DEVELOPING A SITE TO SHARE AND SAVE RECIPES WITH SQL

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ABSTRACT

Before the advent of online platforms, sharing and saving recipes was primarily done through handwritten recipe cards, cookbooks, and personal notes. These traditional methods were often supplemented by word-of-mouth sharing and community cookbooks compiled by local groups or families. The traditional system of sharing and saving recipes involved manual methods like exchanging handwritten notes, maintaining personal cookbooks, and clipping recipes from newspapers or magazines. Recipe boxes and binders were common tools used to organize and store these collections, making it a time-consuming process to sort, search, and share recipes. The problem with these traditional systems includes difficulty in organizing and retrieving recipes, the risk of losing or damaging physical copies, limited accessibility for sharing with others, and the lack of interactivity and real-time updates. Additionally, manual systems often lacked standardization, leading to inconsistencies in measurements and instructions. The motivation for developing an online platform to share and save recipes stems from the need to overcome the limitations of traditional methods. An online system can offer a more efficient, organized, and interactive way to manage recipes. It can also provide easy access to a wider audience, enabling users to share their culinary creations with friends, family, and the broader community seamlessly. The proposed system aims to leverage modern web technologies to create a user-friendly platform where users can upload, store, and share recipes. These websites often feature searchable databases, user ratings, reviews, and multimedia integration to enhance the cooking experience. For example, platforms like AllRecipes, Food Network, and Yummly allow users to browse a vast collection of recipes, save their favorites, and share their own. These websites facilitate easy organization, quick retrieval, and widespread sharing of recipes, thus addressing the shortcomings of traditional methods. By providing features like ingredient search, nutritional information, and meal planning, these platforms significantly enhance the utility and convenience of managing recipes online.

Key words: Recipe Saving, SQL Integration, Recipe Sharing, CRUD Operations, Recipe Management System

1. INTRODUCTION

The rise of digital technology has transformed how we interact with food and recipes. According to a survey conducted by Statista, over 70% of people in the United States prefer using online platforms to discover new recipes, compared to 35% who rely on traditional cookbooks. Additionally, the global online recipe market is expected to reach $6.5 billion by 2027, growing at a CAGR of 8.2% from 2020. This growth highlights the increasing demand for efficient and accessible methods to manage culinary content. Traditional methods of recipe sharing, such as handwritten notes and physical cookbooks, are becoming less prevalent as online platforms provide a more dynamic and interactive solution. Traditional methods of sharing and saving recipes are often cumbersome and prone to several issues. Users face difficulties in organizing, retrieving, and sharing recipes due to the lack of standardization and the risk of losing or damaging physical copies. The manual nature of these systems makes it time-consuming to sort and search for specific recipes, and the limited accessibility restricts the sharing of culinary creations with a broader audience. These problems highlight the need for a more efficient, organized, and user-friendly solution to manage recipes. The need for an online cooking platform arises from the inefficiencies of traditional methods, which often lack proper organization, accessibility, and interactivity.

Fig 1: Recipe database

A digital solution allows recipes to be categorized by ingredients, cuisine, and meal type for easy retrieval, while offering instant global access and enhanced user engagement through features like reviews, ratings, and multimedia content. In terms of application, such a platform serves multiple purposes: individuals can manage personal recipe collections and meal plans, share recipes within communities to promote collaboration, and use the platform as an educational tool for learning and teaching culinary skills and techniques.

2. LITERATURE SURVEY

Smith, A. et al. [1] explore the transition from traditional to digital recipe management, highlighting the benefits and challenges of digital platforms. Johnson, B., & Lee, C. [2] analyze user interaction and engagement within online recipe communities, emphasizing social and communal aspects. Kim, J. [3] investigates how multimedia elements like videos and images enhance user experience in digital cooking platforms. Garcia, M., & Torres, P. [4] examine trends and usability in mobile applications for recipe management. Wilson, R., & Brown, S. [5] discuss the importance of nutritional information in online recipe databases. Chen, Y., & Zhang, L. [6] focus on advanced search algorithms for improving recipe recommendation systems. Taylor, D. [7] addresses security and privacy concerns in recipe sharing platforms. Martinez, H., & Lopez, F. [8] explore how digital platforms contribute to the globalization of culinary practices. Evans, K., & Green, J. [9] investigate the role of user feedback in enhancing recipe databases. Nguyen, P. [10] discusses future applications of AI and machine learning in digital recipe management, highlighting their potential to personalize and improve the user experience.

