RECIPE COOKBOOK: AN INNOVATIVE RECIPE MANAGEMENT SYSTEM

A MINI PROJECT REPORT

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In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE

RAJALAKSHMI ENGINEERING COLLEGE (AUTONOMOUS)

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2023 – 24

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ABSTRACT

The "Recipe Cookbook" project is designed as a comprehensive Recipe Management System, aimed at simplifying the process of creating, organizing, and accessing recipes. Leveraging technologies such as PHP, SQL, Bootstrap, HTML, CSS, and JavaScript, this system offers an intuitive platform for both novice and experienced cooks.

The primary objective of the project is to provide users with a seamless experience in managing their culinary collections. Users can easily build recipes by selecting ingredients from extensive ingredient lists provided within the system. The platform supports versatile grouping options, making it straightforward to keep recipes well-organized. Additionally, users can add dietary information to recipes, enhancing the system's utility for those with specific dietary needs.

Key modules in the system include user management, recipe management, rating and feedback, image management, search and filter, and responsive design. These modules cover functionalities such as registration, login, profile management, creation, viewing, editing, deletion of recipes, and user interaction through a star rating system and AJAX-based feedback processing.

The development process encountered challenges like ensuring seamless integration of various technologies and maintaining a user-friendly interface. However, user feedback has been overwhelmingly positive, highlighting the system's ease of use and the value it adds to their cooking experiences. In conclusion, the Recipe Cookbook project delivers a robust, user-centric platform for recipe management, demonstrating significant potential for further enhancements and broader applications in the culinary domain.

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1. INTRODUCTION

1.1 INTRODUCTION

The "Recipe Cookbook" project is a web-based application designed to help users manage and share their culinary creations. With the increasing popularity of cooking and the desire to explore new recipes, there is a growing need for a digital platform that allows users to store, organize, and share their recipes easily. This project addresses this need by providing a comprehensive system that integrates various features to enhance the user experience.

The Recipe Cookbook offers users the ability to create, view, edit, and delete recipes. It includes functionalities such as user registration and login, ingredient management, recipe rating, and the ability to upload and display images. The application is designed to be responsive, ensuring that it can be used effectively on different devices, including desktops, tablets, and smartphones. By leveraging modern web technologies, the Recipe Cookbook aims to provide a user-friendly and efficient platform for culinary enthusiasts.

1.2 OBJECTIVES

The primary objectives of the Recipe Cookbook project are as follows:

- User-Friendly Interface:

i) Design an intuitive and easy-to-navigate user interface that allows users to manage their recipes efficiently

- Recipe Management:

i) Provide functionalities for users to create, edit, view, and delete recipes.
ii) Allow users to organize recipes into categories for better management.

- Ingredient Management:

i) Enable users to add, edit, and delete ingredients associated with their recipes.
ii) Maintain a comprehensive list of ingredients to facilitate recipe creation.

- Image Upload and Display:

i) Allow users to upload images of their recipes, enhancing the visual appeal and providing a better user experience.
ii) Ensure that images are stored and displayed appropriately within the recipe details

- User Authentication:

i) Implement secure user registration and login functionalities to ensure that only authorized users can access and manage recipes.
ii) Provide session management to maintain user authentication state.

- Recipe Rating and Feedback:

i) Implement a rating system that allows users to rate recipes on a scale of 1 to 5 stars.
ii) Enable users to leave comments and feedback on recipes.

- Responsive Design:

i) Ensure that the application is fully responsive, providing an optimal user experience across various devices and screen sizes.

- Search and Filter:

i) Implement search functionality to allow users to find recipes based on keywords.
ii) Provide filtering options to help users narrow down search results based on specific criteria (e.g., diet type, difficulty level).

1.3 MODULES

The Recipe Cookbook project is divided into several modules, each responsible for different aspects of the system. The key modules are as follows:

- User Management Module:

i) Registration: Allows new users to create an account by providing their details.
ii) Login: Authenticates users based on their credentials and provides access to the system
iii) Logout: Allows users to securely log out of the application.
iv) Profile Management: Enables users to view and update their profile information.

- Recipe Management Module:

i) Create Recipe: Allows users to create new recipes by providing details such as name, description, ingredients, and instructions
ii) Edit Recipe: Enables users to update existing recipes.
iii) View Recipe: Displays recipe details, including ingredients, instructions, and images.
iv) Delete Recipe: Allows users to delete recipes they no longer need.

