A Localized Food Ordering Application Using Spring Boot and React

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Abstract
The design and development of a geolocation-based web platform that links consumers with local household vendors selling freshly made, home-cooked meals is presented in this paper. Targeting professionals, students, and establishments such as schools and hostels, the system allows customers to order lunches and tiffins from cooks within a 2- to 5-kilometer radius. The platform was developed with a React frontend and a Java Spring Boot backend. It has a contemporary user interface, modular scalability, and key features like order management, vendor dashboards, real-time listings, and user authentication. The app uses proximity-based logic to provide localized service delivery and highlights a simple, elegant design that captures the coziness and confidence of home-cooked meals. The platform exemplifies how lightweight technologies can power community-based food networks while promoting micro-entrepreneurship and healthy eating. The system architecture, key components, and wider societal effects of facilitating hyperlocal, tech-driven food distribution are described in this paper.

Keywords: Home-cooked meals, hyperlocal food delivery, geolocation services, Spring Boot, ReactJS.

1 Introduction

There has been explosive growth in the demand for affordable, healthy, and accessible food in recent times, especially among urban communities including students, working professionals, and institutional residents. With food delivery services having exponentially expanded to make eating more convenient, they have been concentrating chiefly on commercial eateries and cloud kitchens. This neglect, nevertheless, has shown a unique window of opportunity for empowering--households—particularly homemakers—by way of allowing them to become integrated in the digital food economy via small-scale home-cooked meal services.

Despite the cultural importance and health benefits of home-cooked food, there exists no widely utilized platform for the discovery and ordering of such food in connection with geography.

The majority of the food delivery platforms currently in use do not support the micro-entrepreneurial model of home-based tiffin service operators or geographically localized small-batch lunch businesses. The lack of support for community-based food systems limits access to low-cost and healthy meal options, particularly for consumers looking for alternatives to commercially mass-manufactured or restaurant food.

To address this need identified, we present a geolocation-based web platform aimed at linking users to home food vendors within the local neighborhood within a radius of 2 to 5 kilometers. The platform, implemented using Java Spring Boot and ReactJS, allows real-time browsing and ordering of meals by users and a systematic interface for home cooks to display and update their culinary offerings. This system is intended to enable hyperlocal food distribution, promote healthier eating, and enable household-level entrepreneurship. The approach not

only enables the creation of a sustainable food system but also promotes community cohesion, with consumers empowered to directly support local home cooks.

The research here describes the conceptual model, design approach, and implementation of the platform. It analyzes salient system elements, the related technological challenges, and the broader societal implications of establishing a digital ecosystem for home-made food services. The research also considers the scalability of the platform, its potential contribution to the local economy, and its capacity to reduce food wastage through efficient, small-scale food production.

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2. Literature Review
The concept of food delivery systems has also seen significant change in the past decade, with corporate entities such as Uber Eats, Grubhub, and Swiggy dominating the market. These platforms typically aim at large restaurants or chain-operated kitchens, using a centralized distribution mechanism to deliver food to the consumers. While these services are convenient, they are lacking in food diversity, quality checks, and availability of affordable, home-cooked food. Particularly, they neglect small-scale, home-based food providers, which provide healthier and more personalized meal options at lower prices.

Cloud kitchens became a prevalent business model for restaurant-quality food delivery without a traditional storefront. The trend has been the subject of broad scholarly analysis, with researchers concentrating on operational effectiveness and market expansion (Roth, 2020). However, such services remain predominantly commercial, frequently neglecting small-scale, home-based food practitioners.

Several researches have examined the use of geolocation technology in food delivery services. Zhao et al. (2017), for instance, mention the use of proximity-based algorithms to optimize the routes of meal delivery but in most cases mention the restaurant-based systems. The use of such algorithms in hyperlocal homemade food services remains to be explored adequately, especially for small-scale food vendors. A number of attempts have attempted to offer platforms for local food exchange or community food economies. Cookpad in Japan allows users to upload their own homemade recipes and sell food locally in their own market; yet, it does not offer the full order management and delivery infrastructure that the platform currently provides. Similarly, Neighborhood Kitchens in the United States connects home cooks with local consumers, yet its operations are largely limited to targeted urban neighborhoods and do not possess the same scalability as the proposed platform.