3. PROPOSED SYSTEM

The project aims to develop an online platform for sharing and saving recipes, leveraging modern web technologies to create a user-friendly and interactive experience. This platform addresses the limitations of traditional methods by providing a digital space where users can easily upload, store, and share their culinary creations.

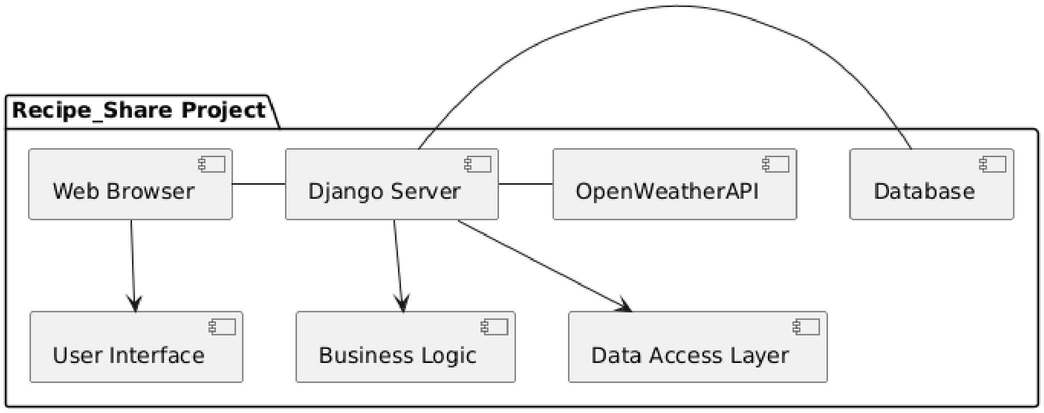

Figure:2 Architectural Block Diagram

Django Framework

Django is a high-level Python web framework designed to facilitate rapid development and clean, pragmatic design. It follows the "batteries-included" philosophy, offering a plethora of built-in features that cover common web development tasks, from user authentication to content administration. Django promotes the Model-View-Template (MVT) architectural pattern, which helps maintain a clear separation of concerns, making it easier to manage and scale web applications. The framework’s ORM (Object-Relational Mapping) simplifies database operations, allowing developers to interact with databases using Python code rather than SQL. Django's robust security features protect against common vulnerabilities such as SQL injection, cross-site scripting (XSS), and cross-site request forgery (CSRF). It also includes an admin interface, which provides a ready-to-use, customizable administrative panel for managing application data. Additionally, Django's extensive documentation and supportive community make it accessible for developers of all skill levels. The framework's scalability is demonstrated by its use in high-traffic sites, and its emphasis on reusability and "DRY" (Don't Repeat Yourself) principles ensures efficient, maintainable code. Overall, Django's combination of simplicity, security, and scalability makes it a preferred choice for developing modern web applications. Django's core components are essential for building robust web applications. The Model is the component where data schema and database interaction logic are defined. It uses Django’s ORM to translate Python classes to database tables, allowing developers to work with databases without writing SQL queries. The View handles the logic that processes user requests, retrieves the necessary data from the model, and passes it to the template. Views can be function-based or class-based, providing flexibility in handling HTTP requests. The Template is the presentation layer that defines how data is displayed to the user. It uses Django's templating language to dynamically generate HTML content, allowing for the insertion of variables and control structures. The URL dispatcher maps URL patterns to corresponding views, enabling clean and readable URL structures. Additionally, Django includes the Admin interface, an auto-generated backend interface for managing application data. The Form handling component facilitates creating, validating, and processing forms, streamlining user input handling. Django also provides robust Security features to protect against common web vulnerabilities. Finally, the Middleware component allows for processing requests globally before they reach the view or after the view has processed them, enabling features like session management and cross-site request forgery protection. HTML (HyperText Markup Language) and CSS (Cascading Style Sheets) are fundamental technologies for creating and designing web pages. HTML provides the structure of a webpage by using elements such as headings, paragraphs, lists, links, images, and more. Each HTML element is defined by tags, which can include attributes to provide additional information about the element. HTML forms the backbone of web content, determining the layout and placement of text, images, and other multimedia. CSS, on the other hand, is used to control the presentation and layout of HTML elements. It allows developers to style web pages by specifying fonts, colors, margins, borders, and other visual aspects. CSS can be applied inline within HTML tags, internally within a style tag in the HTML document, or externally through a separate stylesheet. By separating content (HTML) from presentation (CSS), developers can create visually appealing and consistent websites that are easier to maintain and update. CSS also includes features like responsive design, enabling web pages to adapt to different screen sizes and devices. Together, HTML and CSS form the foundation of web development, enabling the creation of structured, styled, and interactive web pages. Integrating Django with HTML and CSS is crucial for creating dynamic and visually appealing web applications. Django handles the backend logic and data processing, while HTML and CSS manage the front-end presentation. The integration starts with Django’s templating engine, which allows embedding Python-like expressions within HTML to dynamically generate web content. Templates can include placeholders for variables, control structures like loops and conditionals, and template tags for logic operations. By using templates, developers can create reusable and modular HTML components, promoting DRY (Don't Repeat Yourself) principles. CSS can be integrated into Django templates by linking external stylesheets or including inline styles within the HTML. Static files, such as CSS, JavaScript, and images, are managed using Django’s static file handling system. This system ensures that these files are served correctly during development and production. For efficient development, Django's built-in static file server can be used during the development phase, while the collectstatic command gathers all static files into a single directory for production deployment. Additionally, Django’s form handling features enable easy styling and customization of forms using CSS, allowing for a seamless user experience. By combining Django's backend capabilities with HTML and CSS, developers can create fully functional, aesthetically pleasing web applications.