- Ingredient Management Module:

i) Add Ingredient: Enables users to add ingredients to the system, specifying quantities and units.
ii) Edit Ingredient: Allows users to update ingredient details.
iii) Delete Ingredient: Provides functionality to remove ingredients from the system.

- Image Management Module:

i) Upload Image: Allows users to upload images associated with their recipes.
ii) Display Image: Ensures that uploaded images are displayed appropriately within the recipe details.

- Rating and Feedback Module:

i) Rate Recipe: Enables users to rate recipes on a scale of 1 to 5 stars.
ii) Comment on Recipe: Allows users to leave comments and feedback on recipes.

- Search and Filter Module:

i) Search: Provides functionality for users to search for recipes based on keywords.
ii) Filter: Enables users to filter search results based on specific criteria such as diet type, difficulty level, and rating.

- Responsive Design Module:

i) Responsive Layout: Ensures that the application layout adjusts to different screen sizes and devices.
ii) Mobile Compatibility: Provides optimal user experience on mobile devices through responsive design techniques.

2. SURVEY OF TECHNOLOGIES

2.1 SOFTWARE DESCRIPTION

The Recipe Cookbook project utilizes various software technologies to ensure a robust and scalable system. The core technologies include PHP for server-side scripting, SQL for database management, and Bootstrap for responsive design.

2.2 LANGUAGES

The Recipe Cookbook project leveraged several programming languages and technologies to build the system. Each language was chosen for its specific strengths and contributions to different aspects of the project.

2.2.1 PHP

PHP (Hypertext Preprocessor) is a widely-used open-source scripting language suited for web development. It was employed for server-side scripting to handle data processing, database interactions, and dynamic content generation. Key features of PHP utilized in this project include:

- Server-side scripting
- Form handling
- Database connectivity using MySQL
- Session management

2.2.2 SQL

SQL (Structured Query Language) is used for managing and manipulating relational databases. The project used SQL to interact with the MySQL database for various CRUD (Create, Read, Update, Delete) operations. Key SQL functionalities include:

- Data definition and manipulation (DDL and DML)
- Querying the database
- Data normalization and integrity constraints

2.2.3 HTML

HTML (HyperText Markup Language) is the standard language for creating web pages. It was used to structure the content of the Recipe Cookbook application. Key features of HTML utilized in this project include:

- Page structuring with elements like headings, paragraphs, lists, and forms
- Embedding images and media
- Creating links and navigation

2.2.4 CSS

CSS (Cascading Style Sheets) is used to style and layout web pages. CSS was employed to ensure that the Recipe Cookbook had an attractive and responsive design. Key CSS features utilized in this project include:

- Layout design using Flexbox and Grid
- Styling of HTML elements (e.g., colors, fonts, spacing)
- Responsive design techniques for various devices

2.2.5 JAVASCRIPT

JavaScript is a versatile programming language used for adding interactivity to web pages. In this project, JavaScript was used for client-side scripting to enhance user experience. Key JavaScript features utilized include:

- DOM manipulation for dynamic content updates
- Event handling (e.g., form validation, button clicks)
- AJAX for asynchronous data loading

2.2.6 JQUERY

jQuery is a fast, small, and feature-rich JavaScript library. It simplifies tasks like HTML document traversal and manipulation, event handling, and AJAX interactions. Key jQuery functionalities used in this project include:

- Simplified AJAX requests
- DOM manipulation and traversal
- Enhancing user interface elements (e.g., animations, effects)

2.2.7 BOOTSTRAP

Bootstrap is a popular front-end framework for developing responsive and mobile-first web projects. It was used to design and develop a responsive layout for the Recipe Cookbook. Key Bootstrap features utilized in this project include:

- Grid system for responsive design
- Pre-designed components like navbars, buttons, and forms
- Utility classes for spacing, alignment, and typography

These languages and technologies were chosen for their robustness, community support, and ability to deliver a seamless user experience. The integration of these technologies resulted in a functional and efficient Recipe Cookbook application.

3. REQUIREMENTS AND ANALYSIS

3.1 REQUIREMENT SPECIFICATION

- User Requirements:

  The system should be accessible via web browsers and mobile devices. Users should be able to create, edit, and delete recipes, add diet information, and upload images.