While these systems and services all address different aspects of local food delivery, none of them specifically aim to allow home-based micro-entrepreneurs to list, manage, and sell their food items to local consumers through a straightforward and modern interface. Our system aims to bridge this gap by using geolocation filtering and real-time meal ordering to connect users with home cooks in their area. This allows people to be part of the food economy, improves the concept of micro-entrepreneurship, and allows mass consumption of healthy homemade food.

This Related Work discusses how your platform fits into contemporary food delivery systems, local food economies, and geolocation-based technologies. It points to literature gaps and how your project fills the gaps.

3. Proposed System

The proposed system is a web-based platform designed to enable users to discover and order home-cooked tiffins and lunches from nearby household vendors. Focused on promoting small-scale mess services, particularly run by residents and housewives, the platform facilitates hyperlocal food ordering within a proximity of 2 to 5 kilometers. The platform targets end users such as students, working professionals, schools, and hostels who prefer healthy, affordable, homemade meals over commercial food options.
The system is developed using a **Java Spring Boot backend** and a **ReactJS frontend**, providing a modular and responsive architecture. Vendors can register and add their food offerings through the system, while users can browse listings, filter them by location, and place orders. At its current stage, the platform supports **basic user and vendor registration**, **meal listing**, and a simple **ordering process** without real-time updates or advanced features like live tracking or payment integration.
The platform design focuses on delivering a modern, clean, and user-friendly interface that reflects the comfort and trust of homemade food. Geolocation features are planned conceptually.
The system currently does not include features like real-time order tracking, payment gateway integration, mobile support, or in-app messaging, but it lays the groundwork for such extensions. The broader goal is to encourage micro-entrepreneurship among home-based cooks and build a community-centric food ecosystem, with future plans to enhance functionality and scale the solution for wider adoption.

4. System Architecture

The system uses a client-server architecture, with two main parts: a ReactJS frontend and a Java Spring Boot backend. This separation provides a modular, scalable, and maintainable application design.
The frontend is built using ReactJS, which allows for a dynamic and responsive user interface. It offers various views for vendors and customers. Customers can see available homemade meals, see simple vendor details, and order meals. Vendors can register and add meals using specific forms. All the user interface elements interact with backend APIs using HTTP requests.

The backend infrastructure is developed with Java Spring Boot, which effectively manages important business logic, API endpoints, authentication methods, and data processing tasks. It provides RESTful APIs for frontend consumption and has controller, service, and repository layers to ensure a clean separation of code and offer modularity.

A relational database like MySQL or PostgreSQL is used to store vendor profiles, user data, meal choices, and order data. Spring Data JPA is used to make database operations easier.

Currently, the platform does not have geolocation capabilities, real-time support, and payment support; the backend architecture is based on RESTful principles, though, so these features can be added with ease in the future.

The application is deployed in a modular way, allowing independent scaling of frontend and backend services. Basic input-based filtering for location is currently implemented, with future plans to integrate geolocation APIs. The system also supports structured API documentation using Swagger for ease of future development and third-party integration.