4. RESULTS DESCRIPTION

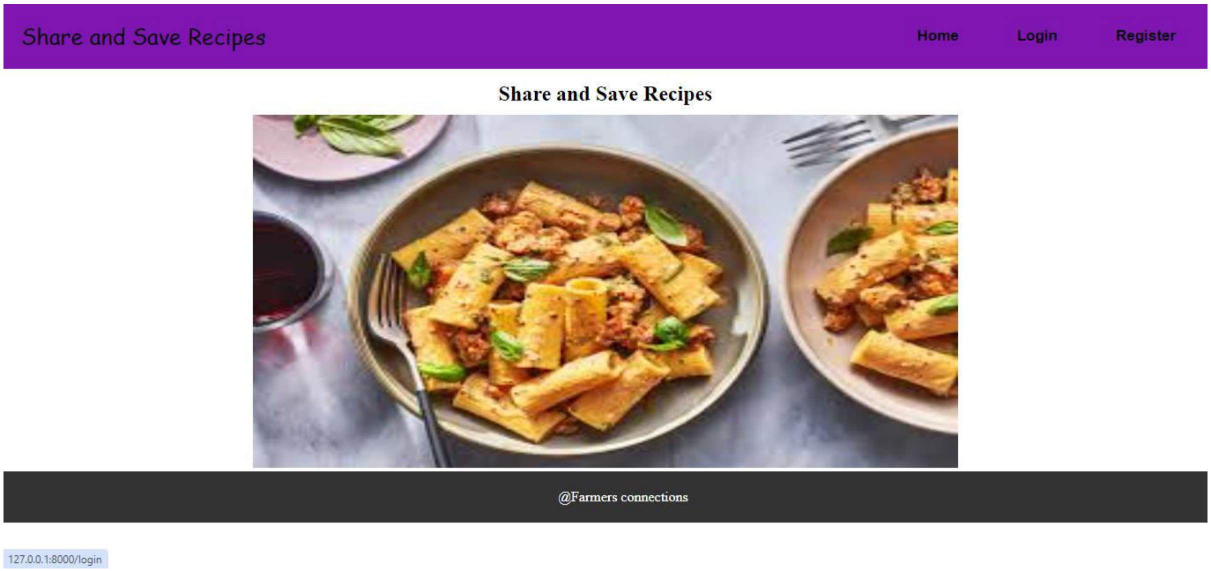

Fig 3: Home Page for sharing and saving receipes

The home page function in a **Share and Save Recipes** web application renders the home.html template when a request is made. It takes the request object as a parameter and returns the rendered template. This function serves to display the home page of the web application. Non-authenticated users would only see "Login" and "Register" links. This approach simplifies the menu by treating all logged-in users the same, with differentiating between regular users and staff members. It ensures that all authenticated users have access to the same features, streamlining the user interface.

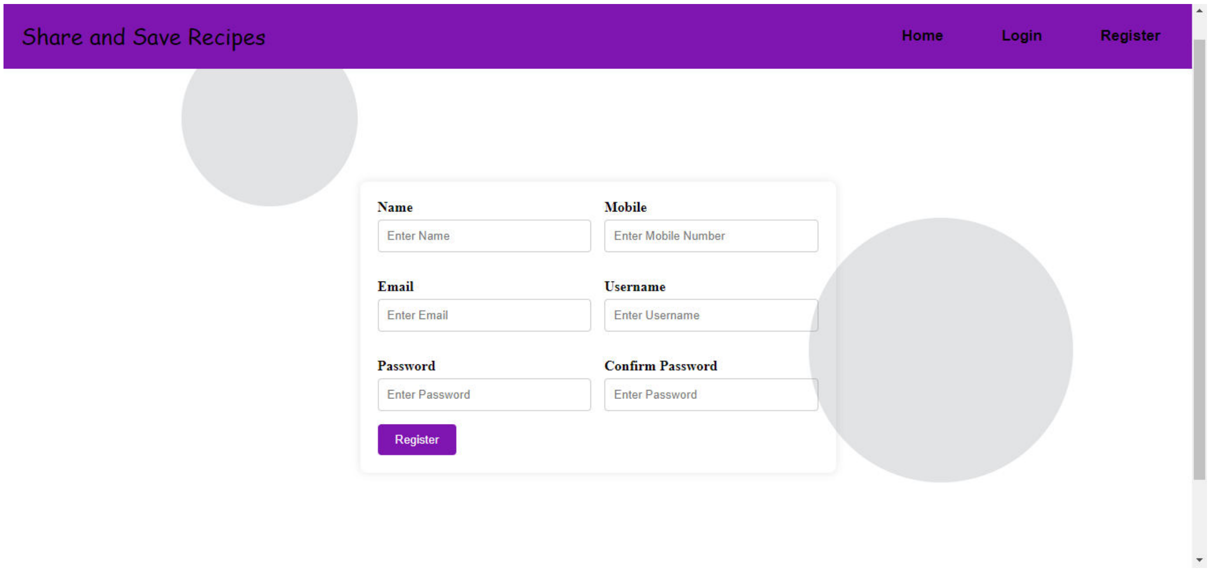

Fig 4: Registration page for sharing and saving recipes

The register function handles user registration in a **Share and Save Recipes** web application. When a POST request is made, it retrieves user details from the form, including name, email, username, password, confirmation password, .It checks if the passwords match and whether the username already exists. If the username is unique and passwords match, a new user is created with the provided details. On success, it redirects to the login page with a success message. If there are errors, appropriate error messages are displayed, and the user is redirected back to the registration page. For GET requests, it renders the registration form.