- System Requirements:

  The system should ensure data integrity and provide a secure environment for user information.

3.2 HARDWARE AND SOFTWARE REQUIREMENTS

- Hardware:

  i) Server with minimum 4GB RAM and 100GB storage.
  ii) Client devices with internet access.

- Software:

  i) Operating System: Linux/Windows
  ii) Web Server: Apache
  iii) Database: MySQL
  iv) Languages: PHP, SQL, HTML, CSS, JavaScript
  v) Frameworks: Bootstrap

3.3 ARCHITECTURE DIAGRAM

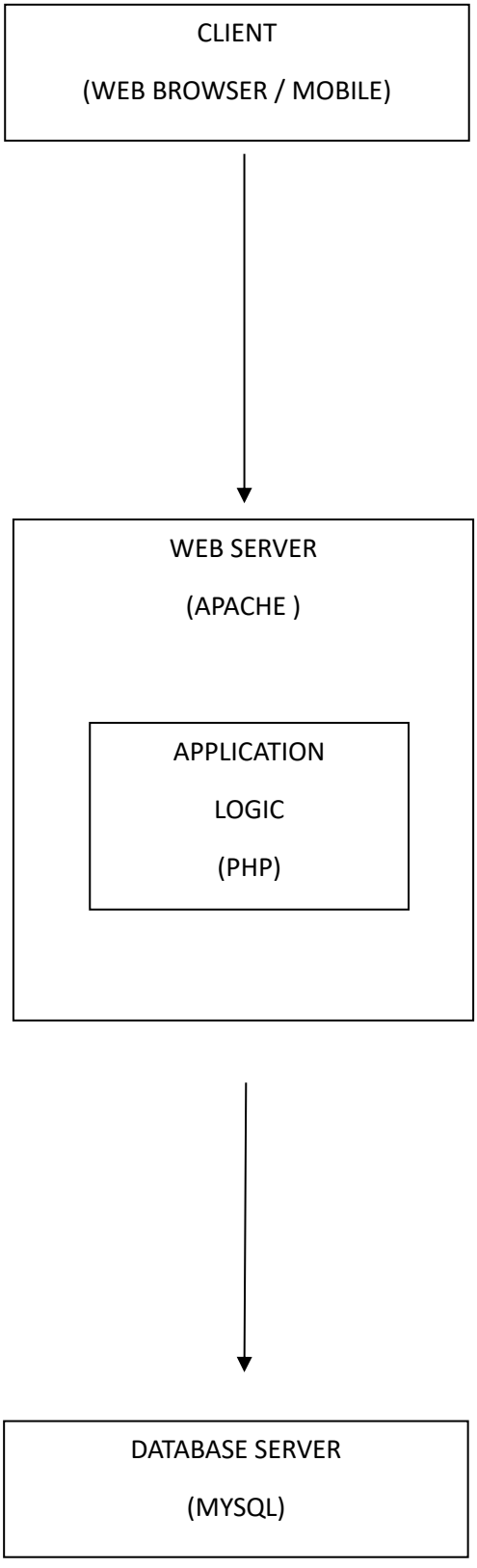

Fig 3.3.1 – Architecture Diagram

- Client (Web Browser/Mobile)

    i) Users interact with the system through a web browser or mobile device.

    ii) The frontend is built using HTML, CSS, JavaScript, and Bootstrap for responsive design.

- Web Server (Apache/Nginx)

    The web server handles incoming HTTP requests from the client.
    It processes these requests and interacts with the application logic.

- Application Logic (PHP)

    i) PHP scripts process the client requests, perform necessary operations, and generate dynamic content.

    ii) It handles user authentication, recipe management, image uploading, and interaction with the database.

- Database Server (MySQL)

    i) Stores all the recipe data, user information, and other relevant data.

    ii) The PHP application communicates with the MySQL database to store, retrieve, update, and delete data as required.

This architecture ensures a clear separation of concerns, with the web server handling client requests, the application logic processing the requests, and the database server managing data storage and retrieval. This setup allows for a scalable and maintainable system.

