for creating dynamic and user-friendly web experiences.

Features and Capabilities:
1. High-level:
JavaScript is a high-level, interpreted programming language. It is one of the three core technologies of World Wide Web content production (along with HTML and CSS).

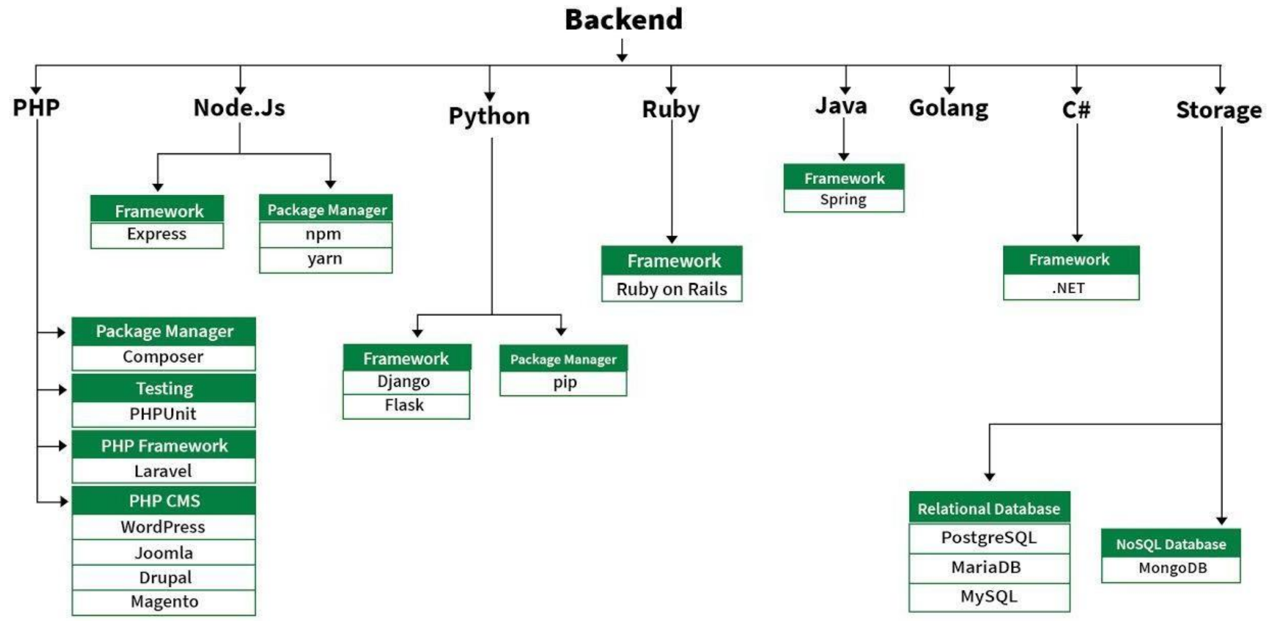
2. Scripting language:
JavaScript is a scripting language, meaning that it is not compiled into machine code before it is executed. This makes it very easy to use and debug JavaScript code.

3. Dynamic language:
JavaScript is a dynamic language, meaning that the type of a variable can change at runtime. This makes JavaScript very flexible and powerful.

4. Object-oriented language
JavaScript is an object-oriented language, meaning that everything in JavaScript is an object. This makes JavaScript very easy to use for object-oriented programming.

5. Built-in functions and libraries
JavaScript has a rich set of built-in functions and libraries. This makes it easy to do a wide variety of tasks with JavaScript, such as manipulating the DOM, making HTTP requests, and working with data.

Backend Development: This constitutes the server-side of a website, handling data storage and organization without direct user interaction.

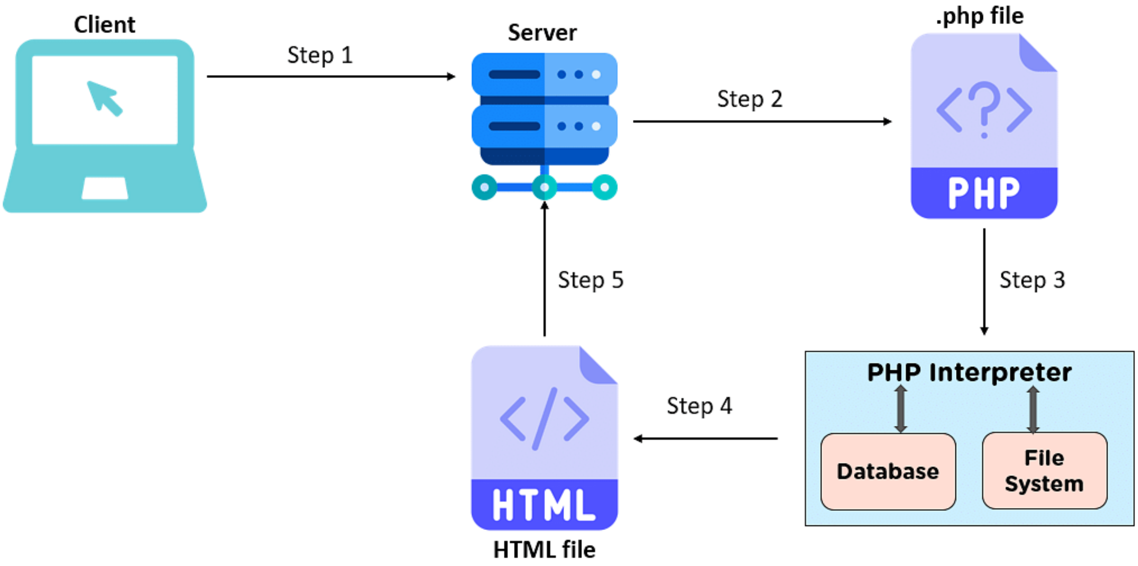


Backend Technologies:

PHP (Hypertext Preprocessor):

PHP, standing for Hypertext Preprocessor, is a widely-used open-source scripting language that is particularly suited for web development and can be embedded into HTML. Created by Danish-Canadian programmer Rasmus Lerdorf in 1994, PHP has since evolved into a powerful tool for building dynamic and interactive websites. Here's a closer look at PHP and its features

History and Evolution:
PHP originated in the mid-1990s when Rasmus Lerdorf created a set of Perl scripts to track visitors to his online resume. These scripts evolved into PHP/FI (Personal Home Page/Forms Interpreter), which was released publicly in 1995. Over time, PHP gained popularity and underwent significant improvements with each new version release.



Features and Capabilities:
1. Server-Side Scripting:
PHP executes on the server, allowing developers to generate dynamic content before sending it to the client's browser. This enables the creation of interactive web applications and websites.

2. Integration with HTML:
PHP seamlessly integrates with HTML, enabling developers to embed PHP code directly within HTML documents. This makes it easy to mix dynamic content generation with static web page elements.

3. Extensive Library Support:
PHP boasts a vast array of built-in functions and libraries for various tasks, such as string manipulation, file handling, database access, and more. Additionally, developers can create and share their libraries, contributing to the richness of the PHP ecosystem.

4. Object-Oriented Programming (OOP) Support:
PHP supports object-oriented programming paradigms, allowing developers to organize their code into classes and objects for better modularity, reusability, and maintainability.

5. Database Connectivity:
PHP offers robust database connectivity options, with built-in support for popular database management systems like

MySQL, PostgreSQL, SQLite, and others. Developers can easily perform database operations, such as querying, inserting, updating, and deleting data.

6. Cross-Platform Compatibility:
PHP runs on various operating systems, including Linux, Windows, macOS, and Unix. This cross-platform compatibility ensures that PHP applications can be deployed on a wide range of server environments.

PHP Frameworks and Tools:

1. Laravel:
Laravel is one of the most popular PHP frameworks known for its elegant syntax, expressive codebase, and extensive feature set. It simplifies common tasks like authentication, routing, caching, and session management, speeding up development without sacrificing flexibility.

2. Symfony:
Symfony is a robust framework that follows best practices and design patterns, making it suitable for building scalable and maintainable web applications. It provides a set of reusable components and libraries for handling HTTP requests, form creation, security, and more.

3. CodeIgniter:
CodeIgniter is a lightweight yet powerful framework known for its simplicity and speed. It comes with a small footprint, making it ideal for developing fast and efficient web applications without the overhead of larger frameworks.

4. Composer:
Composer is a dependency management tool for PHP that simplifies the process of managing external libraries and dependencies in PHP projects. It allows developers to declare project dependencies in a simple JSON file and automatically installs and updates them as needed.

SQL (Structured Query Language):

History and Evolution:
SQL was developed in the early 1970s by IBM researchers Donald D. Chamberlin and Raymond F. Boyce. Originally known as SEQUEL (Structured English Query Language), it was later renamed SQL. SQL became an ANSI (American National Standards Institute) standard in 1986 and an ISO (International Organization for Standardization) standard in 1987. Since then, various versions of SQL have been developed, each introducing new features and enhancements.

Features and Capabilities:
1. Data Definition Language (DDL):
SQL provides a set of commands for defining and modifying the structure of databases, tables, indexes, and other database objects. DDL commands include `CREATE`, `ALTER`, `DROP`, and `TRUNCATE`, allowing developers to manage database schemas efficiently.

2. Data Manipulation Language (DML):
SQL allows developers to perform operations on data stored in tables using DML commands such as `SELECT`, `INSERT`, `UPDATE`, and `DELETE`. These commands enable querying, inserting, updating, and deleting records in databases, providing powerful data manipulation capabilities.

3. Data Control Language (DCL):
SQL includes DCL commands like `GRANT` and `REVOKE` for managing access permissions and security privileges within databases. These commands allow administrators to control who can access, modify, and manipulate data in the database.

4. Transaction Control:
SQL supports transaction management, allowing developers to group multiple SQL statements into logical units of work called transactions. Transaction control commands such as `COMMIT`, `ROLLBACK`, and `SAVEPOINT` ensure data integrity, consistency, and concurrency control in multi-user database environments.

5. Data Integrity Constraints:
SQL allows developers to enforce data integrity constraints on tables using features like primary keys, foreign keys, unique constraints, check constraints, and default values. These constraints ensure that data stored in the database remains accurate, consistent, and valid over time.

6. Joins and Relationships:
SQL enables developers to establish relationships between tables and perform complex queries using join operations. Types of joins include INNER JOIN, LEFT JOIN, RIGHT JOIN, and FULL JOIN, allowing developers to retrieve data from multiple tables based on specified criteria.

SQL Implementations and Databases:

1. MySQL:
MySQL is one of the most popular open-source relational database management systems (RDBMS) that uses SQL as its query language. It is known for its reliability, performance, scalability, and ease of use, making it a preferred choice for web applications, e-commerce sites, and data-driven applications.