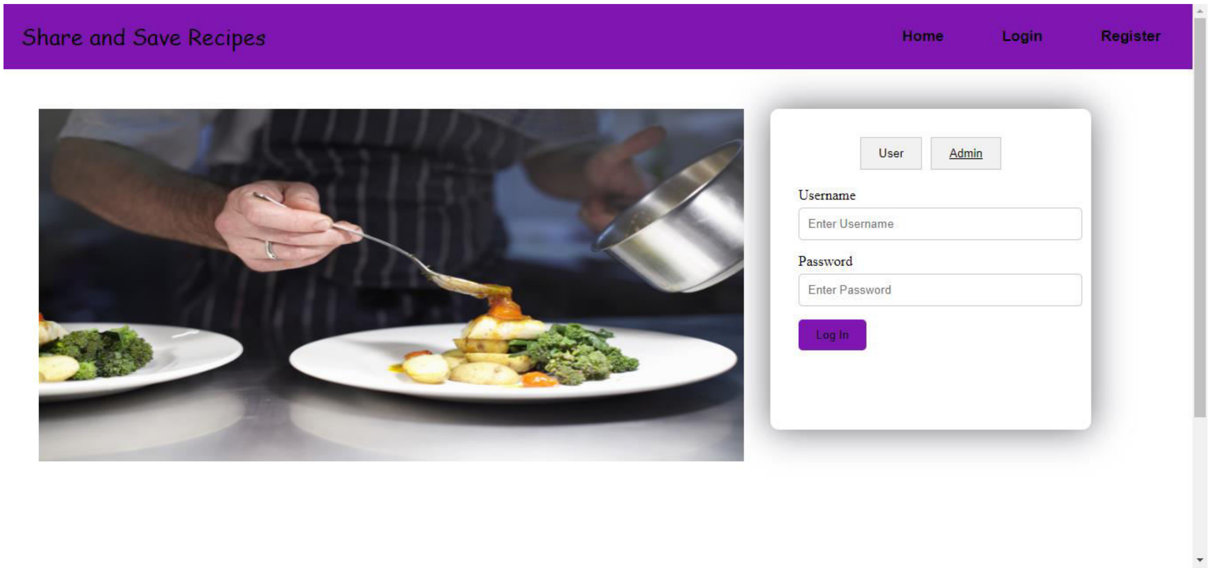

Fig 5: Login Page

The login function handles user authentication in a **Share and Save Recipes** web application. It processes POST requests by retrieving the username and password, authenticates the user, and logs them in if the credentials are correct. On successful login, it redirects to the home page and shows a success message. If authentication fails, it redirects back to the login page with an error message. For GET requests, it renders the login page.

