Library Management Simulation

- ***project documentation*** **-**

Student Name: Rețe David

Group Number: 30323

Automation, Year 2

Contents

Chapter 1. Introduction …….

1.1.1. Project theme …….
1.1.2. Tools used ……
1.1.3. Project requirements …….

Chapter 2. Design …….

2.2.1 User interface …….

2.2.2 Librarian interface ……..

Chapter 3. Code explained ……

Chapter 4. Bibliography …….

Chapter 1 – Introduction

1.1.1 Project presentation

For this project I choose to create a Library Management which is a simulation of a real world online library. We have the Homepage from where you can register if you want to become a new member. If you are already one you can simply access the login menu for both the members and the staff (librarians). The registration and login forms are basic containing some fields like username, email and password. For librarians however you just need a unique code to login which is already inserted into the database of the website. As a member you can borrow books. The librarian however can delete books, can update the state of the books ("available", "unavailable") or he can insert some new books.

1.1.2 Tools used

In making this website I implemented the concepts learned in class and I used several tools. Html, php and css were used in creating the design and the functionality of the website. For storing the data we used databases, creating tables and applying operations against the database.

1.1.3 Project requirements

Small website ☑

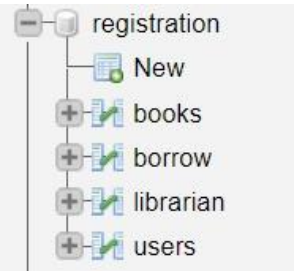
Communication with a database ☑

Written in HTML + PHP ☑

Authentication form ☑

Insert, update, delete and select (search) operations against the database ☑

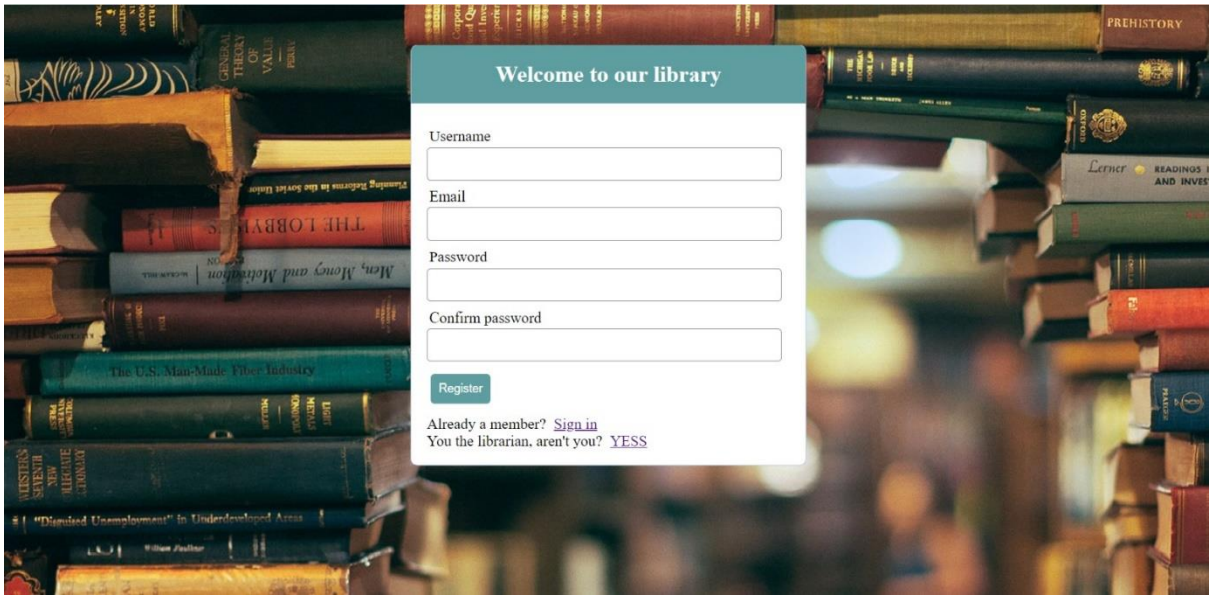
database containing at least 4 tables ☑



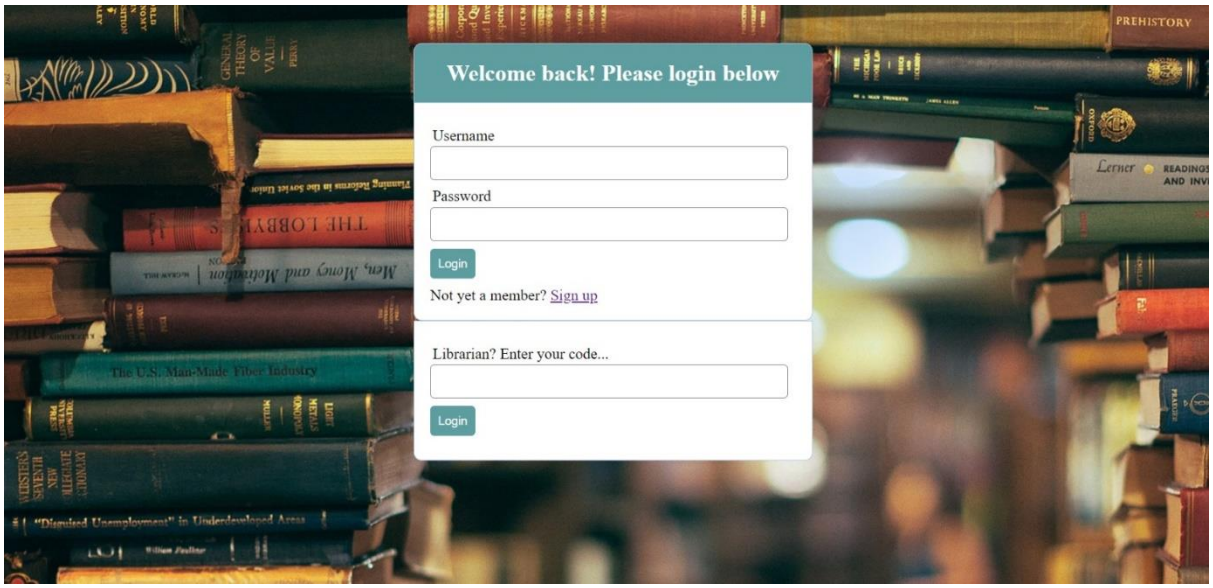
Chapter 2 – Design

2.2.1 User interface

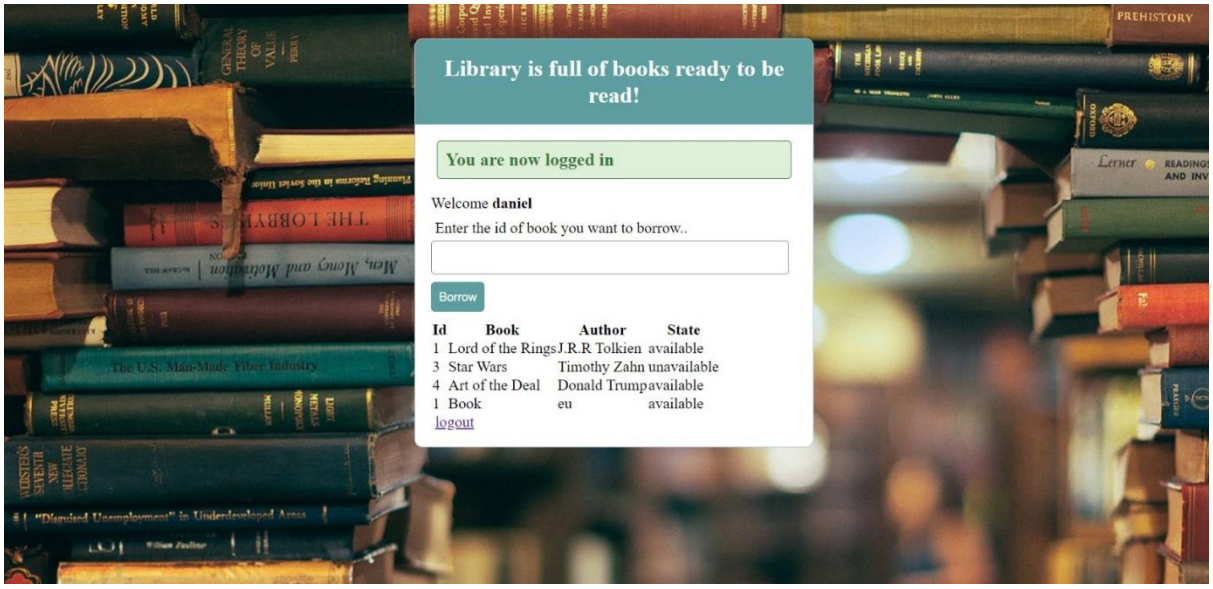
Registration from:



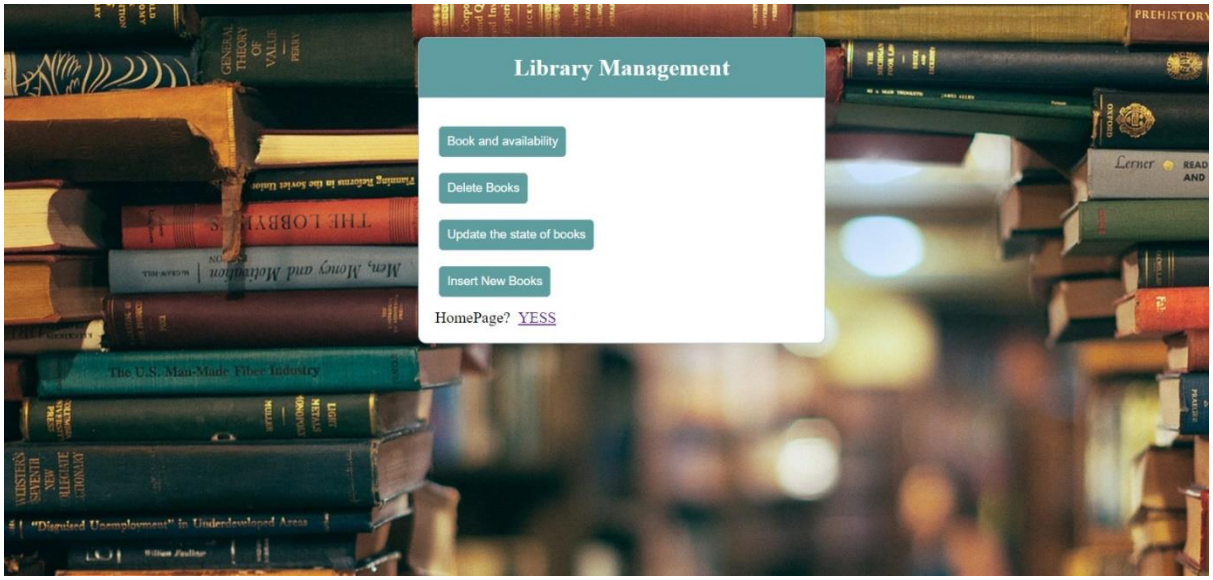
Login form:



Since you are logged in you can borrow books:



2.2.2 Librarian Interface:



Chapter 3 – Code explained

The code is divided into several .php files each of them having a precise role in developing the website, connecting to database and perform operations against the database.

Register.php

In this file, using html and css we create the design of the registration form:

```
<?php include('server.php') ?>
<!DOCTYPE html>
<html>
<head>
  <title>LIBRARY - Simulation</title>
  <link rel="stylesheet" type="text/css" href="style.css">
</head>
<body>
  <div class="header">
    <h2>Welcome to our library</h2>
  </div>
<style>
body{
  background-image: url('welcome.jpg');
}
</style>
  <form method="post" action="register.php">
    <?php include('errors.php'); ?>
    <div class="input-group">
      <label>Username</label>
      <input type="text" name="username" value="<?php echo $username; ?>">
    </div>
    <div class="input-group">
      <label>Email</label>
      <input type="email" name="email" value="<?php echo $email; ?>">
    </div>
    <div class="input-group">
      <label>Password</label>
      <input type="password" name="password_1">
    </div>
    <div class="input-group">
      <label>Confirm password</label>
```