2. PostgreSQL:
PostgreSQL is a powerful open-source object-relational database system that supports SQL and extends it with additional features like complex data types, full-text search, and JSON support. It is highly customizable, ACID-compliant, and suitable for a wide range of applications, from small projects to large-scale enterprise deployments.

3. Microsoft SQL Server:
Microsoft SQL Server is a relational database management system developed by Microsoft that supports SQL as its primary query language. It is widely used in enterprise environments, offering features like high availability, business intelligence, and integration with Microsoft's development tools and platforms.

Community and Support:

SQL has a vast and active community of developers, database administrators, and enthusiasts who contribute to its development, documentation, and support. The SQL community provides resources, tutorials, forums, user groups, and conferences where developers can learn, share knowledge, and collaborate on projects related to SQL and database management.

Conclusion:

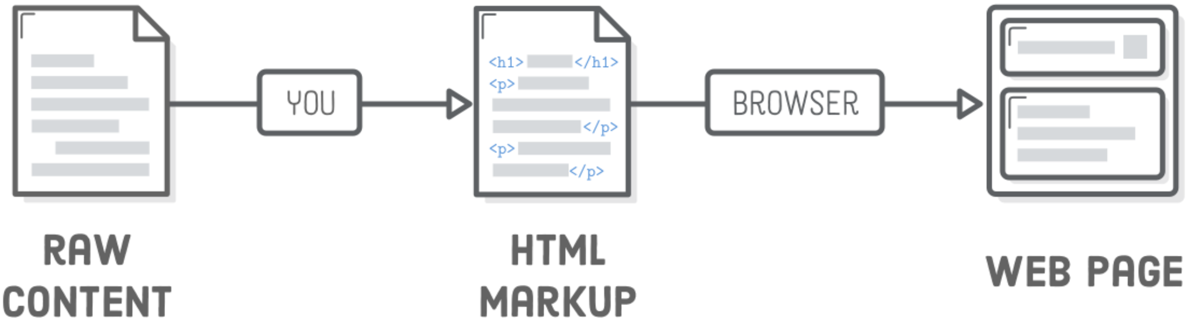
SQL remains a fundamental and indispensable tool for managing and manipulating relational databases, powering a wide range of applications and systems worldwide. With its rich set of features, standardized syntax, and support for various database management systems, SQL continues to play a crucial role in modern data-driven development. As data volumes grow and new technologies emerge, SQL remains essential for developers and organizations seeking to store, query, and analyze data effectively and efficiently. SQL is a database language used for managing and querying relational databases.
It allows for the creation, manipulation, and retrieval of data stored in databases.

In the context of the TIRC Software, SQL is used to:
Define the structure of the database schema, including tables, columns, constraints, and relationships.
Create queries to retrieve and manipulate data stored in the database, such as user information, resource metadata, access logs, and request statuses.
Perform operations like inserting, updating, deleting, and querying records to maintain data integrity and facilitate module functionalities.
Optimize database performance through indexing, normalization, and query optimization techniques to ensure efficient data retrieval and processing.
By leveraging PHP for server-side scripting, HTML for front-end presentation, and SQL for database management, the development team can create a robust and user-friendly TIRC Software that meets the project objectives of enhancing accessibility to e-resources for CFEES personnel. These technologies work synergistically to deliver a dynamic and interactive web platform that facilitates efficient information retrieval, promotes knowledge dissemination, and contributes to a culture of continuous learning within the organization.

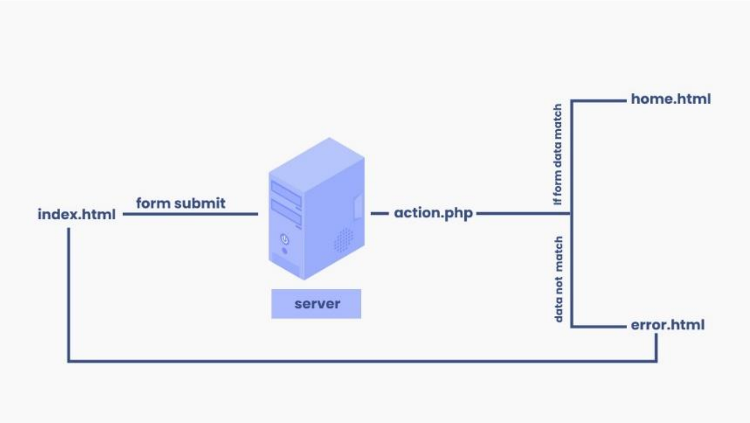
CHAPTER 02: TRAINING WORK DONE TILL MARCH- 2024

2.1 DESIGN: -

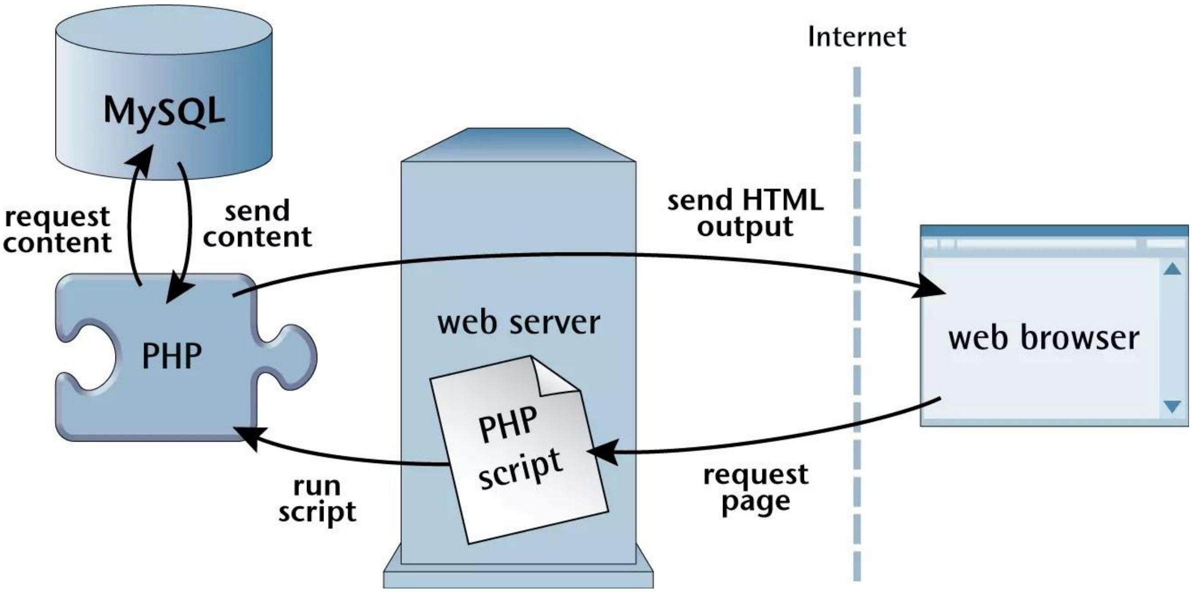
The basic web server design harnesses the collective power of HTML, PHP, and SQL to craft a dynamic and functional platform. At its core lies HTML, the backbone of web structure, responsible for creating the visual interface that users interact with. PHP, serving as the dynamic scripting language, seamlessly integrates with HTML, facilitating server-side processing and enabling the generation of dynamic content in response to user requests.



The server-side magic unfolds as PHP interacts with SQL databases, retrieving and manipulating data to populate web pages with dynamic content. SQL, the stalwart database language, provides the framework for organizing, storing, and retrieving data efficiently. Through carefully crafted SQL queries, the web server communicates with the database, fetching and updating information to meet the demands of users accessing the platform.



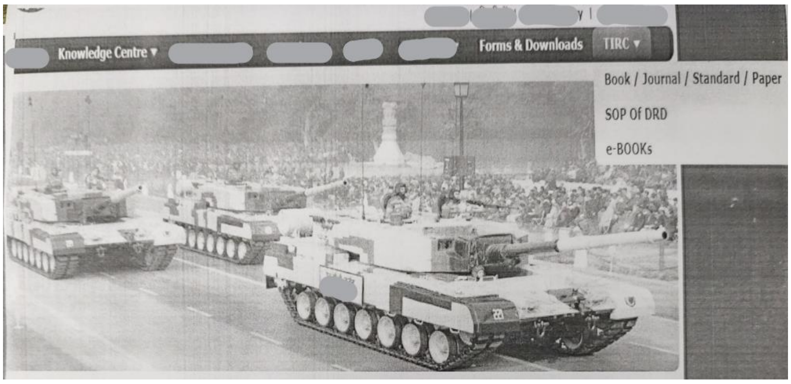
In this symbiotic relationship, HTML provides the canvas, PHP furnishes the logic, and SQL houses the data, culminating in a cohesive web server design that delivers a seamless user experience. Together, these technologies converge to create a robust and versatile platform capable of handling a myriad of tasks, from displaying static web pages to managing complex data interactions with users.



2.2 IMPLEMENTATION AND CODE: -

Overview:

In a concerted effort to elevate user experience and streamline access to essential resources, a meticulously crafted code has been implemented to introduce the (TIRC) tab on the main website page. This innovative addition seamlessly integrates into the website's interface, offering users an intuitive gateway to a treasure trove of scholarly materials and standard operating protocols (SOPs) of DRDO.