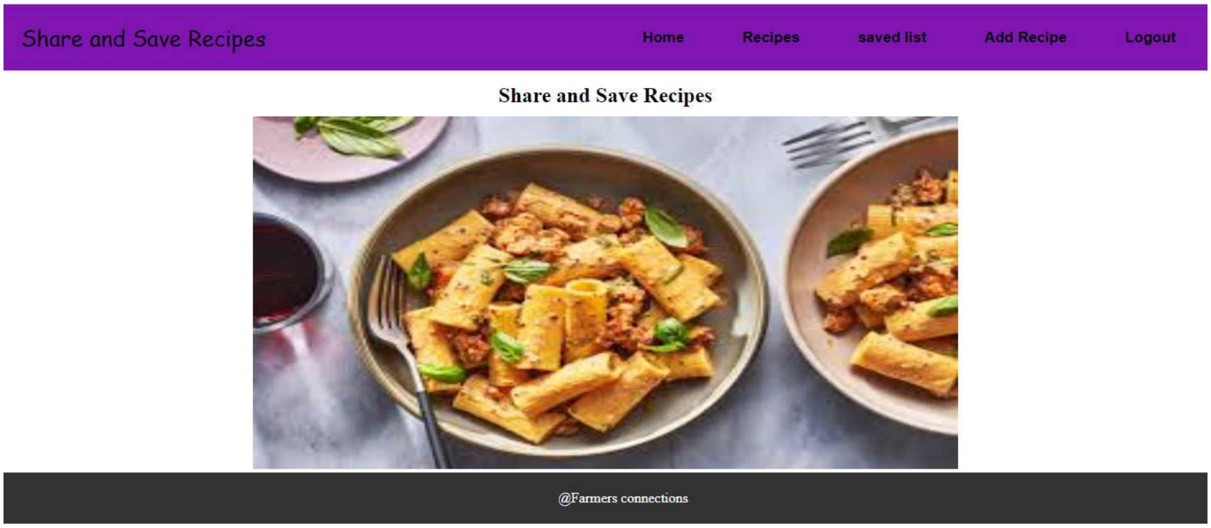

Fig 6: Homepage After Login

The navigation menu would display the same options for all authenticated users. Logged-in users would see links to "Home," "Recipe," "Saved list," "Add Recipes," and "Logout," regardless of their role or privileges. Non-authenticated users would only see "Login" and "Register" links. This approach simplifies the menu by treating all logged-in users the same, with differentiating between regular users and staff members. It ensures that all authenticated users have access to the same features, streamlining the user interface.

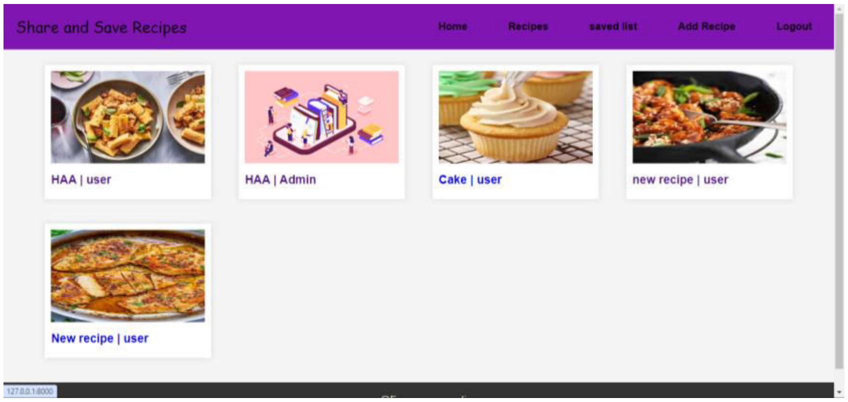

Fig 7: Recipes List

The Recipes page function is responsible for retrieving all video objects from the database and passing them to the videos page template for rendering. It fetches all records from the video model and stores them in the Recipe variable, which is then included in the context dictionary passed to the template. The videos template iterates over the list of video objects, displaying each with relevant details such as the title and user. Each video is wrapped in a clickable element (usually a link or a button) that, when clicked, redirects the user to a video player page dedicated to that specific video. This redirection is managed via a URL that is configured in the Django URL configuration to point to a detailed view of the video, allowing users to watch the selected video on a separate page.