3.4 ER DIAGRAM

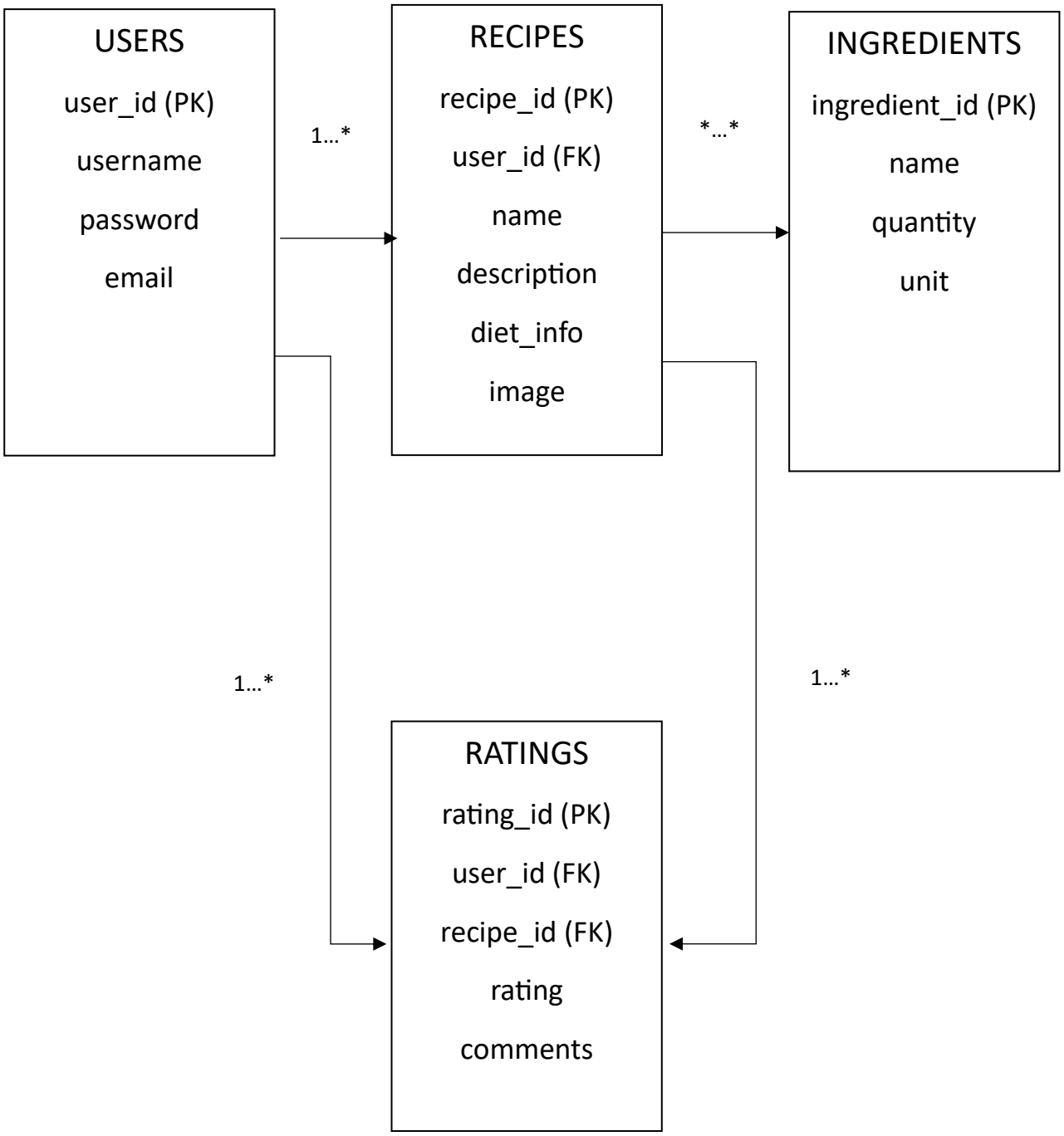

Fig 3.4.1 – ER Diagram

4. PROGRAM CODE

```
<?php
include('connection/connect.php');

 session_start(); //session started by unique user_id

error_reporting(0);                                                    //
for printing the  text
  $sql = "SELECT * FROM signup where user_id='".$_SESSION["user_id"]."'";
  $result = mysqli_query($db, $sql);
  $row = mysqli_fetch_array($result);
  $name=$row['firstname'];

  if($_SESSION["user_id"]==0)
  {
      $none='none';
  }

?>

<!DOCTYPE html>
<html>
<head>
    <meta charset="UTF-8">
    <title>Food &amp;amp; Recipes Web Template</title>
    <link rel="stylesheet" type="text/css" href="css/style.css">
<link href="rating.css" rel="stylesheet" type="text/css">
<script src="https://ajax.googleapis.com/ajax/libs/jquery/1.11.3/jquery.min.js"></script>
<script type="text/javascript" src="rating.js"></script>
<script language="javascript" type="text/javascript">
$(function() {
    $("#rating_star").codexworld_rating_widget({
        starLength: '5',
        initialValue: '',
        callbackFunctionName: 'processRating',
        imageDirectory: 'images/',
        inputAttr: 'postID'
    });
});

function processRating(val, attrVal){
    $.ajax({
        type: 'POST',
        url: 'rating.php',
        data: 'postID='+attrVal+'&ratingPoints='+val,
        dataType: 'json',
```

```
        success : function(data) {
            if (data.status == 'ok') {
                alert('You have rated '+val+' to CodexWorld');
                $('#avgrat').text(data.average_rating);
                $('#totalrat').text(data.rating_number);
            }else{
                alert('Some problem occured, please try again.');
            }
        }
    });
}
</script>
<style type="text/css">
    .overall-rating{font-size: 14px;margin-top: 5px;color: #8e8d8d;}
</style>
</head>
<body>
    <div class="header">
        <div>
            <a href="index.php"><img src="images/logo.png" alt="Logo"></a>
        </div>


    </div>
    <div  style="background-color:;margin:auto;min-height:20px;display:<?php echo
$none;?>;">
    <div  style="background-color:;margin-left:200px;width:950px;min-height:30px;">
    <p style='float:left;color:#449c3a;margin-left:10px;font-size:20px;'>You successfully
login!</p>
        <p style='float:right;color:#fff;margin-left:px;font-size:20px;'>Welcome:<span
style='margin-right:0px;display:inline-block;margin-right:5px;'><?php echo $name ?></span>
            <image src='images/user.png'  style='display:inline-
block;height:20px;width:20px;margin-top:5px;margin-right:5px;'/>
    </div>
    </div>
    <div class="body">

        <div>
            <div class="header">
                <ul>
                    <li class="current">
                        <a href="index.php">Home</a>
                    </li>
                    <li>
                        <a href="recipes.php">Recipes</a>
                    </li>
                    <li>
                            <a href="featured.php">Recipe of Month</a>
```

```
                    </li>

                    <li>
                        <a href="about.php">About</a>
                    </li>
                        <?php
                        if(empty($_SESSION["user_id"]))
                            {
                                echo '<li><a href="login.php">login</a></li>';
                                echo '<li><a href="signup.php">signup</a></li>';
                            }
                        else
                            {



                                    $logout= '<form action="login.php" method="post" >
                                    <input type="submit" id="logout" name="logout"
value="logout" style="width:100px;color:#000;border:none;padding:5px;font-
size:15px;"  ></form>';
                            }

                        ?>

                </ul>