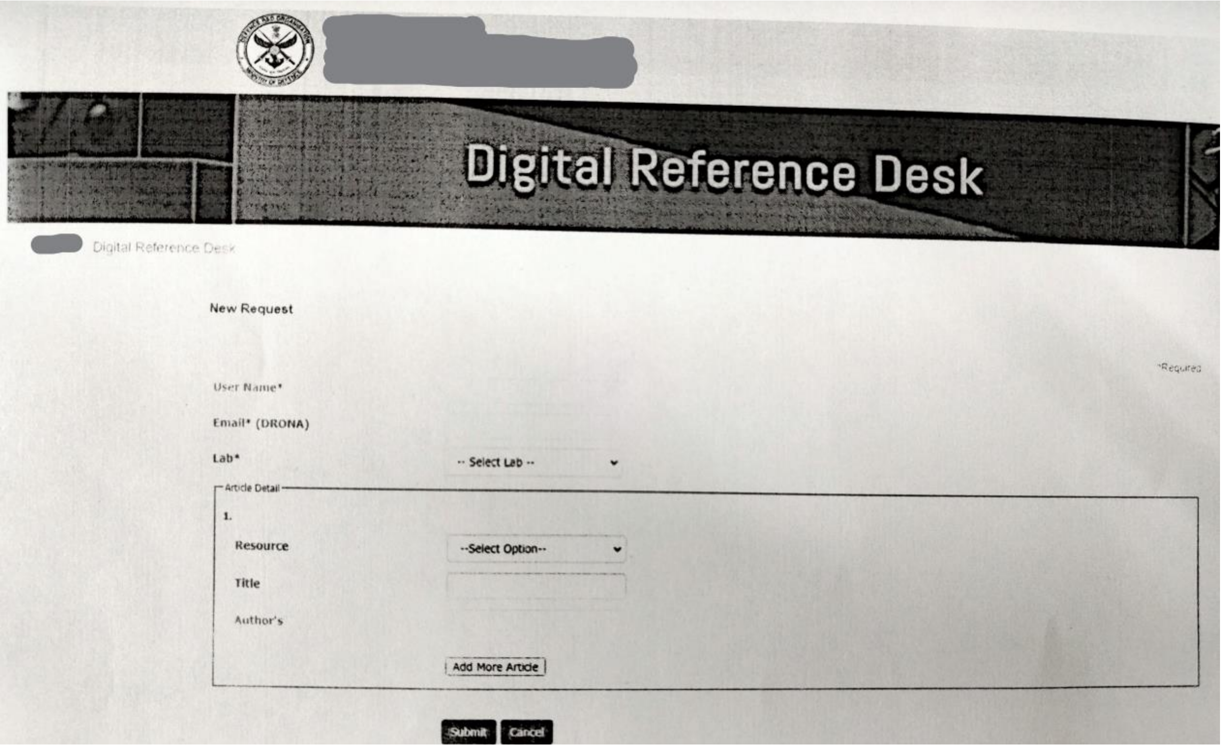
Tab Design and Functionality:

Upon hovering over the TIRC tab, users are greeted with an elegant display of three dropdown menus, each meticulously designed to cater to distinct user needs and preferences. These dropdown menus serve as portals to an array of invaluable resources, ensuring that users can effortlessly navigate through the wealth of information at their fingertips.

Sample code for drop down menu:

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>TIRC Tab</title>
<style>
  .tab {
    position: relative;
    display: inline-block;
  }
.tablinks {
    background-color: #f1f1f1;
    border: none;
    color: black;
    padding: 10px 20px;
    font-size: 16px;
    cursor: pointer;
  }
dropdown-content {
    display: none;
    position: absolute;
    background-color: #f9f9f9;
    min-width: 160px;
    box-shadow: 0px 8px 16px 0px rgba(0,0,0,0.2);
    z-index: 1;
  }

  .dropdown-content a {
    color: black;
    padding: 12px 16px;
    text-decoration: none;
    display: block;
  }

  .dropdown-content a:hover {
    background-color: #ddd;
  }
  .tab:hover .dropdown-content {
    display: block;
  }
</style>
</head>
<body>

<div class="tab">
  <button class="tablinks">TIRC</button>
  <div class="dropdown-content">
    <a href="#">Book/Journal/Standard/Paper</a>
    <a href="#">SOP Of DRD</a>
    <a href="#">e-BOOKs</a>
  </div>
</div>

</body>
</html>
```

2.2.1 Resource Repository Dropdown ([Book/Journal/Standard/Paper]):



[redacted]

Digital Reference Desk

[redacted] Digital Reference Desk

New Request

*Required

User Name*

Email* (DRONA)

Lab* -- Select Lab --

Article Detail

1.

Resource --Select Option--

Title

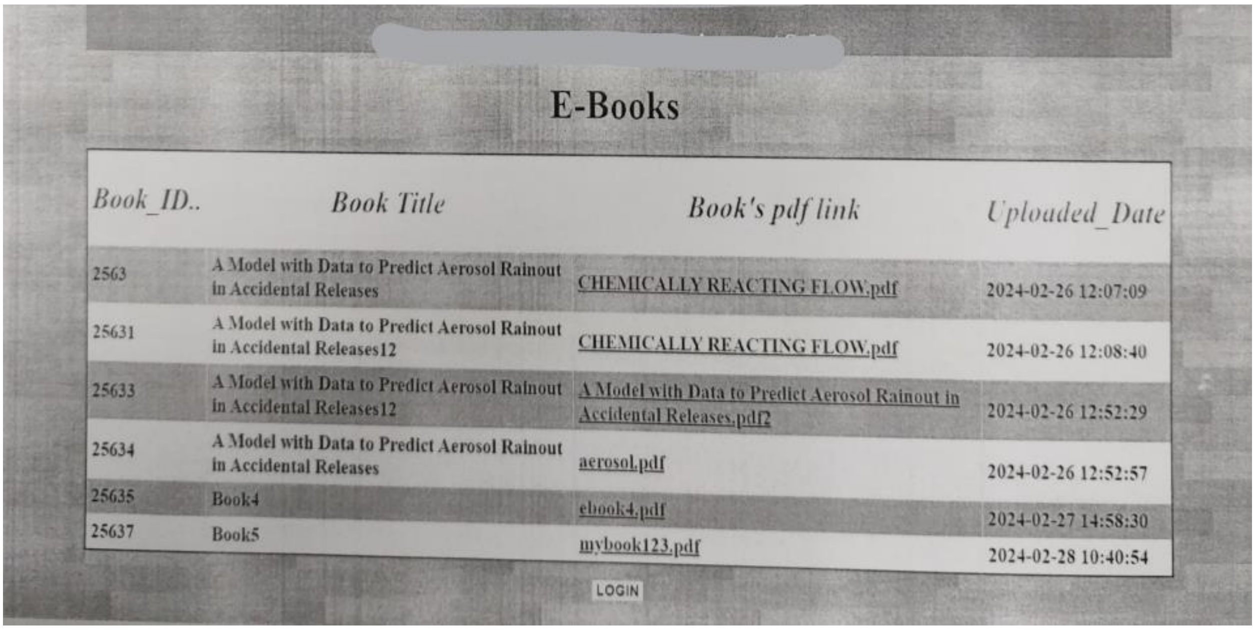
Author's

- Upon selecting this dropdown option, users are seamlessly redirected to a dedicated page adorned with a sophisticated search form.
- This form acts as a conduit for users to specify their document requirements, enabling them to embark on a quest for knowledge with unparalleled ease and precision.
- Users can input their desired criteria, ranging from specific keywords to publication dates, empowering them to unearth a myriad of scholarly materials tailored to their exacting specifications.
- Upon submission of the form, users are treated to a meticulously curated selection of documents that align with their search parameters, fostering a seamless and enriching browsing experience.

2.2.2 Standard Operating Protocols (SOP) of DRDO Dropdown:

- Opting for this dropdown option ushers users into a realm brimming with indispensable SOPs meticulously crafted by DRDO.
- Users are whisked away to a dedicated page adorned with an exhaustive compilation of SOPs, meticulously organized for easy perusal.
- Each SOP is presented with utmost clarity and accessibility, ensuring that users can effortlessly access and acquaint themselves with the protocols governing DRDO's operations.
- This repository of SOPs serves as a beacon of operational excellence, empowering users with the knowledge and guidelines essential for driving innovation and upholding standards of excellence within the organization.

2.2.3 E-books Dropdown:



[redacted]

E-Books

Book_ID..	Book Title	Book's pdf link	Uploaded_Date
2563	A Model with Data to Predict Aerosol Rainout in Accidental Releases	CHEMICALLY REACTING FLOW.pdf	2024-02-26 12:07:09
25631	A Model with Data to Predict Aerosol Rainout in Accidental Releases12	CHEMICALLY REACTING FLOW.pdf	2024-02-26 12:08:40
25633	A Model with Data to Predict Aerosol Rainout in Accidental Releases12	A Model with Data to Predict Aerosol Rainout in Accidental Releases.pdf2	2024-02-26 12:52:29
25634	A Model with Data to Predict Aerosol Rainout in Accidental Releases	aerosol.pdf	2024-02-26 12:52:57
25635	Book4	ebook4.pdf	2024-02-27 14:58:30
25637	Book5	mybook123.pdf	2024-02-28 10:40:54

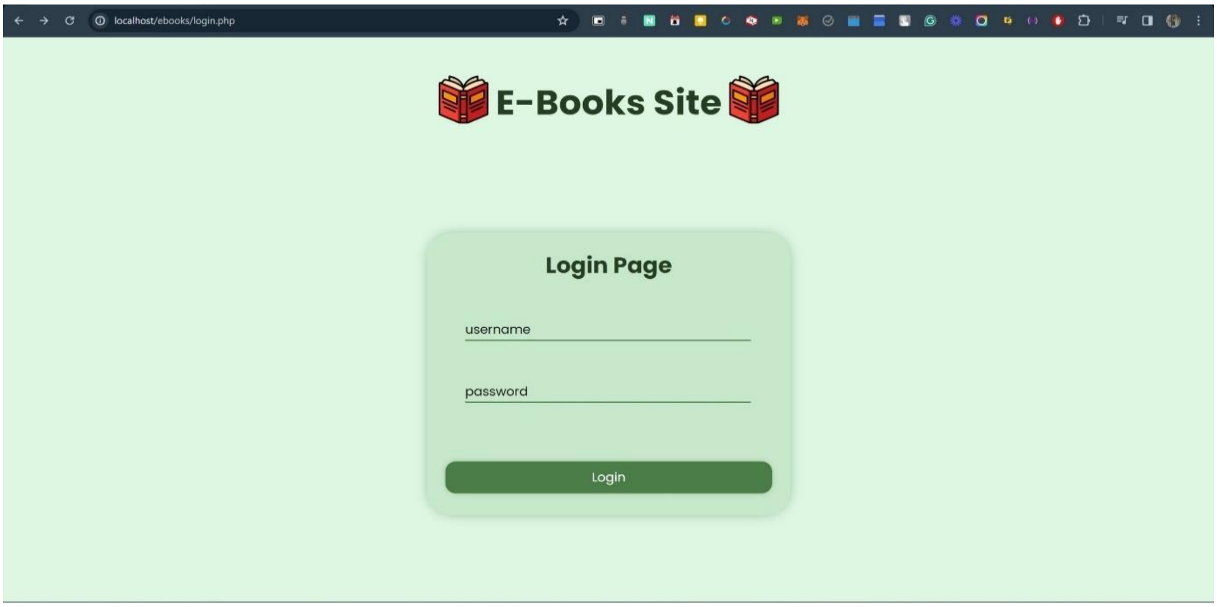
- Selecting this dropdown option invites users to embark on a captivating journey into the realm of digital literature, replete with a plethora of e-books catering to diverse interests and disciplines.

- Upon activation, users are seamlessly transported to a dedicated page adorned with a dynamic search form, meticulously engineered to facilitate the discovery of coveted e-books.

- This form provides users with an immersive browsing experience, allowing them to peruse a curated selection of e-books, each handpicked to cater to their discerning tastes and preferences.

- Additionally, users are provided with insights into the e-books accessed by their peers, fostering a sense of community and collaboration as they delve into the digital realm of knowledge dissemination.

E-books page is a digital library platform where users must authenticate their credentials, either as regular users or admins, to access the available e-books. Regular users are granted viewing privileges, while admins enjoy additional capabilities to view, edit, and manage the e-book repository. Utilizing HTML for structure, CSS for styling, PHP for server-side functionality, and SQL for database management, our e-books site guarantees secure authentication and streamlined e-book management within an intuitive interface.

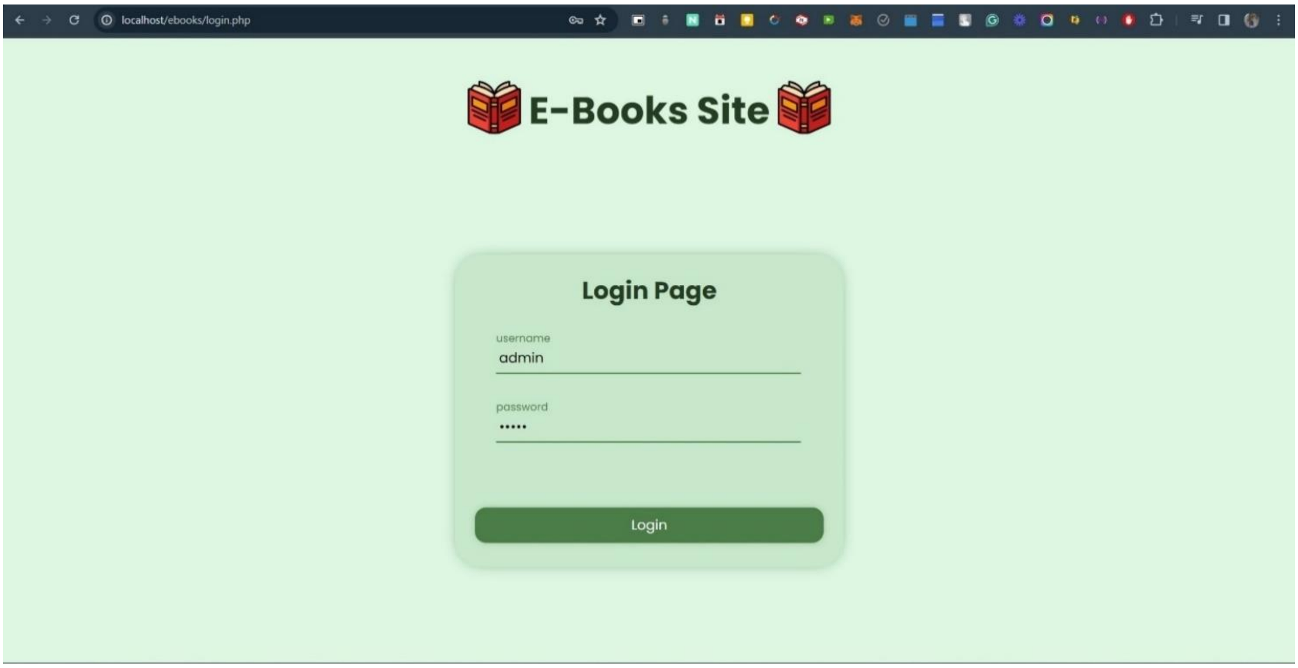


2.2.3.1 Code for basic login page:

```
<?php
$host = "localhost";
$user = "root";
$password = "password";
$db = "ebooks";
```

```
session_start();

$data = mysqli_connect($host, $user, $password, $db);
if ($data == false) {
    die("connection error");
}

if ($_SERVER["REQUEST_METHOD" ] == "POST") {
    $username = $_POST["username"];
    $password = $_POST["password"];

    if ($username == "dbmanager" && $password == "db") {
        header("location:ebookbacktable.php");
    } else {
        $sql = "select * from emp_id where username='".$username."' AND 
password='".$password."'";
        $result = mysqli_query($data, $sql);

        $row = mysqli_fetch_array($result);

        if ($row["desig_id"] > 12) {
            $_SESSION["username"]=$username;
            header("location:ebookbacktablenormaluser.php");
        } elseif ($row["desig_id"] <= 12) {
            $_SESSION["username"]=$username;
            header("location:ebookbacktableadmin.php");
        } else {
            echo "username or password incorrect";
        }
    }
}


?>



<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Login Page</title>
    <style>
        body {
            font-family: Arial, Helvetica, sans-serif;
        }

        .container {
            width: 300px;
            padding: 16px;
            background-color: white;
            margin: 0 auto;
            margin-top: 100px;
        }

        input[type=text],
        input[type=password] {
            width: 100%;
            padding: 15px;
            margin: 5px 0 22px 0;
            display: inline-block;
            border: none;
            background: #f1f1f1;
        }

        input[type=text]:focus,
        input[type=password]:focus {
            background-color: #ddd;
            outline: none;
        }


    </style>
</head>


<body>
    <center>
    <h1>Login Page</h1>
    <br><br><br><br>
    <div class="container">
        <br><br>

        <form action="#" method="POST">
            <div>
                <label>username</label>
                <input type="text" name="username" required>
            </div>

            <div>
                <label>password</label>
                <input type="password" name="password" required>
            </div>

            <div>
                <input type="submit" value="Login">
            </div>
        </form>

        <br><br>
    </div>
    </center>

</body>

</html>
```

When a user inputs an admin ID to log in, the system recognizes the credentials as belonging to an administrator account. Upon successful authentication, the user is granted access to an admin dashboard with extended privileges. Within the admin dashboard, the user can perform various administrative tasks such as adding new e-books to the repository, editing existing e-book details, deleting outdated entries, and managing user accounts. Additionally, the admin dashboard may provide analytics and reporting tools for monitoring site usage and performance. This segregation of user roles ensures efficient management of the e-books site, empowering administrators to maintain the repository's integrity and relevance.



localhost/ebooks/login.php

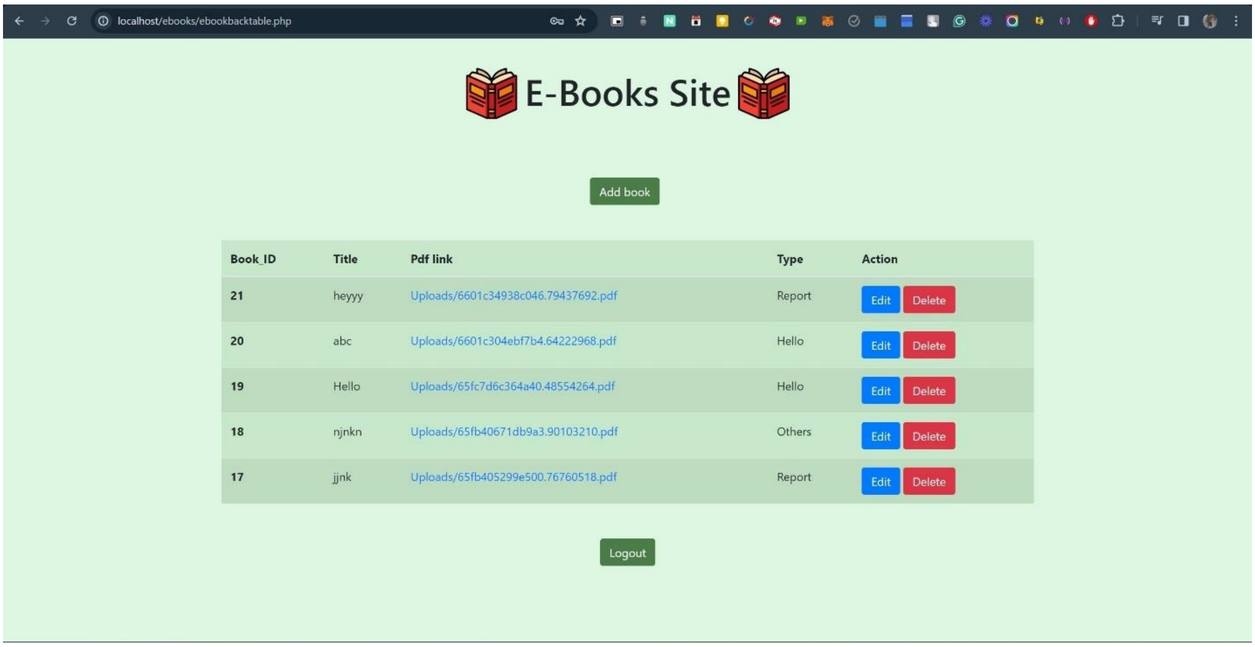
E-Books Site

Login Page

username
admin

password
•••••

2.2.3.2 When a user enters an admin ID, they are directed to an exclusive admin dashboard showcasing a comprehensive table of all books within the e-books site. This table presents essential details such as book titles, authors, and types. The admin is empowered with versatile functionalities, including the ability to edit existing book entries, seamlessly add new books to the repository, and remove outdated or irrelevant documents. Additionally, the admin gains access to a special category of documents marked as "important" or "not visible to all." These documents may contain sensitive information or exclusive content meant for select audiences, allowing the admin to manage and control access to these resources effectively. Through this tailored interface, the admin maintains complete oversight of the e-books site, ensuring content relevance, accuracy, and security while catering to the diverse needs of users.



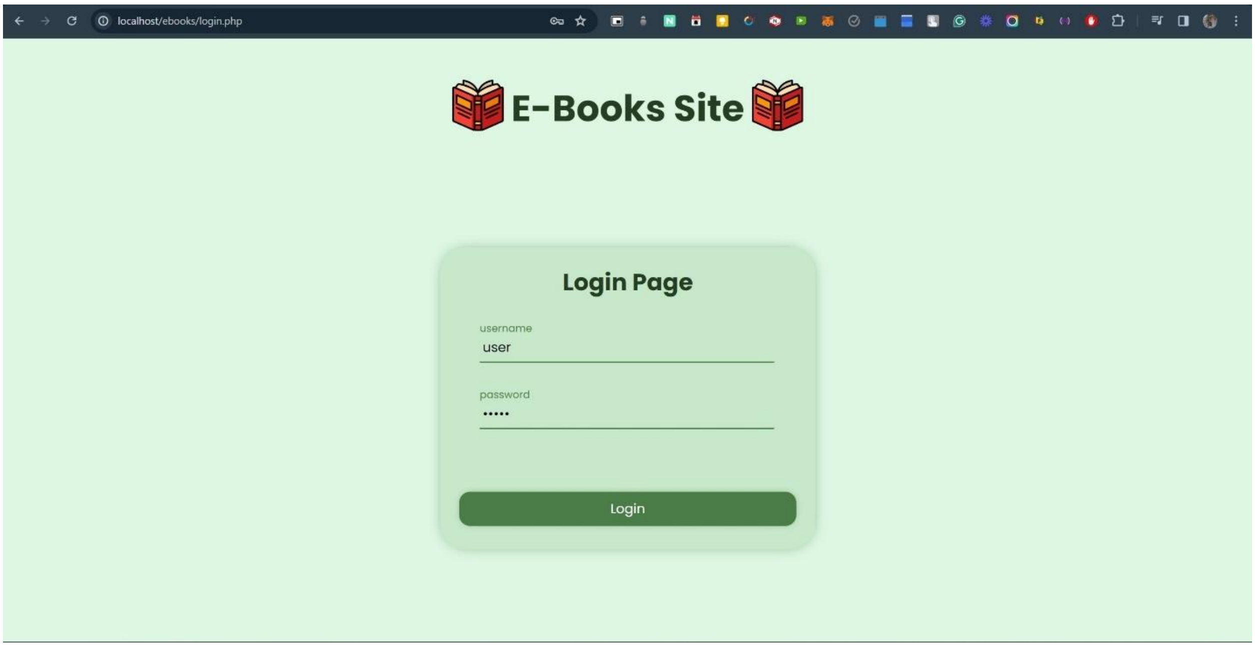
Book_ID	Title	Pdf link	Type	Action
21	heyyy	Uploads/6601c34938c046.79437692.pdf	Report	Edit Delete
20	abc	Uploads/6601c304ebf7b4.64222968.pdf	Hello	Edit Delete
19	Hello	Uploads/65fc7d6c364a40.48554264.pdf	Hello	Edit Delete
18	njnkn	Uploads/65fb40671db9a3.90103210.pdf	Others	Edit Delete
17	jjnk	Uploads/65fb405299e500.76760518.pdf	Report	Edit Delete

Code for admin login:

```
<?php
    include 'connect.php';
    session_start();

    if(!isset($_SESSION["username"])){
        header("location:login.php");
    }

    include 'connect.php';
?>

<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>E-Book Library</title>
    <!-- Bootstrap CSS -->
    <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.2/dist/css/bootstrap.min.css"
integrity="sha384-xOolHFLEh07PJGoPkLv1IbcEPTNtaed2xpHsD9ESMhqIYd0nLMwNLD69Npy4HI+N"
crossorigin="anonymous">
</head>
<body>
<!--php echo $_SESSION["username"] ?> -->
    <div class="container">
    <button class="btn btn-primary my-5"><a href="addbook.php" class="text-light">Add
book</a></button>
    <table class="table table-striped">
        <thead>
            <tr>
                <th scope="col">Book_ID</th>
                <th scope="col">Title</th>
                <th scope="col">Pdf link</th>
                <th scope="col">Type</th>
            </tr>
        </thead>
        <tbody>


    <?php
        $sql="Select * from `books` ORDER BY `uploaded_on` DESC";
        $result=mysqli_query($con, $sql);
        if($result){
            // $row=mysqli_fetch_assoc($result);
            // echo $row['name'];
            // $row=mysqli_fetch_assoc($result);
            // echo $row['name'];
            while($row=mysqli_fetch_assoc($result)){
                $Book_ID=$row['Book_ID'];
                $book_title=$row['book_title'];
                $LINK=$row['LINK'];
                $book_type=$row['book_type'];
                echo '<tr>
                <th scope="row">'.$Book_ID.'</th>
                <td>'.$book_title.'</td>
                <td><a href="'.$LINK.'">'.$LINK.'</a></td>
                <td>'.$book_type.'</td>

              </tr>';
            }
        }
    ?>
```

```
        </tbody>
    </table>


    </div>

    <button class="btn btn-primary my-5"><a href="logout.php" class="text-
light">Logout</a></button>
</body>
</html>
```

2.2.3.3 When a user logs in with a normal ID, they are directed to a user-friendly interface displaying a simplified table of accessible e-books. This table presents information such as book titles, authors, genres. Users are empowered to browse through the available content and download e-books of interest directly from the platform. However, unlike administrators, users with normal IDs are restricted from editing or removing any book entries. This ensures content integrity and prevents accidental modifications to the e-books repository. By providing seamless access to open or not hidden content while maintaining strict controls on editing and removal privileges, the platform prioritizes user experience and content security, fostering a conducive environment for exploration and knowledge acquisition.



localhost/ebooks/login.php

E-Books Site

Login Page

username
user

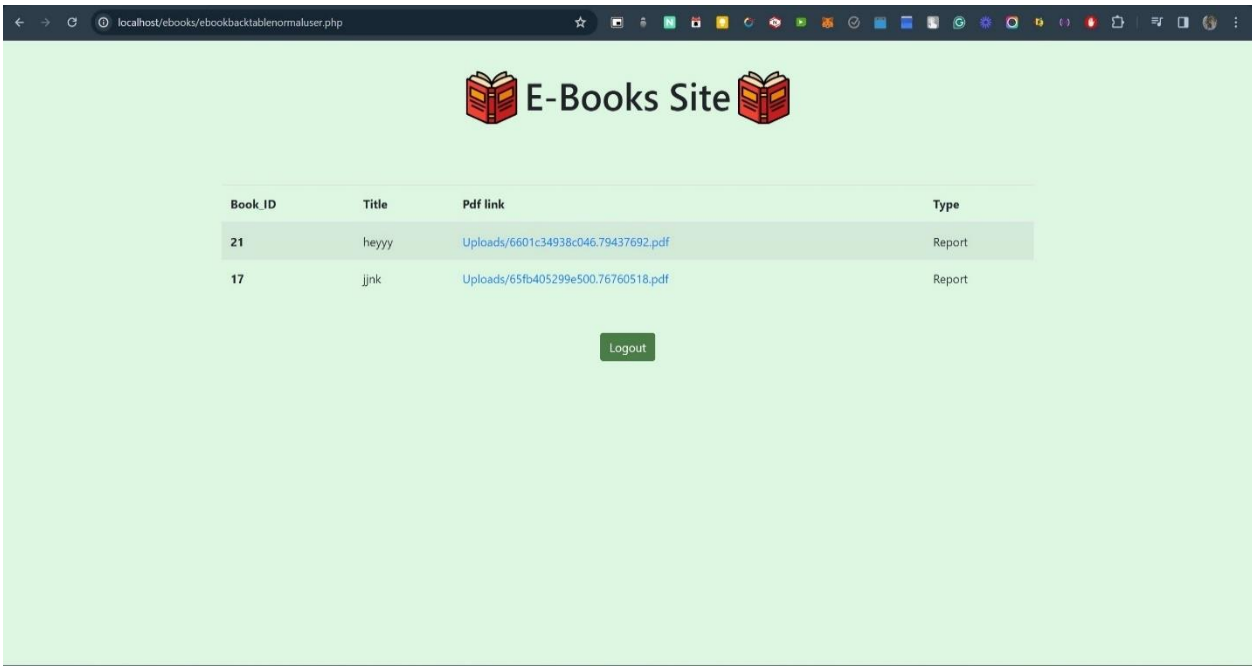
password
•••••

Code for normal user login:

```
<?php
$host = "localhost";
```

```
$user = "root";
$password = "m.m.singh";
$db = "ebooks";

session_start();

$data = mysqli_connect($host, $user, $password, $db);
if ($data == false) {
    die("connection error");
}

if ($_SERVER["REQUEST_METHOD" ] == "POST") {
    $username = $_POST["username"];
    $password = $_POST["password"];

    if ($username == "managerdb" && $password == "db") {
        header("location:ebookbacktable.php");
    } else {
        $sql = "select * from emp_id where username='".$username."' AND
password='".$password."'";
        $result = mysqli_query($data, $sql);

        $row = mysqli_fetch_array($result);

        if ($row["desig_id"] > 12) {
            $_SESSION["username"]=$username;
            header("location:ebookbacktablenormaluser.php");
        } elseif ($row["desig_id"] <= 12) {
            $_SESSION["username"]=$username;
            header("location:ebookbacktableadmin.php");
        } else {
            echo "username or password incorrect";
        }
    }
}


?>



<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Login Page</title>
    <style>
        body {
            font-family: Arial, Helvetica, sans-serif;
        }

        .container {
            width: 300px;
            padding: 16px;
            background-color: white;
            margin: 0 auto;
            margin-top: 100px;
        }

        input[type=text],
        input[type=password] {
            width: 100%;
            padding: 15px;
            margin: 5px 0 22px 0;
            display: inline-block;
            border: none;
            background: #f1f1f1;
        }

        input[type=text]:focus,
        input[type=password]:focus {
            background-color: #ddd;
            outline: none;
        }


    </style>
</head>


<body>
    <center>
    <h1>Login Page</h1>
    <br><br><br><br>
    <div class="container">
        <br><br>

        <form action="#" method="POST">
            <div>
                <label>username</label>
                <input type="text" name="username" required>
            </div>

            <div>
                <label>password</label>
                <input type="password" name="password" required>
            </div>
            <div>
                <input type="submit" value="Login">