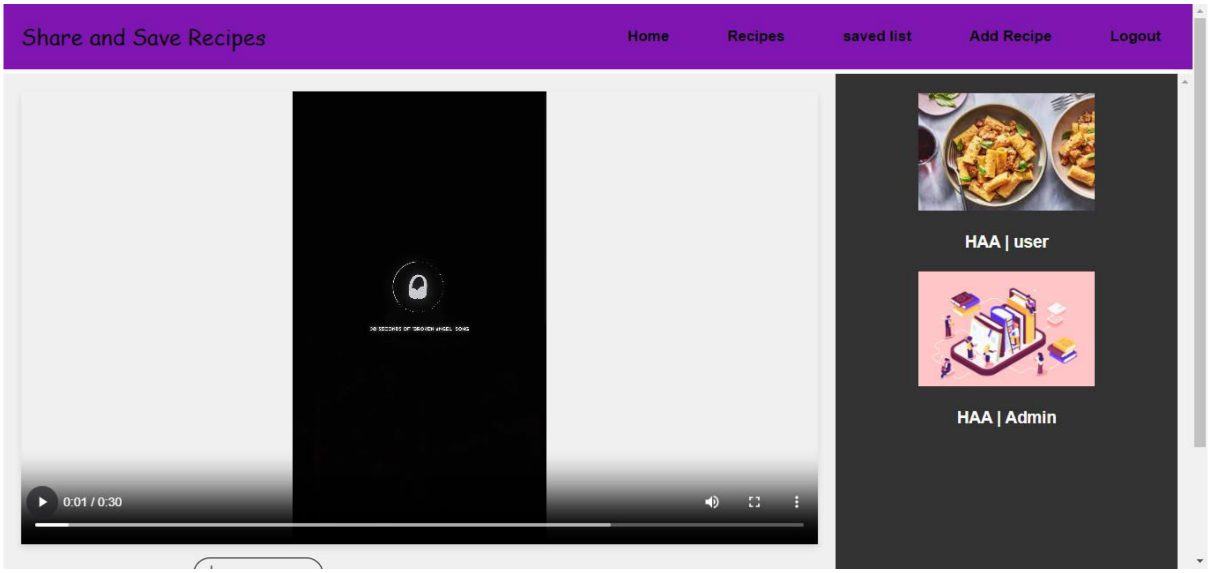

Fig 8: recipe Video player with suggestions Videos

The video player function in the **Share and Save Recipes** Django view handles the display of a specific video. It takes two parameters: request and pk (primary key of the video). The function retrieves the video object from the database using video id and assigns it to the variable data. The title of the video is then extracted and stored in the variable Suggestions. To provide related content, the function queries the database for other videos with the same title using videos filters and stores the result in the Suggestion variable. The function then renders the videoplayertemplate, passing the retrieved video (data) and the list of related videos (Suggestion) in the context dictionary. This allows the template to display the selected video along with suggestions for other videos with the same title.

