

Thesis/Project Report On “E-commerce Restaurant Ordering System”

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Chapter 1

Introduction

The E-commerce Restaurant Ordering System is a web-based platform designed to streamline the process of ordering food from restaurants online. It leverages a combination of HTML, CSS, Bootstrap, Laravel, Vue.js, and MySQL to provide users with a seamless and efficient experience.

1.1 Motivation:

The motivation behind developing this system stems from the growing demand for convenient and efficient ways to order food in today's fast-paced world. With the increasing reliance on technology and online services, there is a need for restaurant owners to adapt to the digital landscape and offer their customers an easy-to-use platform for placing orders remotely. Additionally, consumers seek convenience and flexibility when it comes to dining options, and an E-commerce Restaurant Ordering System fulfills this need by enabling users to browse menus, place orders, and make payments from the comfort of their homes or on the go.

1.2 Objectives:

Provide an intuitive user interface for browsing restaurant menus and placing orders. Implement secure payment processing functionality to facilitate transactions. Develop a robust backend system using Laravel and MySQL to manage orders, inventory, and user accounts. Enhance the user experience with responsive design and seamless navigation across devices. Integrate Vue.js for dynamic and interactive components, such as real-time order tracking and personalized recommendations. Ensure scalability and reliability to handle high volumes of traffic and orders during peak hours.

1.3 Scope of Work:

The scope of this project encompasses the design, development, and implementation of an end-to-end E-commerce Restaurant Ordering System. This includes: Frontend Development: Designing a user-friendly interface using HTML, CSS, and Bootstrap. Implementing responsive design principles to ensure compatibility across various devices and screen sizes. Integrating Vue.js for dynamic and interactive features, such as live updates and real-time notifications.

Chapter 2

Literature Review

The concept of E-commerce Restaurant Ordering System is not new, it has been in talks for much of the time. In fact, it is already being implemented in some parts of the world. Various authors have published their papers regarding E-commerce Restaurant Ordering System.

Typically, a customer ordering online spends approximately 15% more per ticket online than ordering via phone to a store or call center. Yet, many franchisors have reached the conclusion that relatively few consumers have the willingness to use the Internet as a mechanism for ordering. [1]

Online platforms have become a focus nowadays as an instrument to help expedite some daily routines such as e-commerce including food ordering, online banking, social networking, and many more. Food ordering through online platforms, for instance, have evolved due to the growing numbers of users of digital platforms, restaurant-goers, and many more. [2]

In order to improve the operational efficiency of restaurant and catering enterprises by using modern information technology, this paper develops an E-commerce online catering reserving and ordering system based on mobile intelligent terminal, which is based on Android platform. [3]

Numerous efforts have been taken by restaurants to adopt information and communication technologies such as touch screen, PDA, wireless LAN etc. to enhance dining experience. [4]

The Internet, especially the World Wide Web, is moving from a free, academic domain to a profitable commercial world. This underscores the importance of a

digitally secure means of electronic payment for an electronic commerce application. [5]

While e-commerce is rapidly spreading around the world, the food industry also began to take its place in this growing area. The purpose of this study is to investigate the factors that influence the attitude of internet users towards online food ordering in Turkey among university students. [6]

E-commerce has experienced a massive growth after the invention of the internet. The creation of new business models such as online companies whereby the company conducts most of its business on the internet. [7]

The online food ordering system is a web-based system that is developed for restaurant Shu Xiang Lou and its customers. The restaurant is a hot pot restaurant and they run their business physically in Kuala Lumpur. [8]

The existence of wireless technology and the emergence of mobile devices enable a simple yet powerful infrastructure for business application. Some early efforts have been made to utilize both technologies in food ordering system implementations. [9]

In the era advanced technology, e-commerce is becoming more popular all over the world including the food industry. Therefore, some restaurants have changed their traditional way of ordering food to an online ordering system. [10]

Nowadays, food ordering has become a major issue in many restaurants/canteens. Restaurants are faced with challenges such as long queues, long waiting times for customers, an everchanging menu list, etc. [11]

E-commerce in India is expected to see an auxiliary growth by 2020, making it the fastest growing e-commerce market in the world. E-commerce is also witnessing a spurt in online food & restaurant service companies. [12]

Typically in a restaurant food order process involves multiple steps for ordering the food where it all starts by a customer gazing the paper based menu and then inform to the waiter what he or she would like to get. [13]

The GrubHub Inc, started as a small food ordering service in Chicago in 2004, and has developed into an e-commerce food delivery giant worth over \$3 billion. Since its merger with Seamless in 2013, GrubHub has experienced 53% year-over-year growth in revenue. While online food ordering commerce has been expanding over the years, due to the COVID-19, the industry is experiencing an economic shock. [14]

The aim of this study was to develop a food ordering system online, for students of Mountain Top University in which they can be able to order food from the cafeteria. [15]

With the Rapid Development of Mobile Internet Technology, People Hope Access to Internet to get Information and Service Anywhere and Anytime Urgently. Catering Industry also Hopes to Expand the Scope of Business to Network. [16]

Chapter 3

Requirements

Online Ordering System: The website or app should have a user-friendly interface allowing customers to browse the menu, select items, customize orders, and place them easily.

Secure Payment Gateway: Integration with trusted payment gateways to ensure secure transactions for online orders, including options for credit/debit cards, mobile wallets, and other payment methods.

Menu Management: Ability for restaurant staff to easily update and manage the menu items, prices, descriptions, and availability in real-time.

Order Management System: A system for restaurant staff to receive, process, and manage orders efficiently, including order tracking, notifications, and order status updates for customers.

