KongsiMakan: A Web-Based Platform for Community Food Sharing

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**Abstract.** One objective worth achieving in today’s world is the complete eradication of food waste through the recycling of existing food resources in society. Imagine this: you have a plate of leftover nasi lemak from today’s potluck. What do you do with it? Do you store it for later consumption, share it with someone in need, or discard it? This project is a community-driven initiative aimed at addressing this very dilemma by reducing food waste and promoting community food sharing. This project aims to create an enticing web-application called KongsiMakan that provides a feasible approach to bring a change and address the problem of surplus food and create a transformation towards community food sharing in Cyberjaya area. Key features incorporated include a community forum for sharing recipes and ideas, as well as interactive charts that allow users to track their donation and receiving history, enhancing the platform’s functionality and overall user experience. This project also provides an overview of the research methodology, project planning and the methods to be used in conducting the project execution. The application will be developed using the PHP scripting language with an additional Laravel framework to make the system more stable and designed. During the final stage of the development, the whole implementation of this web-application will follow the prototype methodology for timely development and flexibility. The data will be gathered by recruiting several volunteers who formed a community to gain feedback on the effectiveness of the system within society, specifically the Cyberjaya area.

# INTRODUCTION

## In an era of rising global food insecurity and environmental degradation, the issue of food waste remains a critical challenge. Millions of people go hungry each day, while nearly 40% of food produced globally is discarded due to overproduction, poor planning, and lack of efficient redistribution systems [14]. In Malaysia, especially in urban centers like Cyberjaya, this contrast is increasingly evident—excess food from homes and businesses often ends up in landfills, while vulnerable communities struggle to access adequate nutrition [3]. KongsiMakan, derived from the Malay words "Kongsi" (share) and "Makan" (eat), is a digital initiative designed to tackle this very issue. The project introduces a web-based platform that facilitates community food sharing by connecting individuals and food establishments with surplus food to those in need. The goal is twofold: to reduce food waste and promote sustainability while fostering a culture of generosity and community support. The problem lies not only in food overproduction and wastage but also in the absence of a dedicated, user-friendly system that bridges surplus with demand at the local level. Malaysia still faces challenges in food waste management, and awareness around recycling or food redistribution is relatively low compared to other nations [14]. Without proper intervention, both food waste and food insecurity will continue to worsen. KongsiMakan offers an innovative solution with a suite of features tailored for effective surplus food management. These include user authentication, food listings with expiry tracking, allergy-aware categorization, and a community forum for educational engagement. By utilizing a user-centered approach and modern web technologies, the platform not only enhances food-sharing efficiency but also empowers users to be part of a sustainable ecosystem. Initially targeted at the Cyberjaya community, which hosts a mix of students, expatriates, and food businesses, the platform provides a practical response to both economic and environmental issues. KongsiMakan thus aims to turn a widespread problem into an opportunity for community-driven change.

# METHODOLOGY

The development of KongsiMakan uses the Prototyping Model from the System Development Life Cycle (SDLC). This approach allows for step-by-step building, testing, and improving the system with user feedback. It helps ensure the final product fits user needs. The process includes several key phases:

**Research and Planning**

Initial research started by studying existing food-sharing platforms to find gaps and set clear goals. Then, a questionnaire with closed and open-ended questions to gather user needs efficiently.

**Kano Model Analysis**

The Kano Model is a product development and customer satisfaction framework that categorizes features based on users’ expectations and perceived value. It classifies features into three main categories: satisfiers (performance needs), dissatisfiers (basic needs), and delighters (excitement needs). This model helps prioritize features by understanding their impact on user satisfaction [16]. This study used the Kano Model to understand what features users want, as shown in Figure 1. Important features like expiry alerts and safety tips increase satisfaction. Basic needs like messaging and food categories must be included or may cause dissatisfaction. Extra features like gamification and forums can impress users but aren’t expected.

|  |  |  |
| --- | --- | --- |
| **Kano Model Attributes** | **Module** | **Features** |
| Satisfier | Food Listings Management | * Expiry notifications * Food-safety tips |
| Dissatisfier | Communication Module | Messaging tools |
| Food Listings Management | Food categorization |
| Delighter | Gamification Module | Gamification (rewards and badges) |
| Communication Module | Community Forum |