            </div>
            <div class="body">
                <div>
                    <a href="index.php"><img src="images/turkey.jpg" alt="Image"></a>
                </div>
                <ul>
                    <li class="current">
                        <a href="blog.php"><img src="images/holi-turkey.jpg"
alt="Image"></a>
                        <div>
                            <h2><a href="blog.php">Holy Turkey</a></h2>
                            <p>
                                Tuck wings under turkey

                            </p>
                        </div>
                    </li>
                    <li>
                        <a href="blog.php"><img src="images/fruits-and-bread.jpg"
alt="Image"></a>
                        <div>
                            <h2><a href="blog.php">Fruits &amp; Bread</a></h2>
                            <p>
```

```
                            Fresh Fruit Bread Recipe
                        </p>
                    </div>
                </li>
                <li>
                    <a href="blog.php"><img src="images/dessert.jpg" alt="Image"></a>
                    <div>
                        <h2><a href="blog.php">Dessert</a></h2>
                        <p>
                            5 Quick-and-Easy Dessert Recipes
                        </p>
                    </div>
                </li>
            </ul>
        </div>
        <div class="footer">
            <ul>
            <li>
                    <h2><a href="recipes.php"> Recipes</a></h2>
                    <a href="recipes.php"><img src="images/a-z.jpg" alt="Image"></a>
                </li>
                <li>
                    <h2><a href="featured.php">Featured Recipes</a></h2>
                    <a href="featured.php"><img src="images/featured.jpg"
alt="Image"></a>
                </li>

            </ul>
            <ul>
                <li>
                    <h2><a href="videos.php">Videos</a></h2>
                    <a href="videos.php"><img src="images/videos.jpg" alt="Image"></a>
                </li>
                <li>
                    <h2><a href="blog.php">Blog</a></h2>
                    <a href="blog.php"><img src="images/blog.jpg" alt="Image"></a>
                </li>
            </ul>
        </div>
    </div>
    <div>
        <div>
            <h3>Cooking Video</h3>
            <a href="videos.php"><img src="images/cooking-video.png" alt="Image"></a>
            <span>Vegetable &amp;amp; Rice Topping</span>
        </div>
        <div>
            <h3>Featured Recipes</h3>
```

```
                <ul id="featured">
                    <li>
                        <a href="recipes.php"><img src="images/sandwich.jpg"
alt="Image"></a>
                        <div>
                            <h2><a href="recipes.php">Ham Sandwich</a></h2>
                            <span>by: Anna</span>
                        </div>
                    </li>
                    <li>
                        <a href="recipes.php"><img src="images/biscuit-and-coffee.jpg"
alt="Image"></a>
                        <div>
                            <h2><a href="recipes.php">Biscuit &amp;amp; Sandwich</a></h2>
                            <span>by: Sarah</span>
                        </div>
                    </li>
                    <li>
                        <a href="recipes.php"><img src="images/pizza.jpg" alt="Image"></a>
                        <div>
                            <h2><a href="recipes.php">Delicious Pizza</a></h2>
                            <span>by: Rico</span>
                        </div>
                    </li>
                </ul>
            </div>


            <div style="display:<?php echo $none;?>;">
                <h3>Settings</h3>
                <a href="#"  ><?php echo $logout;?></a>


            </div>
        </div>
    </div>
</body>
</html>
```