            </div>
        </form>

        <br><br>
    </div>
    </center>

</body>

</html>
```

When a user enters their user ID, they are greeted with a table displaying a collection of books. However, the user's privileges are limited to downloading the books; they cannot perform any other actions such as editing or deleting entries within the table

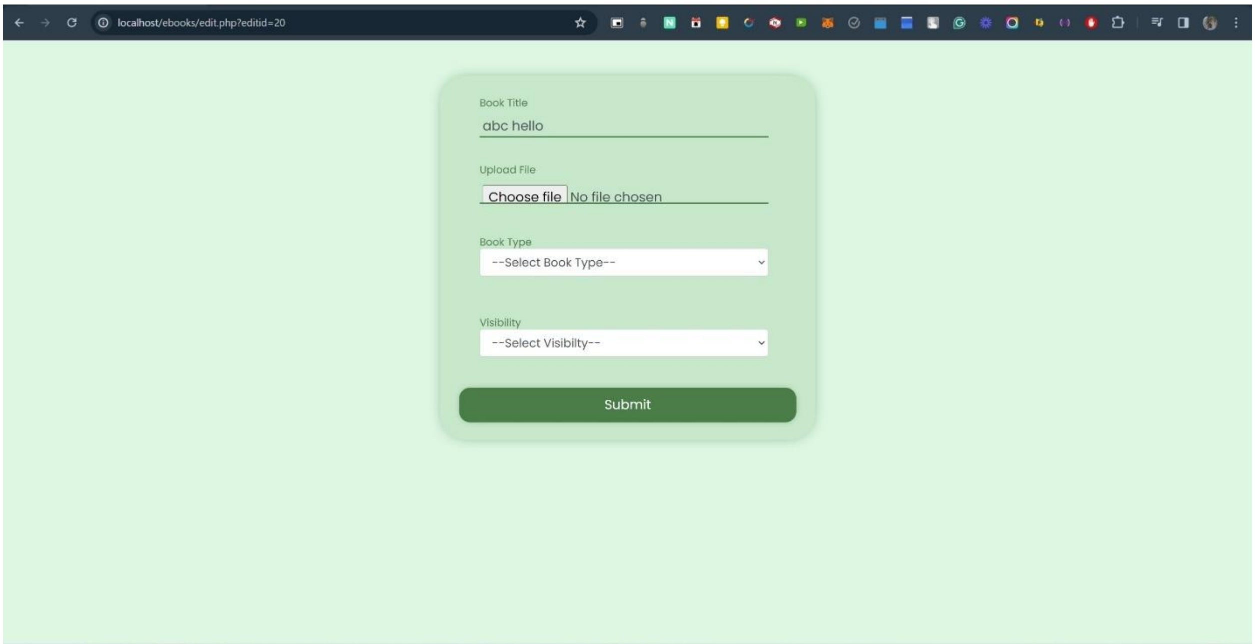


Book_ID	Title	Pdf link	Type
21	heyyy	Uploads/6601c34938c046.79437692.pdf	Report
17	jjnk	Uploads/65fb405299e500.76760518.pdf	Report

Code for normal user e-book table view:

```
<?php
    include 'connect.php';
    session_start();

    if(!isset($_SESSION["username"])){
        header("location:login.php");
    }

    include 'connect.php';
?>

<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>E-Book Library</title>
    <!-- Bootstrap CSS -->
    <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.2/dist/css/bootstrap.min.css"
integrity="sha384-xOolHFLEh07PJGoPkLv1IbcEPTNtaed2xpHsD9ESMhqIYd0nLMwNLD69Npy4HI+N"
crossorigin="anonymous">
</head>
<body>
<!--php echo $_SESSION["username"] ?> -->
    <div class="container">
    <button class="btn btn-primary my-5"><a href="addbook.php" class="text-light">Add
book</a></button>
    <table class="table table-striped">
        <thead>
            <tr>
                <th scope="col">Book_ID</th>
                <th scope="col">Title</th>
                <th scope="col">Pdf link</th>
                <th scope="col">Type</th>
            </tr>
        </thead>
        <tbody>


    <?php
        $sql="Select * from `books` WHERE visibility='Non-Confidential' ORDER BY
`uploaded_on` DESC";
        $result=mysqli_query($con, $sql);
        if($result){
            // $row=mysqli_fetch_assoc($result);
            // echo $row['name'];
            // $row=mysqli_fetch_assoc($result);
            // echo $row['name'];
            while($row=mysqli_fetch_assoc($result)){
                $Book_ID=$row['Book_ID'];
                $book_title=$row['book_title'];
                $LINK=$row['LINK'];
                $book_type=$row['book_type'];
                echo '<tr>
                <th scope="row">'.$Book_ID.'</th>
                <td>'.$book_title.'</td>
                <td><a href="'.$LINK.'">'.$LINK.'</a></td>
                <td>'.$book_type.'</td>

              </tr>';
            }
        }
    ?>

        </tbody>
    </table>


    </div>

    <button class="btn btn-primary my-5"><a href="logout.php" class="text-
light">Logout</a></button>
</body>
</html>
```

2.2.3.4 When an admin user logs in, they gain access to the full e-book table within the admin dashboard, offering comprehensive control over the e-books repository. From this interface, the admin can perform a range of actions including editing, adding, and deleting content with ease. Suppose a user wishes to add a new book to the repository. In that case, they navigate to the designated section for adding new content within the admin dashboard. Here, the user is prompted to fill in essential details such as the book title, upload the book file, select the book type (whether it's a journal, e-book, article, or document), and set the visibility (whether it's exclusive to admin users or accessible to all users). Once all required information is provided and the book file is uploaded, the user submits the form, triggering the addition process. Behind the scenes, the system processes the submitted data, validates inputs, and updates the database accordingly, seamlessly integrating the new e-book into the repository. By streamlining the process of adding new content and offering a user-friendly interface within the admin dashboard, the platform empowers administrators to maintain and expand the e-books collection efficiently, ensuring a rich and diverse repository for users to explore.



localhost/ebooks/edit.php?editid=20

Book Title

abc hello

Upload File

Choose file No file chosen

Book Type

--Select Book Type--

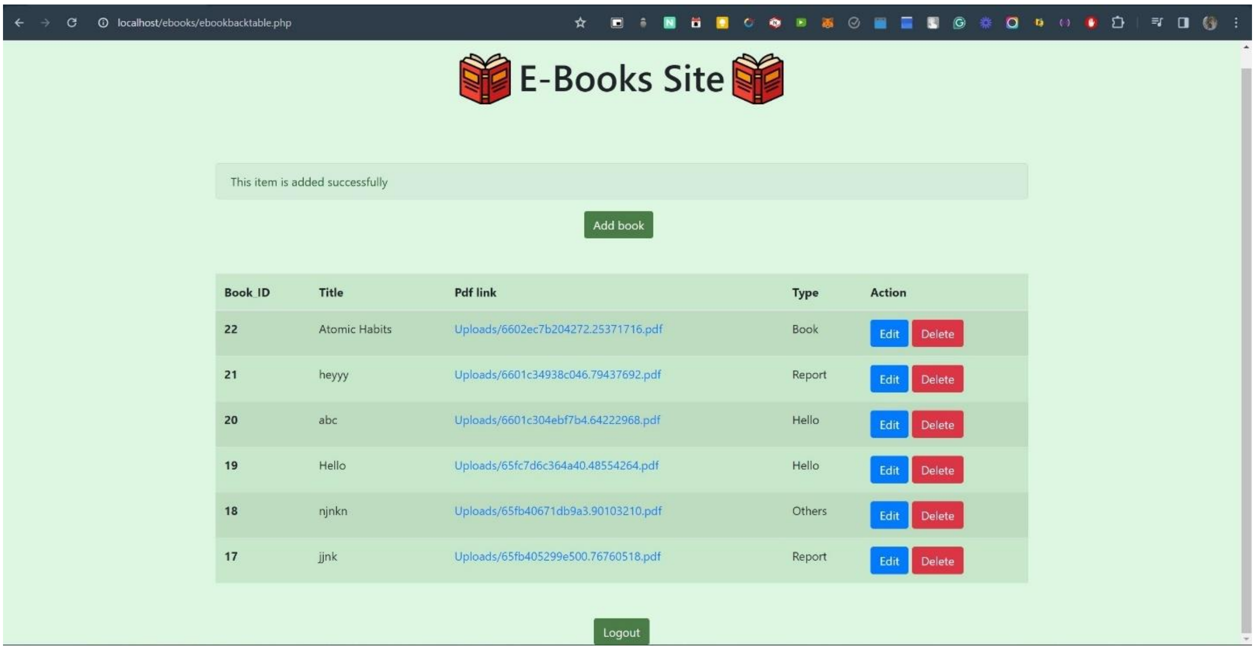
Visibility

--Select Visibilty--

Code for uploading documents form:

```
<?php
    ini_set('display_errors', 1);
    ini_set('display_startup_errors', 1);
    error_reporting(E_ALL);

    include 'connect.php';
    session_start();
    $Book_ID=$_GET['editid'];
    // for showing already putted data
    $sql="Select * from `books` where Book_ID=$Book_ID";
    $result=mysqli_query($con, $sql);
    $row=mysqli_fetch_assoc($result);
    $book_title=$row['book_title'];
    $LINK=$row['LINK'];

    if(isset($_POST['submit'])){
        $book_title=$_POST['book_title'];
        $LINK=$_POST['LINK'];

        $sql="update `books` set book_title='$book_title', LINK='$LINK' where 
Book_ID=$Book_ID";
        $result=mysqli_query($con, $sql);
        if($result){
            // echo "Updated successfully";
            $_SESSION['message'] = 'Book updated successfully';
            header('location:ebookbacktable.php');
        }
        else{
            die(mysqli_error($con));
        }
    }

?>

<!doctype html>
<html lang="en">
  <head>
    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-
fit=no">

    <!-- Bootstrap CSS -->
    <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.2/dist/css/bootstrap.min.css"
integrity="sha384-xOolHFLEh07PJGoPkLv1IbcEPTNtaed2xpHsD9ESMhqIYd0nLMwNLD69Npy4HI+N"
crossorigin="anonymous">

    <title>E-Books Library</title>
  </head>
  <body>
    <div class="container my-5">
    <form method="post">
        <div class="form-group">
            <label>Book Title</label>
            <input type="text" class="form-control" placeholder="Enter book title"
name="book_title" autocomplete="off" value=<?php echo $book_title;?>>
        </div>
        <div class="form-group">
            <label>Pdf Link</label>
            <input type="text" class="form-control" placeholder="Enter pdf link"
name="LINK" autocomplete="off" value=<?php echo $LINK;?>>
        </div>

        <button type="submit" class="btn btn-primary" name="submit" onclick="return
confirm('Are you sure you want to edit this item?')">Update</button>
    </form>
    </div>