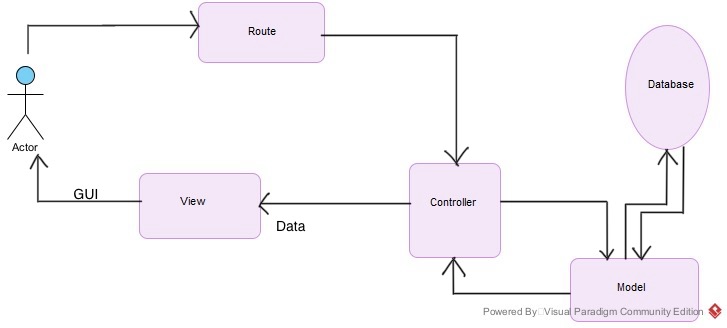
**Figure 1.** Kano Model Analysis

**McCall Quality Model**

Based on the analysis, functional requirements were set for key features like user accounts, food listings, gamification, and communication. Non-functional needs were guided by the McCall Quality Model, focusing on reliability, ease of use, easy updates, and working well on different devices [2]. This helps the platform meet user needs and stay effective over time. McCall’s Quality Model assesses software quality through Product Operation, Product Revision, and Product Transition. For KongsiMakan, the focus is on Product Operation, covering reliability, usability, efficiency, availability, and integrity. These ensure the platform runs smoothly, supports up to 100 users at once, protects user data, and offers easy navigation with real-time alerts. Elements of Product Revision and Transition are also considered, like Laravel’s modular design for easier maintenance and cross-environment compatibility to support future growth [13].

**Laravel MVC Architecture**

The Laravel MVC (Model-View-Controller) architecture provides a structured and modular approach to web application development, which is central to the Laravel PHP framework. Based on Figure 2, The architecture begins with the Route, which serves as the entry point for HTTP requests, directing them to the appropriate Controller methods based on predefined rules. The Controller then processes these requests, handling application logic, interacting with the Model to retrieve or manipulate data, and preparing responses for the View.



**Figure 2.** Laravel MVC Architecture

In author’s system, users are redirected to different dashboards based on their role (donor, receiver, or admin) after authentication. This redirection is handled in the DashboardController@index() method. The logic checks the user's user type and loads the appropriate dashboard and data. Below is a code snippet that demonstrates this:

public function index()

{

if (Auth::check()) {

$usertype = Auth::user()->usertype;

if ($usertype == 'donor') {

return $this->loadDonorDashboard();

} elseif ($usertype == 'admin') {

return $this->loadAdminDashboard();

} elseif ($usertype == 'receiver') {

return $this->receiverDashboard();

}

}

return redirect('/login');

}

The routes for authenticated users are protected using the auth middleware to ensure that only logged-in users can access sensitive features such as donation management and forum posts:

Route::middleware(['auth'])->group(function () {

Route::get('/donor-dashboard', [DonationController::class, 'index'])->name('donor.dashboard');

Route::get('/receiverdashboard',[DashboardController::class,'receiverDashboard'])>name('receiver.dashboard');

Route::resource('donations', DonationController::class); Route::resource('forum-posts', ForumPostController::class);});

In this system, Routes send user requests to the right controller and use auth middleware to protect certain features. Controllers handle user roles, get data like donation stats, and send it to the view. Models manage the database using Laravel’s Eloquent. Views show the user interface with Blade, including dashboards and charts based on user roles.

**Testing and Refinement**

The prototype was tested several times for functions, speed, and user approval by Multimedia University (MMU) students. Feedback helped fix issues, improve performance, and enhance the user experience.

**Final Prototypeand Deployment**

The final version was deployed on a live server environment using XAMPP for hosting, ensuring stable performance. Promotional activities were initiated within the Cyberjaya community to encourage platform adoption.

**Evaluation**

Post-deployment, evaluation activities were conducted to measure the platform’s effectiveness, gather user feedback, and identify areas for future enhancement. This phase supports continuous improvement and scalability for broader community use.