5. RESULTS AND DISCUSSION

5.1 FUNCTIONALITY OF THE PROJECT

The Recipe Cookbook project aimed to create a comprehensive system for managing and sharing recipes. The main functionalities developed are as follows:

- User Registration and Authentication:

Fig 5.1.1 – User Registration

Fig 5.1.2 – User Authentication

i) Users can register for an account by providing their details.

ii) Users can log in and log out securely using their credentials.

- Recipe Management:

Fig 5.1.3 – Recipe Management

i) Users can create, view, update, and delete their recipes.

ii) Each recipe includes detailed information such as name, description, diet information, and images.

iii) Recipes are organized by various categories for easy navigation.

- Ingredient Management:

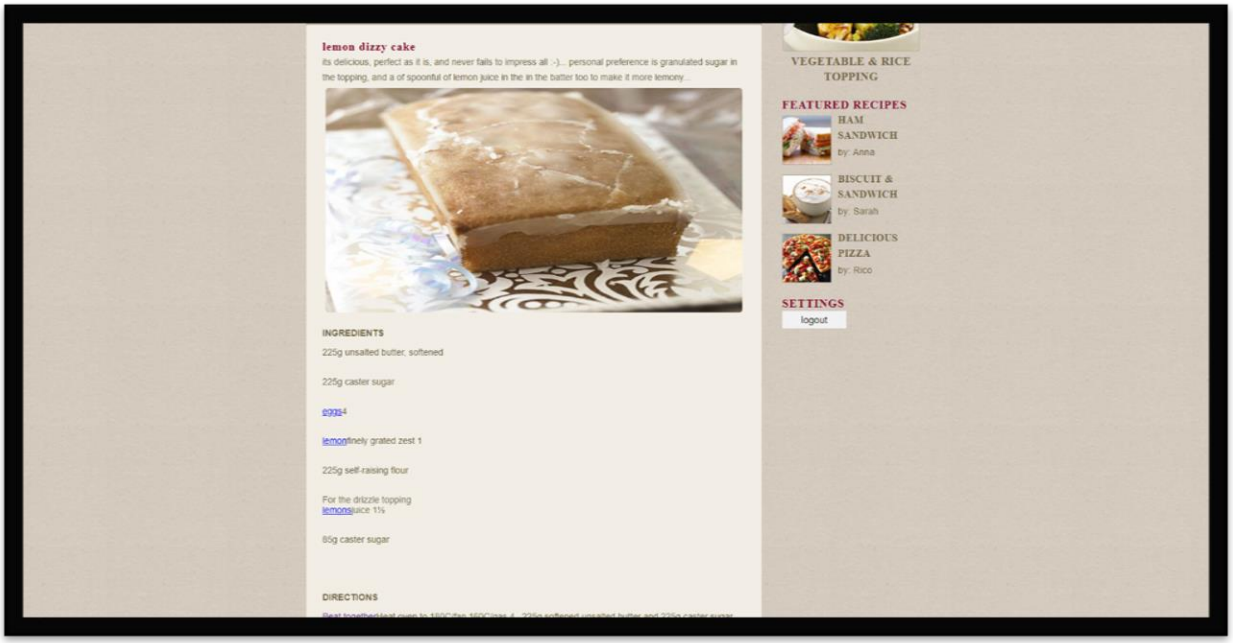