  </body>
</html>
```

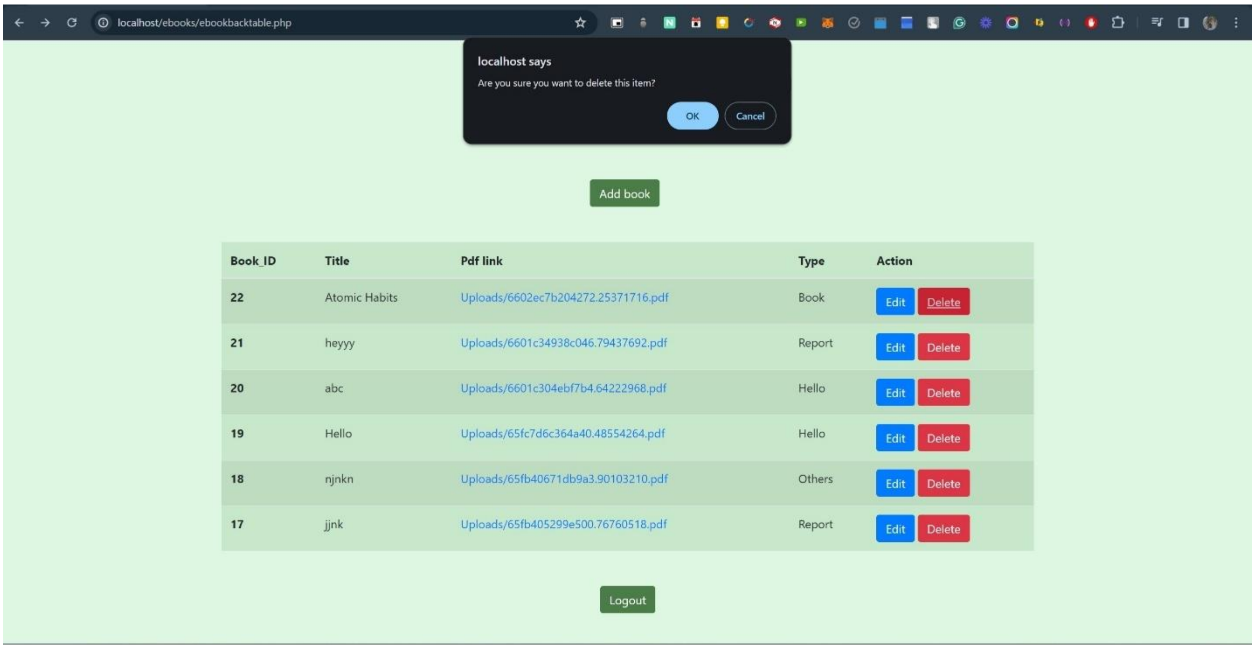
After a user enters the details of the book and uploads it, the system promptly updates the e-book table to reflect the new entry. Upon successful addition, the user is presented with an updated table displaying the newly added book entry alongside existing ones. Additionally, a prompt appears on the screen confirming that the item has been added successfully. This prompt serves as immediate feedback to the user, ensuring transparency and acknowledgment of their action. By providing real-time updates and clear feedback, the platform enhances user experience and fosters confidence in the system's responsiveness.



This item is added successfully

Book_ID	Title	Pdf link	Type	Action
22	Atomic Habits	Uploads/6602ec7b204272.25371716.pdf	Book	Edit Delete
21	heyyy	Uploads/6601c34938c046.79437692.pdf	Report	Edit Delete
20	abc	Uploads/6601c304ebf7b4.64222968.pdf	Hello	Edit Delete
19	Hello	Uploads/65fc7d6c364a40.48554264.pdf	Hello	Edit Delete
18	njnkn	Uploads/65fb40671db9a3.90103210.pdf	Others	Edit Delete
17	jjnk	Uploads/65fb405299e500.76760518.pdf	Report	Edit Delete

2.2.3.5 When a user wishes to delete an item, they can do so by utilizing the delete button present in the action menu corresponding to the item they want to remove. Upon clicking the delete button, a prompt appears on the screen asking, "Are you sure that you want to delete this item?" to confirm the deletion action. Once the user confirms their intention by clicking "OK," the system proceeds to execute the deletion process. Immediately after the deletion is completed, the e-book table is updated to reflect the removal of the specific entry. Additionally, a prompt appears on the screen, reassuring the user with the message "Book deleted successfully." This prompt serves as immediate feedback, confirming the successful execution of the deletion action and ensuring transparency in the system's operation. By providing clear prompts and real-time updates, the platform enhances user confidence and facilitates efficient management of the e-books repository.



localhost/ebooks/ebookbacktable.php

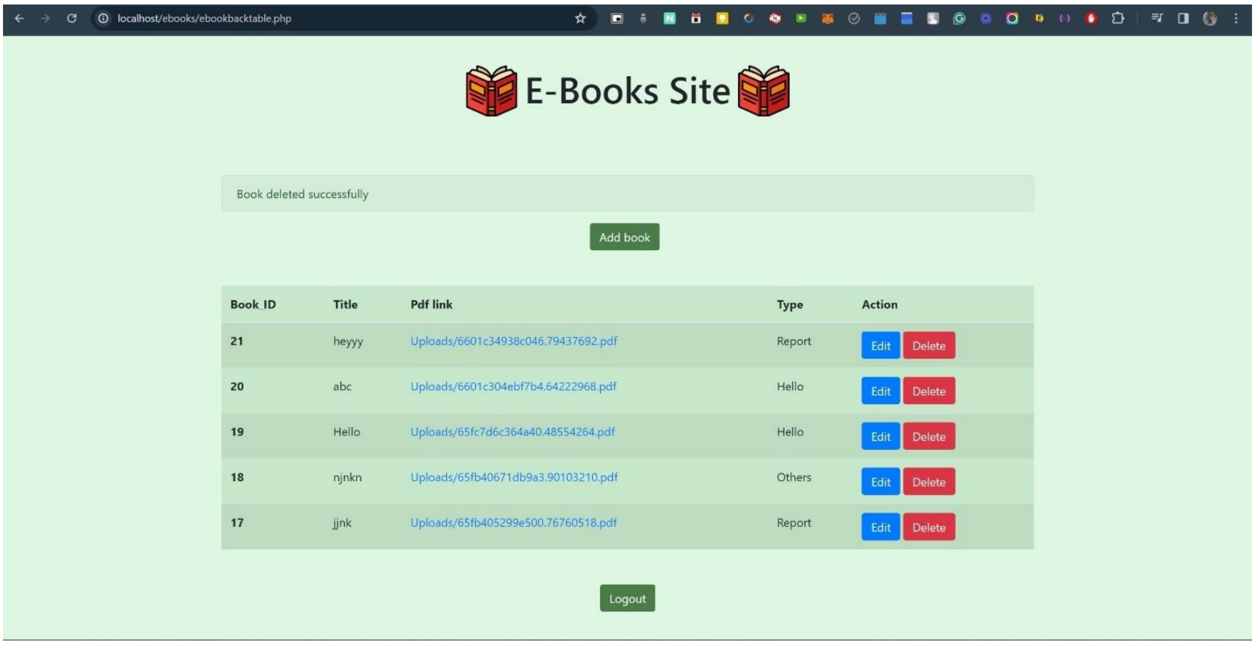
localhost says

Are you sure you want to delete this item?

Book_ID	Title	Pdf link	Type	Action
22	Atomic Habits	Uploads/6602ec7b204272.25371716.pdf	Book	Edit Delete
21	heyyy	Uploads/6601c34938c046.79437692.pdf	Report	Edit Delete
20	abc	Uploads/6601c304ebf7b4.64222968.pdf	Hello	Edit Delete
19	Hello	Uploads/65fc7d6c364a40.48554264.pdf	Hello	Edit Delete
18	njnkn	Uploads/65fb40671db9a3.90103210.pdf	Others	Edit Delete
17	jjnk	Uploads/65fb405299e500.76760518.pdf	Report	Edit Delete

Code for successful deletion of books:

```php
<?php
    include 'connect.php';
    session_start();

    if(isset($_GET['deleteid'])){
        $id=$_GET['deleteid'];

        $sql="delete from `books` where Book_ID=$id";
        $result=mysqli_query($con,$sql);
        if($result){
            // echo "Deleted successfull";
            $_SESSION['message'] = 'Book deleted successfully';
            header('location:ebookbacktable.php');
        }
        else{
            die(mysqli_error($con));
        }
    }