# RESULTS AND DISCUSSION

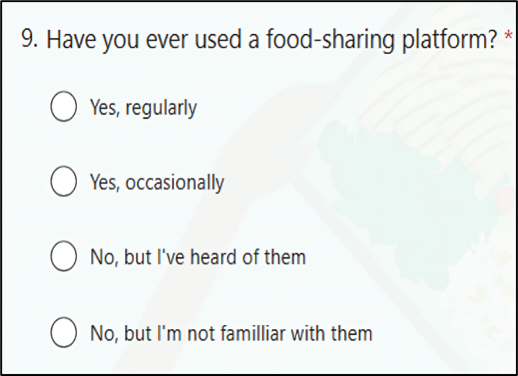
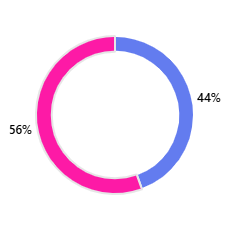
# This section shares main findings from user surveys analysis and system features. The collected data demonstrates the effectiveness of the platform's core design while identifying opportunities for enhancement in subsequent iterations.

**Survey Findings and User Requirements Analysis**

The survey of 35 respondents (20 MMU students, 15 Cyberjaya residents) revealed critical user needs shaping KongsiMakan’ s design. Based on Figure 11 and 12 respectively, while 73.3% acknowledged food waste as a significant issue, 56% had never engaged with food-sharing platforms, indicating a disconnect between awareness and action. Feature prioritization aligned with the Kano Model: expiry notifications emerged as a vital satisfier (62.9% rated them "very important"), whereas gamification elements (e.g., badges) functioned as delighters (11.4% "very important"). Key adoption barriers included food safety concerns (22 respondents) and limited platform awareness (17 respondents), prompting the integration of safety guidelines and community outreach strategies. These findings directly informed KongsiMakan’ score functionality, ensuring alignment with user expectations while addressing gaps in existing solutions.



**Figure 3.** Food Waste Awareness Feedback

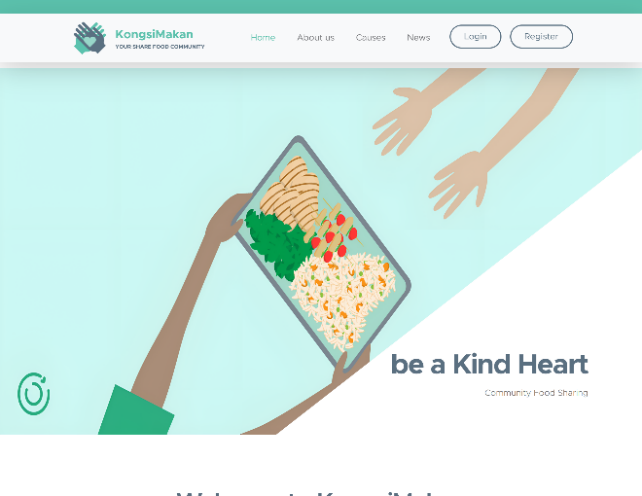
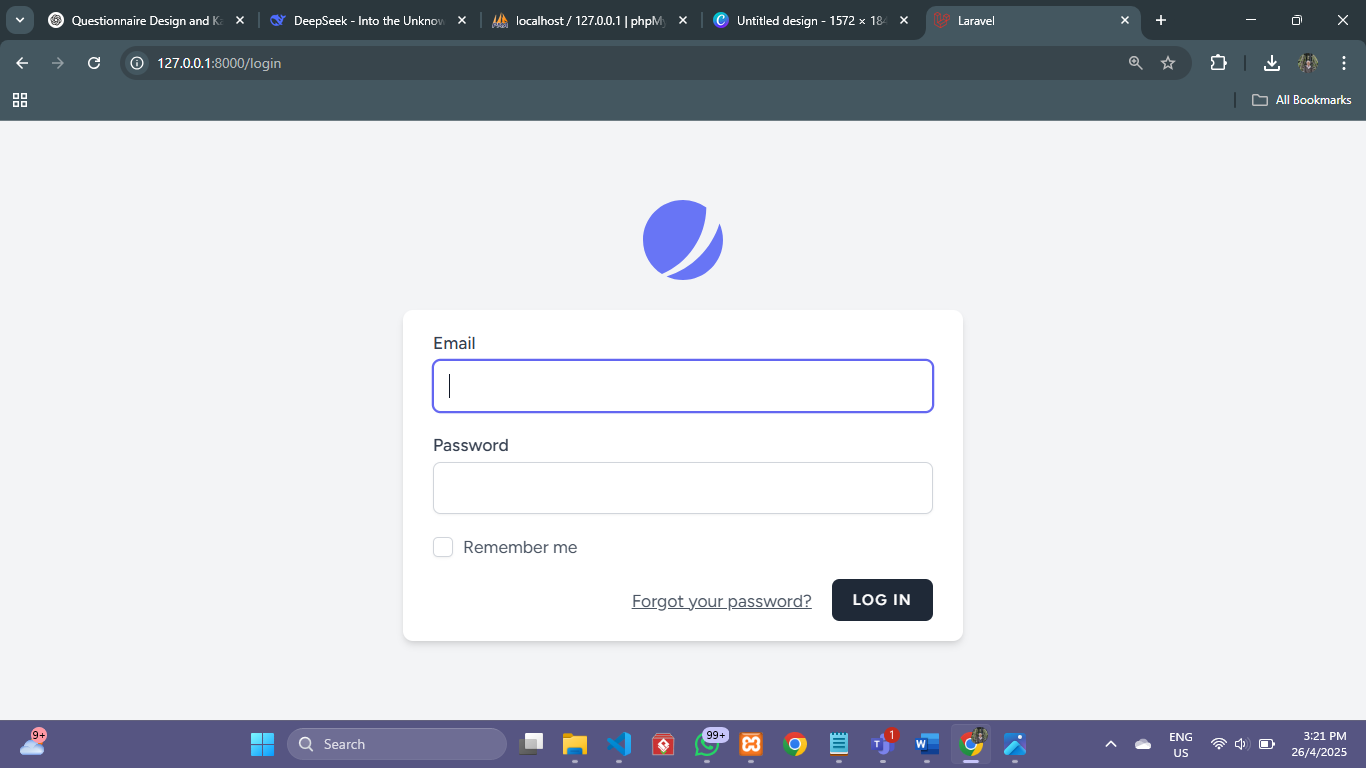
**Figure 4.** Chart of respondents' participation in food sharing initiatives