Fig 5.1.4 – Ingredient Mangement

i) Users can select ingredients from a comprehensive list while creating or editing recipes.

ii) Each ingredient is associated with specific quantities and units

- Recipe Rating System:

Fig 5.1.5 – Rating System

i) Users can rate recipes on a scale of 1 to 5 stars.

ii) Users can leave comments on recipes, providing feedback and suggestions.

- Responsive Design:

  The system is designed to be responsive, ensuring usability on various devices such as desktops, tablets, and mobile phones.

- Image Upload:

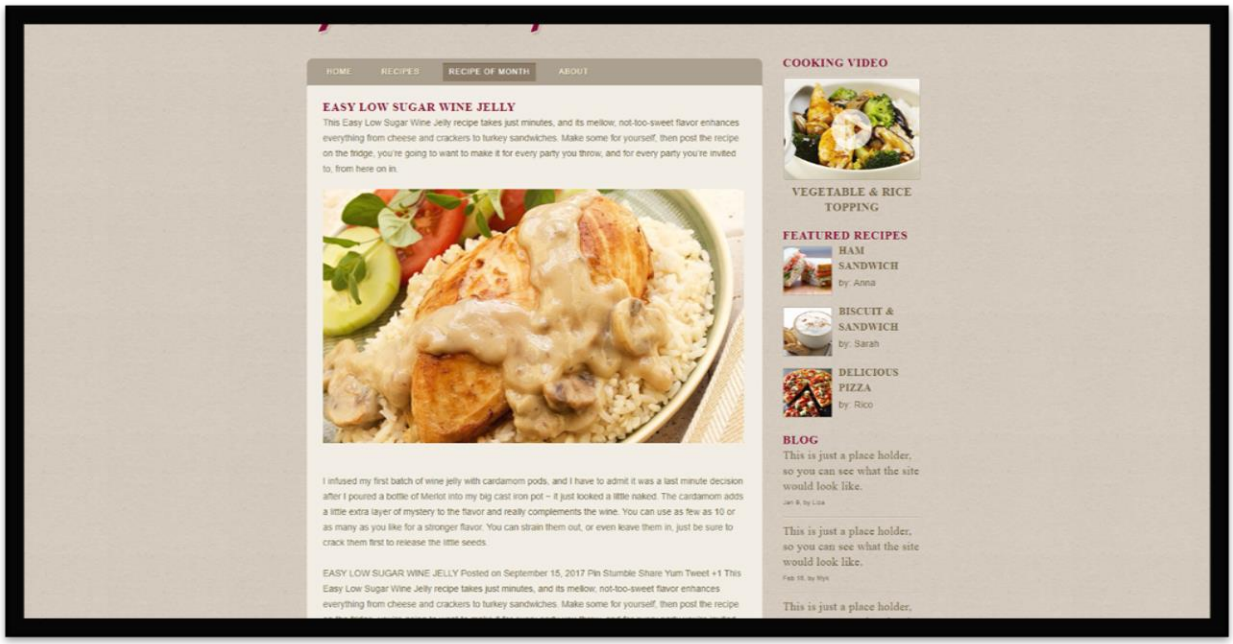

Fig 5.1.6 – Image Upload

i) Users can upload images of their recipes, enhancing the visual appeal and providing a better user experience.

ii) Images are stored and displayed appropriately within the recipe details.