Login.php

Same in this file, we create the design of the login form:

```
<?php include('server.php') ?>
<!DOCTYPE html>
<html>
<head>
  <title>LIBRARY - Simulation</title>
  <link rel="stylesheet" type="text/css" href="style.css">
</head>
<body>
  <div class="header">
    <h2>Welcome back! Please login below</h2>
  </div>
<style>
body{
  background-image: url('welcome.jpg');
}
</style>
  <form method="post" action="login.php">
    <?php include('errors.php'); ?>
    <div class="input-group">
      <label>Username</label>
      <input type="text" name="username" >
    </div>
    <div class="input-group">
      <label>Password</label>
      <input type="password" name="password">
    </div>
    <div class="input-group">
      <button type="submit" class="btn" name="login_user">Login</button>
    </div>
    <p>
      Not yet a member? <a href="register.php">Sign up</a>
    </p>
```

Server.php

Here we connect to the database and we perform actions depending on what button is pressed

```php
<?php
session_start();

$username = "";
$email    = "";
$errors = array();

// connect to the database
$db = mysqli_connect('localhost', 'root', 'samidavid2', 'registration');

// REGISTER USER
if (isset($_POST['reg_user'])) {

  $username = mysqli_real_escape_string($db, $_POST['username']);
  $email = mysqli_real_escape_string($db, $_POST['email']);
  $password_1 = mysqli_real_escape_string($db, $_POST['password_1']);
  $password_2 = mysqli_real_escape_string($db, $_POST['password_2']);


  if (empty($username)) { array_push($errors, "Username is required"); }
  if (empty($email)) { array_push($errors, "Email is required"); }
  if (empty($password_1)) { array_push($errors, "Password is required"); }
  if ($password_1 != $password_2) {
  array_push($errors, "The two passwords do not match");
  }


  $user_check_query ="SELECT * FROM users WHERE username='$username' OR email='$email' LIMIT 1";
  $result = mysqli_query($db, $user_check_query);
  $user = mysqli_fetch_assoc($result);

  if ($user) { // if user exists
```

For the **registration form** we verify that the username/email entered by the user for registration are different from the ones already existing in the database. We also verify the match between the password and the password entered for confirmation. If by mistake the user presses the login button without filling all the fields necessary they will receive a message (“username is required”/”email is required”/”password is required”). If everything is ok the information will be inserted into database.

```php
  if ($user) { // if user exists
    if ($user['username'] === $username) {
      array_push($errors, "Username already exists");
    }

    if ($user['email'] === $email) {
      array_push($errors, "email already exists");
    }
  }


  if (count($errors) == 0) {
    $password = md5($password_1);

    $query = "INSERT INTO `users` (username, email, password)
          VALUES('$username', '$email', '$password')";
    mysqli_query($db, $query);
    $_SESSION['username'] = $username;
    $_SESSION['success'] = "You are now logged in";
    header('location: index.php');
  }
}

// LOGIN USER
if (isset($_POST['login_user'])) {
```

For **login form** we verify the information entered by the user with the ones already existing/ stored into the database. If everything is ok index.php file will pop up and the logged in session will begin

```
  if ($user) { // if user exists
    if ($user['username'] === $username) {
      array_push($errors, "Username already exists");
    }

    if ($user['email'] === $email) {
      array_push($errors, "email already exists");
    }
  }


  if (count($errors) == 0) {
    $password = md5($password_1);

    $query = "INSERT INTO `users` (username, email, password)
          VALUES('$username', '$email', '$password')";
    mysqli_query($db, $query);
    $_SESSION['username'] = $username;
    $_SESSION['success'] = "You are now logged in";
    header('location: index.php');
  }
}

// LOGIN USER
if (isset($_POST['login_user'])) {
```