?>
```



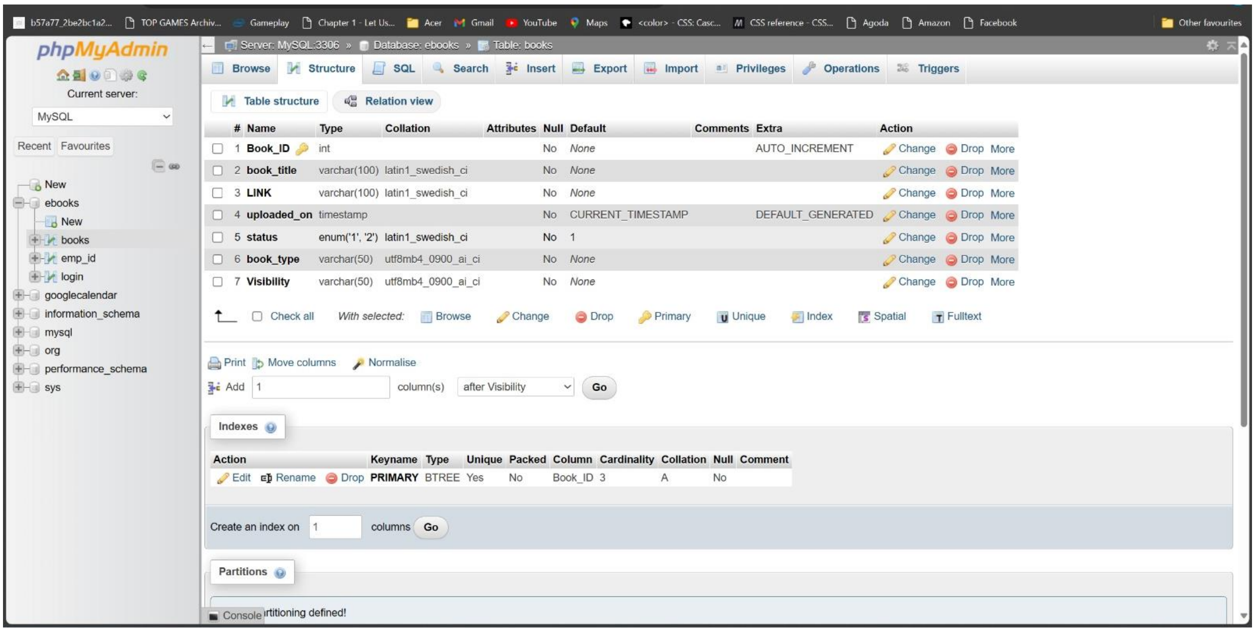
Book deleted successfully

Book ID	Title	Pdf link	Type	Action
21	heyyy	Uploads/6601c34938c046.79437692.pdf	Report	Edit Delete
20	abc	Uploads/6601c304ebf7b4.64222968.pdf	Hello	Edit Delete
19	Hello	Uploads/65fc7d6c364a40.48554264.pdf	Hello	Edit Delete
18	njnkn	Uploads/65fb40671db9a3.90103210.pdf	Others	Edit Delete
17	jjnk	Uploads/65fb405299e500.76760518.pdf	Report	Edit Delete

2.3. Databases and tables

Below are the examples of sample databases crafted using SQL, ingeniously integrated into our project's infrastructure. These databases serve as the foundation of our digital library, meticulously structured to house the diverse array of e-books within our virtual realm. They enable seamless organization, storage, and retrieval of e-book data, enhancing the user experience and administrative functionality of our platform:

2.3.1 books table



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Book_ID	int			No	None		AUTO_INCREMENT	Change Drop More
2	book_title	varchar(100)	latin1_swedish_ci		No	None			Change Drop More
3	LINK	varchar(100)	latin1_swedish_ci		No	None			Change Drop More
4	uploaded_on	timestamp			No	CURRENT_TIMESTAMP		DEFAULT_GENERATED	Change Drop More
5	status	enum('1', '2')	latin1_swedish_ci		No	1			Change Drop More
6	book_type	varchar(50)	utf8mb4_0900_ai_ci		No	None			Change Drop More
7	Visibility	varchar(50)	utf8mb4_0900_ai_ci		No	None			Change Drop More

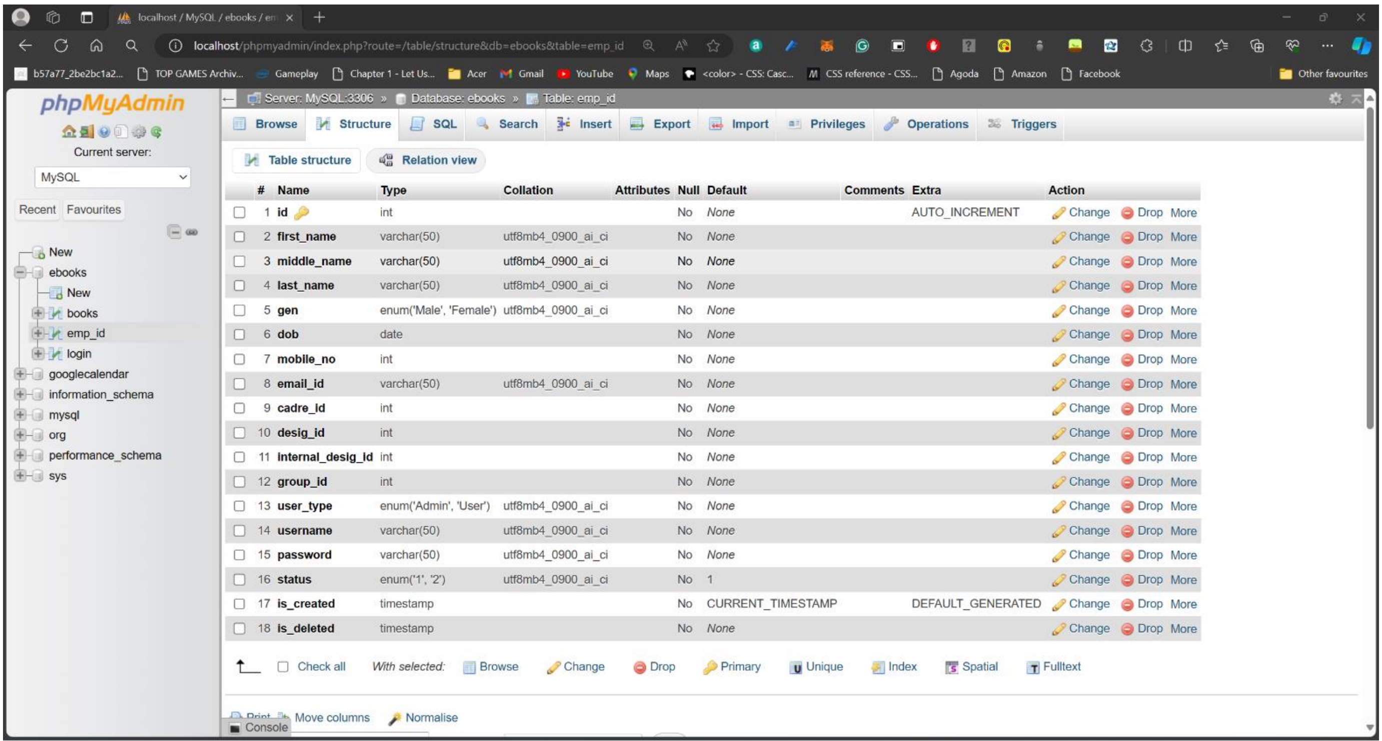
Add 1 column(s) after Visibility

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
Edit Rename Drop	PRIMARY	BTREE	Yes	No	Book_ID	3	A	No	

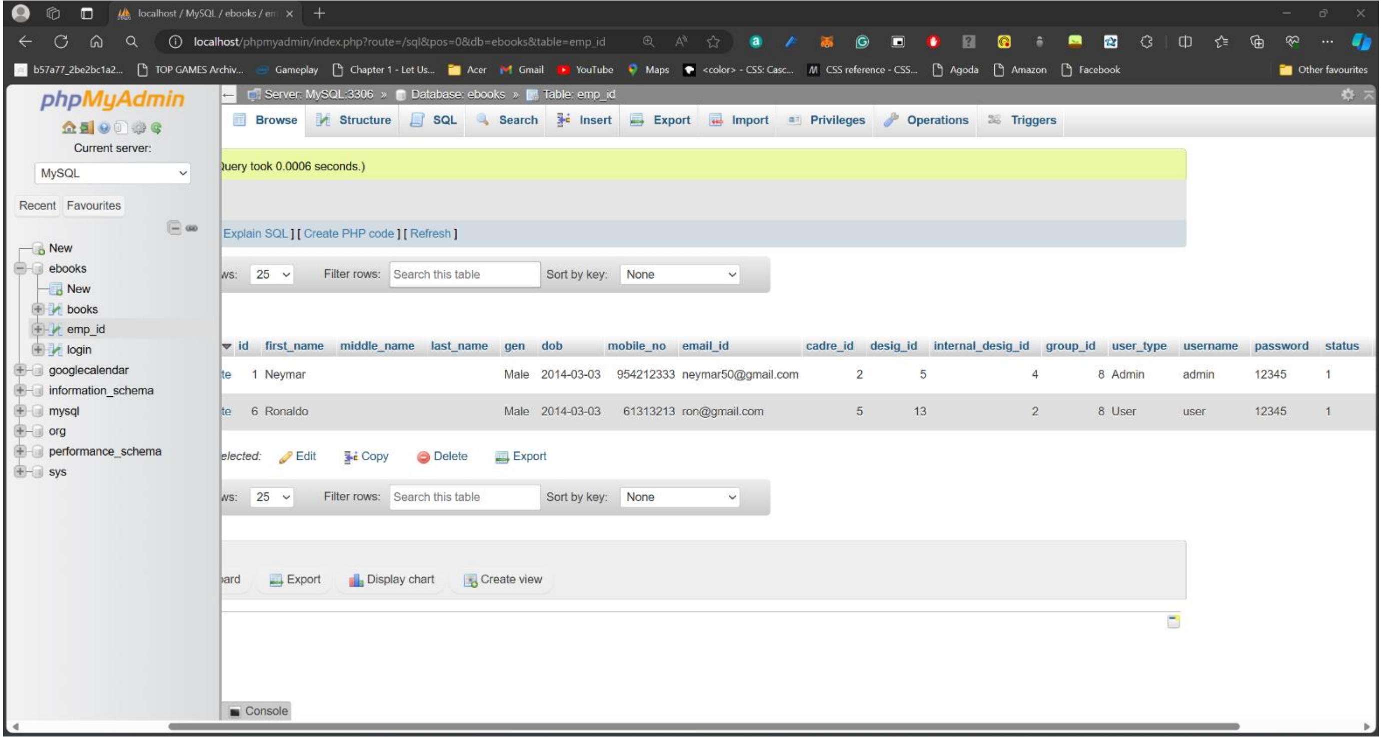
Create an index on 1 columns

rtitioning defined!

2.3.2 emp_id table



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	id	int			No	None		AUTO_INCREMENT	Change Drop More
2	first_name	varchar(50)	utf8mb4_0900_ai_ci		No	None			Change Drop More
3	middle_name	varchar(50)	utf8mb4_0900_ai_ci		No	None			Change Drop More
4	last_name	varchar(50)	utf8mb4_0900_ai_ci		No	None			Change Drop More
5	gen	enum('Male', 'Female')	utf8mb4_0900_ai_ci		No	None			Change Drop More
6	dob	date			No	None			Change Drop More
7	mobile_no	int			No	None			Change Drop More
8	email_id	varchar(50)	utf8mb4_0900_ai_ci		No	None			Change Drop More
9	cadre_id	int			No	None			Change Drop More
10	desig_id	int			No	None			Change Drop More
11	internal_desig_id	int			No	None			Change Drop More
12	group_id	int			No	None			Change Drop More
13	user_type	enum('Admin', 'User')	utf8mb4_0900_ai_ci		No	None			Change Drop More
14	username	varchar(50)	utf8mb4_0900_ai_ci		No	None			Change Drop More
15	password	varchar(50)	utf8mb4_0900_ai_ci		No	None			Change Drop More
16	status	enum('1', '2')	utf8mb4_0900_ai_ci		No	1			Change Drop More
17	is_created	timestamp			No	CURRENT_TIMESTAMP		DEFAULT_GENERATED	Change Drop More
18	is_deleted	timestamp			No	None			Change Drop More



uery took 0.0006 seconds.)

	id	first_name	middle_name	last_name	gen	dob	mobile_no	email_id	cadre_id	desig_id	internal_desig_id	group_id	user_type	username	password	status
te	1	Neymar			Male	2014-03-03	954212333	neymar50@gmail.com	2	5	4	8	Admin	admin	12345	1
te	6	Ronaldo			Male	2014-03-03	61313213	ron@gmail.com	5	13	2	8	User	user	12345	1

CHAPTER 03: CONCLUSION

In essence, the implementation of the TIRC tab represents a paradigm shift in the digital landscape, epitomizing the fusion of aesthetics and functionality to deliver a transformative user experience. Through its innovative design and seamless functionality, this code empowers users to embark on a journey of exploration and discovery, unlocking a world of knowledge at their fingertips. As users navigate through the intricacies of scholarly resources, SOPs, and e-books, they are enveloped in a digital oasis where curiosity knows no bounds and the pursuit of knowledge reigns supreme.

The development and implementation of the TIRC Software represent a significant milestone in advancing knowledge dissemination and fostering a culture of continuous learning within CFEES, DRDO. By addressing the challenges faced by personnel in accessing scholarly resources, the TIRC Software serves as a catalyst for research excellence and innovation in defense technologies. Through its user-friendly interface, efficient backend processes, and comprehensive access to e-resources, the module empowers personnel to stay abreast of advancements in their field and make informed contributions to research endeavors. Moreover, the project's relevance extends beyond the organization, aligning with national security objectives and demonstrating a commitment to advancing defense technologies for the greater good. As the TIRC Software becomes ingrained in the fabric of CFEES, its impact will continue to reverberate, shaping the future of research and development in defense technologies for years to come.

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