- Search and Filter:

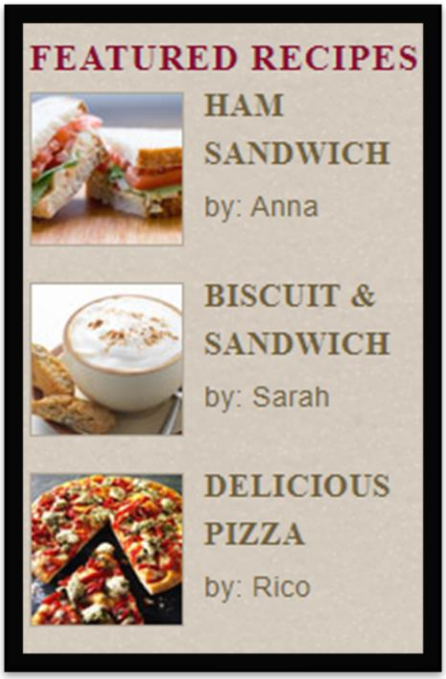

Fig 5.1.7 - Search

i) Users can search for recipes based on keywords.

ii) Filtering options allow users to find recipes that match specific criteria (e.g., diet type).

5.2 USER FEEDBACK

User feedback was collected during the testing phase of the project. Here are some highlights:

- Positive Feedback:

i) Ease of Use: Users appreciated the intuitive interface and found it easy to navigate through the various features.

ii) Functionality: The ability to manage recipes and ingredients effectively was highly valued.

iii) Visual Appeal: Users liked the clean and visually appealing design, especially the use of images.

- Areas for Improvement:

i) Search Functionality: Some users suggested enhancing the search functionality to include more filters.

ii) Recipe Sharing: Users expressed a desire for features to share recipes on social media platforms.

iii) Diet Information: Some users suggested more detailed diet information and the inclusion of additional diet types.

5.3 CHALLENGES FACED DURING DEVELOPMENT

- Integration of Components:

i) Integrating different components such as user authentication, recipe management, and image uploading presented challenges in ensuring seamless communication between modules.

ii) Solution: Careful planning and use of consistent coding standards helped mitigate integration issues.

- Database Design:

i) Designing a normalized database to handle complex relationships between users, recipes, ingredients, and ratings was challenging.

ii) Solution: Iterative testing and refinement of the database schema ensured a robust and efficient database design.

- Responsive Design:

i) Ensuring that the web application was fully responsive across different devices required extensive testing and adjustments to CSS and layout.

ii) Solution: Utilizing Bootstrap and thorough testing on various devices helped achieve a responsive design.

- Security Concerns:

i) Implementing secure user authentication and data protection measures was crucial to protect user information.

ii) Solution: Use of prepared statements to prevent SQL injection, HTTPS for secure data transmission, and thorough validation of user inputs were implemented to enhance security.

- User Experience (UX) Design:

i) Designing an intuitive and user-friendly interface that caters to all user needs was a continuous challenge.

ii) Solution: Regular feedback from test users and iterative design adjustments helped improve the overall UX.

6. CONCLUSION

The "Recipe Cookbook" project successfully provides a comprehensive and user-friendly platform for managing and organizing recipes. By leveraging a combination of modern web technologies such as PHP, SQL, Bootstrap, HTML, CSS, and JavaScript, the system offers a seamless and interactive experience for users. Key features like ingredient selection, dietary information, multi-stage instructions, and direct image uploads enhance the functionality and usability of the system, catering to the diverse needs of both novice and experienced cooks.

Despite challenges in integrating various technologies and maintaining an intuitive interface, the project has received positive feedback for its ease of use and practical value. The Recipe Cookbook not only simplifies the culinary process but also enriches the cooking experience by providing a well-organized, versatile, and accessible recipe management solution. This project lays a solid foundation for future enhancements and broader applications, demonstrating significant potential in the culinary domain

7.REFERENCES

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e. MDN Web Docs for CSS: https://developer.mozilla.org/en-US/docs/Web/CSS
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l. Prepared Statements in PHP: https://www.php.net/manual/en/mysqli.quickstart.prepared-statements.php
m. Nielsen Norman Group: https://www.nngroup.com/
n. Smashing Magazine: https://www.smashingmagazine.com/
o. Visual Studio Code: https://code.visualstudio.com/
p. XAMPP for PHP and MySQL: https://www.apachefriends.org/index.html
q. Stack Overflow: https://stackoverflow.com/
r. W3Schools: https://www.w3schools.com/
s. GitHub for version control: https://github.com/