**System Testing and Functional Validation**

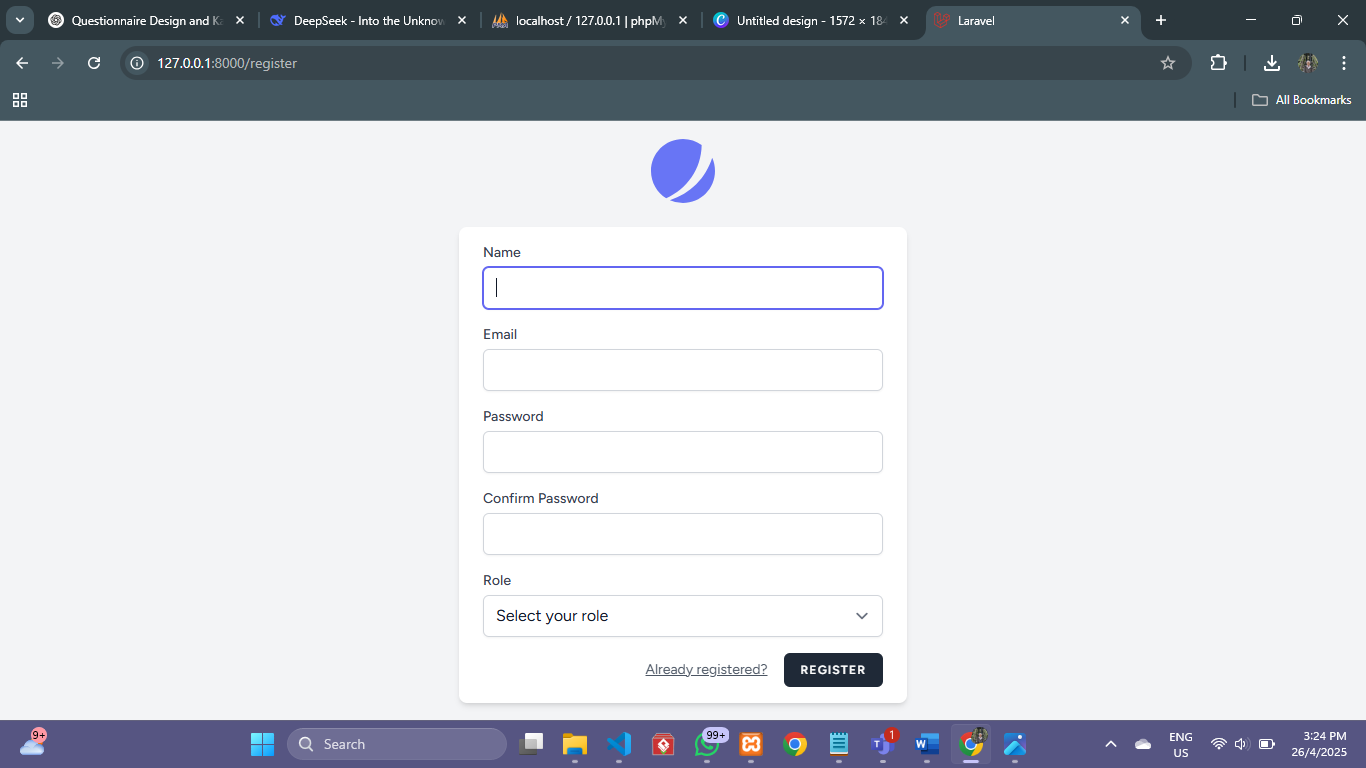
The system underwent comprehensive testing to verify its functionality, performance, and usability. Unit testing was conducted to validate core features such as user authentication, food listing management, and notification systems. User acceptance testing (UAT) with representative participants confirmed the platform's operational effectiveness in real-world scenarios [17],[18]. Key workflows including food donation posting, claiming processes, and community forum interactions were evaluated for reliability and user-friendliness. The testing phase identified minor interface improvements while demonstrating the system's stability under expected usage conditions.