Same is for librarian login. The only difference is that the librarian has to enter a unique code which is already predefined into the database.

```
//LOGIN LIBRARIAN
if(isset($_POST['login_librarian'])){
  $code = mysqli_real_escape_string($db, $_POST['code']);

  if (empty($code)) {
    array_push($errors, "code is required");
  }
  $query = "SELECT * FROM librarian WHERE codes='$code'";
  $results = mysqli_query($db, $query);
  if (mysqli_num_rows($results) == 1) {
    $_SESSION['codes'] = $code;
    $_SESSION['success'] = "You are now logged in";
     header('location: index1.php');
  }
}
//SEE AVAILABILITY OF BOOKS -> FOR LIBRARIAN
if(isset($_POST['see_books'])){
  $_SESSION['success'] = "You are now logged in";
     header('location: index.php');
  }

//DELETE BOOKS -> LIBRARIAN
  if(isset($_POST['delete_books'])){
    $sql = "DELETE FROM books WHERE name='Book'";
  if(mysqli_query($db, $sql)){
```

Index.php

This file has the role to display all the existing books (the content of the books table) so the user can select the book they want to borrow. There is also a logout action that once performed will destroy the login session. If you want to borrow a book you have to enter the id of the book and then press the button ‘Borrow’. The id of the borrowed book will be inserted into borrow table.

```php
<?php
  session_start();

  if (isset($_GET['logout'])) {
    session_destroy();
    unset($_SESSION['username']);
    header("location: login.php");
  }
?>
<!DOCTYPE html>
<html>
<head>
  <title>LIBRARY - Simulation</title>
  <link rel="stylesheet" type="text/css" href="style.css">
</head>
<body>
<style>
body{
  background-image: url('welcome.jpg');
}
</style>
<div class="header">
  <h2>Library is full of books ready to be read!</h2>
</div>

<div class="content">


    <?php if (isset($_SESSION['success'])) : ?>
      <div class="error success" >
        <h3>
          <?php
```

```php
  <?php if (isset($_SESSION['success'])) : ?>
    <div class="error success" >
      <h3>
        <?php
          echo $_SESSION['success'];
          unset($_SESSION['success']);
        ?>
      </h3>
    </div>
  <?php endif ?>


  <?php  if (isset($_SESSION['username'])) : ?>
    <p>Welcome <strong><?php echo $_SESSION['username']; ?></strong></p>

  <?php endif ?>

  <!-- insert books table into form-->
  <div class="input-group">
    <label style="margin:5px;">Enter the id of book you want to borrow..</label>
    <input type="text" name="borrow_id" value="<?php echo $borrow_id; ?>">

    <div class="input-group">
    <button type="submit" class="btn" name="borrow_btn">Borrow</button>

  </div>
</div>
```

```php
<th>Id </th>
<th>Book</th>
<th>Author</th>
<th>State</th>
<?php
  $conn = mysqli_connect("localhost", "root", "samidavid2", "registration");

  if ($conn->connect_error) {
  die("Connection failed: " . $conn->connect_error);
  }
  $sql = "SELECT id, name, author, state FROM books";

  $result = $conn->query($sql);
  if ($result->num_rows > 0) {
  // output data of each row
  while($row = $result->fetch_assoc()) {
  echo "<tr><td>" . $row["id"]. "</td><td>" . $row["name"] . "</td><td>"
  . $row["author"]. "</td><td>" . $row["state"] . "</td></tr>";
  }
  echo "</table>";
  } else { echo "0 results"; }

 ?>
</table>

<!-- logout action-->
<?php  if (isset($_SESSION['username'])) : ?>

    <p> <a style="margin:5px;" href="index.php?logout='1'" style="color: red;" >logout</a> </p>
  <?php endif ?>
```

Chapter 4 – Bibliography

https://www.w3schools.com/php/php_mysql_intro.asp

https://www.php.net/manual/ro/book.mysql.php

https://www.w3schools.com/css/

https://www.w3schools.com/html/

http://users.utcluj.ro/~dmitrea/Pagina_persDM/labs/DB_Laboratory.pdf

http://users.utcluj.ro/~dmitrea/Pagina_persDM/labs/DB_LaboratoryGuide.pdf

http://users.utcluj.ro/~dmitrea/Pagina_persDM/labs/DB_Lab_Models/