Diagram 1

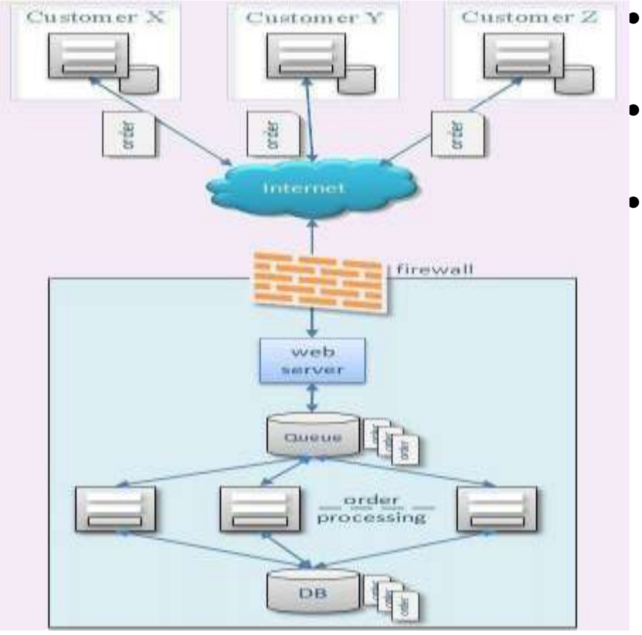
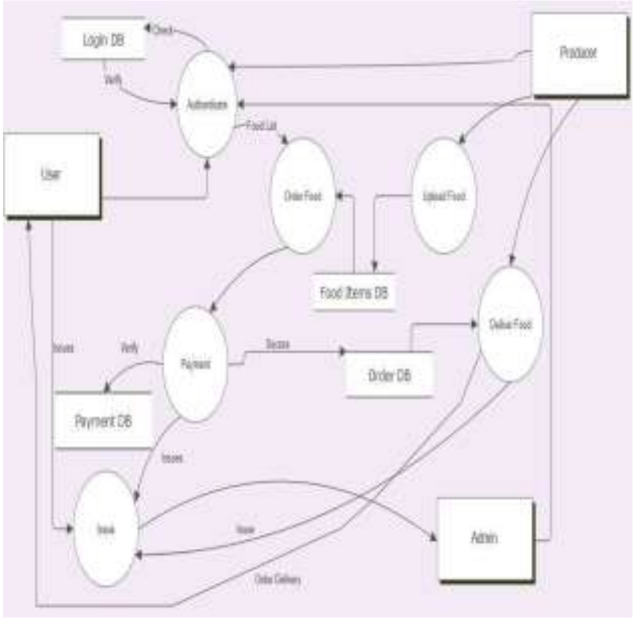


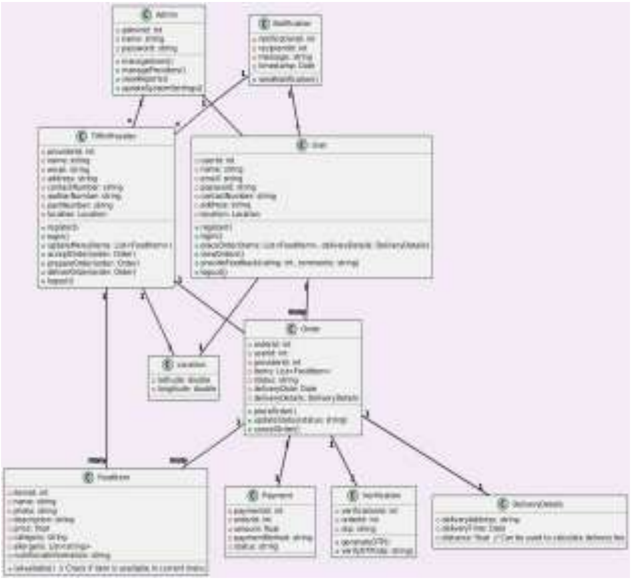
Diagram 2



5. Key Features

- **User and Vendor Registration:** Separate registration and login functionality for customers and home-based vendors using secure authentication methods.
- **Meal Listing by Vendors:** Vendors can list meals with descriptions, prices, and availability. Each listing is stored and retrievable through backend APIs.
- **Browse and Order Meals:** Users can browse meals listed by nearby vendors and place basic orders based on availability and proximity (handled through area selection, not geolocation APIs yet).
- **Vendor Dashboard:** A simple dashboard where vendors can view their meals, add new listings, and manage existing ones.
- **Modular and Scalable Design:** The system is designed to be scalable, allowing easy addition of new features such as delivery tracking or payment systems in the future.
- **User-Friendly UI:** The React-based frontend offers a clean and modern interface, designed to reflect the warmth and trust associated with home-cooked food.