**System Features**

Figures 5 to 15 illustrate the final system features of KongsiMakan. Figure 5 shows the main landing page, where users can choose to log in (Figure 6) or register for an account (Figure 7). During registration, users must select their role as either a donor or a receiver. Once logged in, donors are directed to their dashboard (Figure 8), where they can post new donations (Figure 11), manage, and edit their listings, filter donations by claimed or unclaimed status, and access the community forum (Figure 10), a shared space available to both donors and receivers. The donor dashboard also includes a graph that displays monthly statistics of claimed and unclaimed donations by receivers. Receivers are directed to their dashboard (Figure 12), where they can browse available food donations (Figure 14) and track their successfully claimed items (Figure 13). The receiver dashboard features a graph that visualizes the number of meals they have claimed each month, allowing users to monitor their food access patterns. Figure 15 displays the admin dashboard, which presents key system statistics such as the total number of registered users (retrieved from the user database), the number of active donations (referring to food listings that have not yet expired), total forum posts, and the number of currently available donations as shown in Figure 14. Additionally, the admin dashboard includes a graphical overview of monthly donations, distinguishing between claimed and unclaimed listings, to help monitor donation trends across the platform.

**Figure 5.** Main page of KongsiMakan **Figure 6.** Login page of KongsiMakan

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**Figure 7.** Sign up page of KongsiMakan **Figure 8.** Donor dashboard **Figure 9.** My Donations page

**A bowl of mushroom soup

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**Figure 10.** Community Discussion page **Figure 11.** Post a Donation page **Figure 12.** Receiver dashboard

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**Figure 13.** Successfully Claimed page **Figure 14.** Available Donations page **Figure 15.** Admin dDashboard

# CONCLUSION

KongsiMakan has emerged as an effective, community-focused solution for reducing food waste through KongsiMakan promotes sustainable food sharing using Laravel for a solid backend and user-friendly interface. Guided by the Prototype Methodology and input from MMU students and Cyberjaya residents, the project used the Kano Model to identify key needs. Core features like expiry alerts and food safety tips met essential user expectations, while forums and gamification added value. Development revealed that users prioritized practicality over engagement features, highlighting the need for trust-focused elements like clear safety guidelines and multilingual support. Laravel’s MVC structure offered scalability but required team training. Future includes a mobile app, logistics partnerships (e.g., Lalamove), and simple AI features for reminders, donation timing, and user-based suggestions [11]. With these, KongsiMakan aims to improve efficiency and strengthen community impact.

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