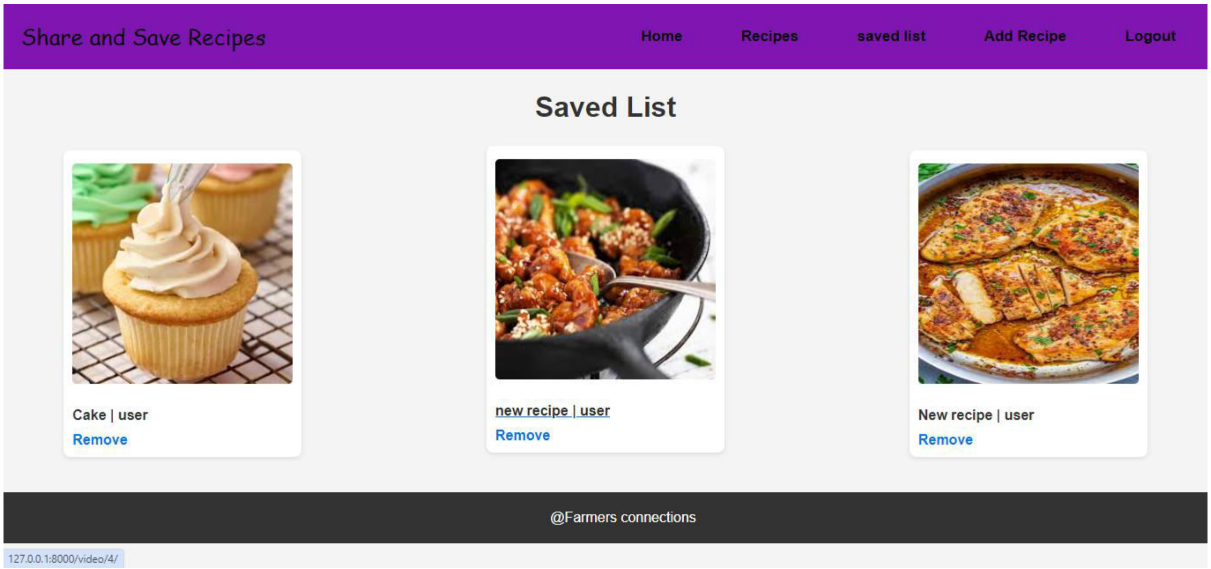

Fig 9: Saved Video For later Watch

The Saved list function handles the retrieval and display of videos that a user has saved for future viewing. It begins by filtering the save model objects to get only those records associated with the currently logged-in user, using save objects filter. This ensures that each user sees only their saved videos. The filtered list of saved video objects is stored in the videos variable. The function then renders the save listtemplate, passing the list of saved videos in the context dictionary under the key 'save'. This allows the template to access and display the user's saved videos, providing a convenient way for users to view and manage their saved content for watching later.