Diagram 3



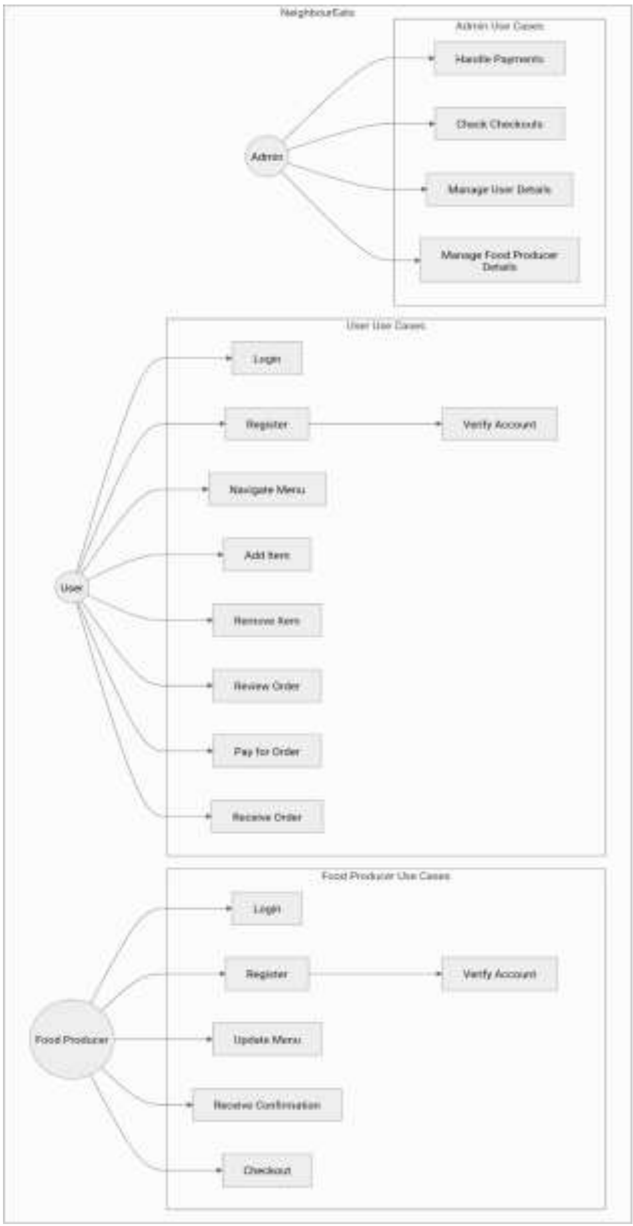
6. Implementation Details

The system uses a **Java Spring Boot** backend to manage business logic, user roles, data handling, and API creation. RESTful APIs are used for communication between frontend and backend.

- **Frontend**: Developed in **ReactJS** with Axios for API calls and React Router for navigation.
- **Backend**: Built with **Spring Boot**, utilizing Spring MVC, Spring Security (for basic auth), and Spring Data JPA for database interaction.
- **Database**: A **MySQL** database stores users, vendors, meals, and orders. Tables are relational and linked via foreign keys.

- **Form Handling**: Both frontend and backend use structured validation to ensure clean data input for meal listings and user info.
- **Deployment & Testing**: The app is run locally for development and can be deployed using services like Heroku, Render, or DigitalOcean.
  Future enhancements can include integrating **Google Maps API** for geolocation filtering, **JWT-based authentication**, and **Stripe or Razorpay** for payment processing.

Diagram 4



Conclusion

This paper outlines the design and deployment of an internet platform to connect users with local home-based food vendors offering homemade tiffins and lunches. Focusing on proximity-based food discovery and low-cost, accessible technology, the platform allows local home cooks—homemakers and women in particular—to become part of the online food economy. Developed using Java Spring Boot and ReactJS, the system has core features like user registration, meal posting, and simple order placement. Although narrow in scope at present, the platform provides a good starting point for additional features like geolocation support, real-time order tracking, and secure payment interfaces. This solution fills a crucial gap in the meal delivery ecosystem by providing community-based, healthy, and low-cost meals, while encouraging micro-entrepreneurship.

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