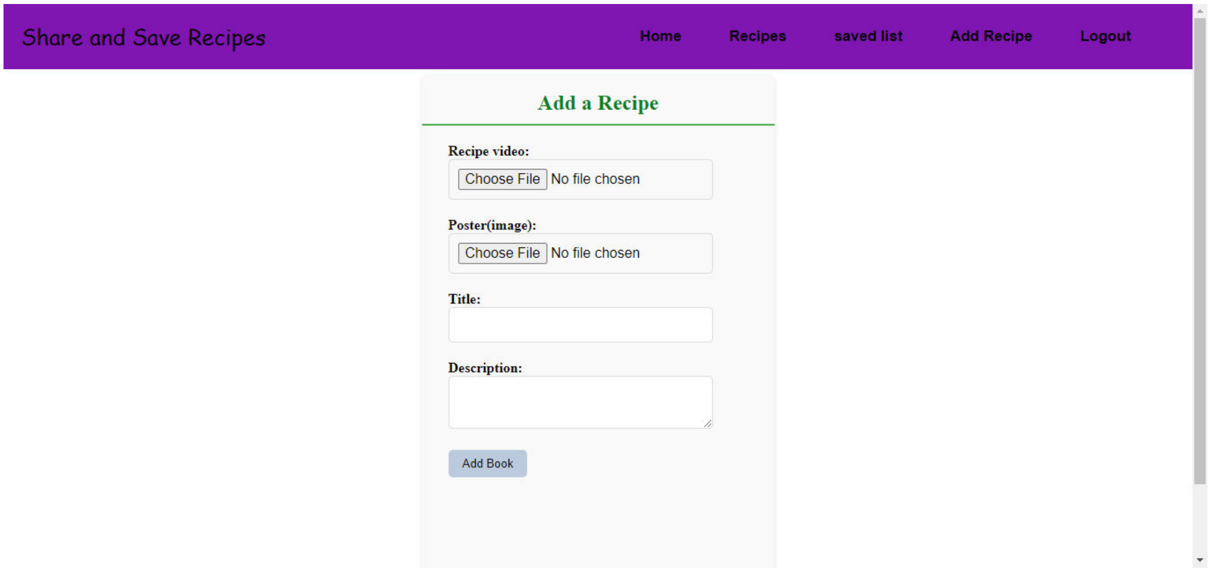

Fig 10: Add Recipes

The add recipe function in **Share and Save Recipes** web is designed to handle the submission of a new video recipe form. When a POST request is made, the function checks for the presence of both a video file and an image file. It retrieves the form data, including the title, video file, poster image, and description, from the request. A new video object is created with this data, associating it with the currently logged-in user. The object is then saved to the database. Upon successful creation of the new video recipe, the user is redirected to the home page. This function ensures that users can seamlessly add new video recipes to the platform, with all necessary data correctly captured and stored.

5. CONCLUSION

The Recipe Sharing and Saving Platform project successfully addresses the limitations of traditional methods for managing recipes by leveraging modern web technologies. By providing features such as user authentication, recipe upload and storage, searchable databases, and interactive community functionalities, the platform offers a more efficient, organized, and engaging way to handle recipes. Users can easily upload and share their culinary creations, access a wide variety of recipes from other users, and interact with the community through ratings, comments, and social sharing. The inclusion of multimedia content like videos and images, along with nutritional information and meal planning tools, significantly enhances the cooking experience. The platform's responsive design ensures that it is accessible on various devices, allowing users to access their recipes anytime and anywhere. Overall, the project not only simplifies the process of managing recipes but also fosters a vibrant and connected community of food enthusiasts.

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