Customer Account Management: Features allowing customers to create accounts, save their preferences, view order history, and manage their profiles for a personalized experience.

Inventory Management: Integration with inventory systems to track stock levels of ingredients and menu items, ensuring accurate availability information for customers and preventing overselling.

Delivery Management: If offering delivery services, features for assigning delivery drivers, tracking deliveries in real-time, and optimizing delivery routes for efficiency.

3.1 Using Software:

We are using Visual Studio code to design this project.

3.2 Using Languages:

By utilizing these technologies in E-commerce Restaurant Ordering System project, We have created a robust, responsive, and user-friendly application that meets the demands of modern web development. Each technology brings its own set of advantages and when used together, they can significantly enhance the development

process and the overall quality of our project. Below is a brief description of each technology we have used along with their benefits:

HTML:

Description: HTML is the standard markup language used to create web pages. It defines the structure and layout of a web page by using a variety of tags and attributes.

Benefits: Easy to learn and use. Supported by all browsers. Provides a standardized way to structure content on the web. Works seamlessly with other web technologies.

CSS:

Description: CSS is a style sheet language used for describing the presentation of a document written in HTML. It defines how HTML elements are to be displayed on screen, paper, or in other media.

Benefits: Allows for separation of content from presentation, making it easier to maintain and update the appearance of a website. Provides a wide range of styling options including layout, colors, fonts, and animations. Enhances the user experience by making web pages visually appealing and responsive.

Bootstrap:

Description: Bootstrap is a popular front-end framework for building responsive and mobile-first websites. It includes CSS and JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components.

Benefits: Speeds up the development process by providing pre-designed components and layouts. Ensures consistency and responsiveness across different devices and screen sizes. Offers extensive documentation and community support.

Laravel:

Description: Laravel is a PHP web framework known for its elegant syntax and developer-friendly features. It provides tools and libraries for tasks such as routing, authentication, database management, and testing, simplifying the process of building web applications.

Benefits: Follows the Model-View-Controller (MVC) architectural pattern, promoting code organization and maintainability. Offers built-in security features such as protection against SQL injection, cross-site request forgery (CSRF), and cross-site scripting (XSS) attacks. Integrates seamlessly with third-party libraries and tools through Composer.

Vue.js:

Description: Vue.js is a progressive JavaScript framework used for building user interfaces. It focuses on the view layer of an application and provides tools for building interactive web interfaces.

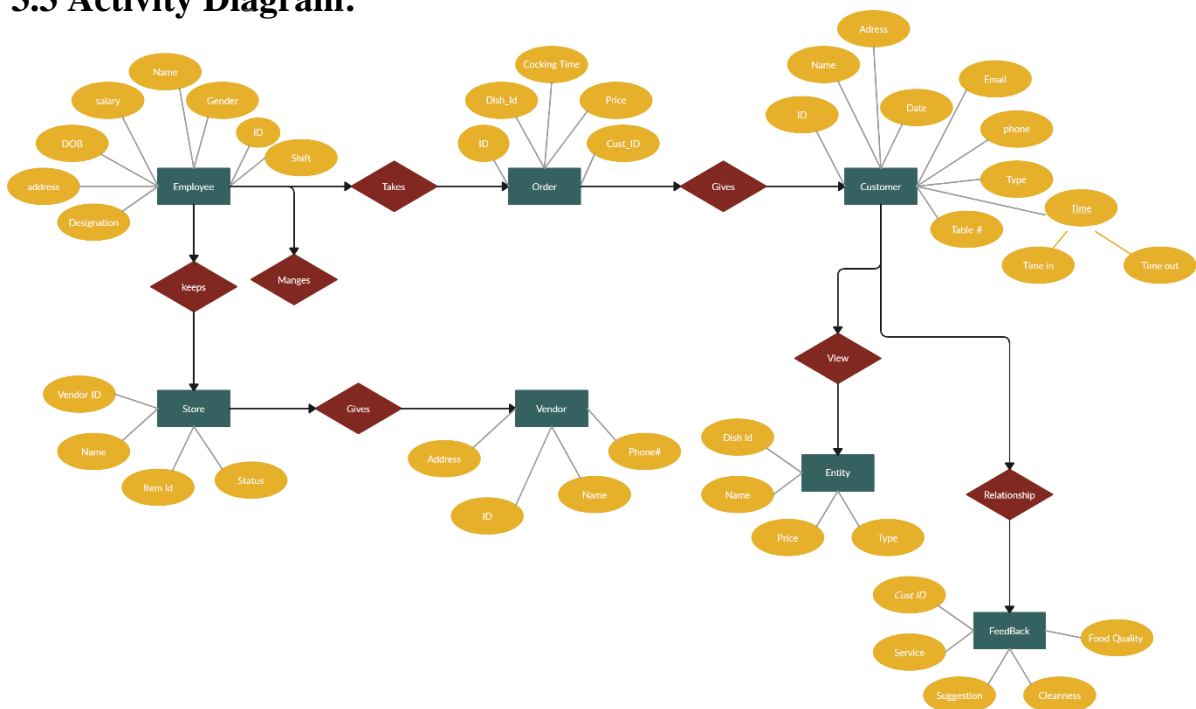
Benefits: Offers a simple and approachable syntax, making it easy to learn and use. Provides reactive data binding and composable components, enabling developers to build complex UIs with ease. Offers a flexible and scalable architecture, allowing for integration with existing projects and libraries.

MySQL:

Description: MySQL is an open-source relational database management system (RDBMS) that uses Structured Query Language (SQL) for managing and manipulating data. It is widely used in web development for storing and retrieving information.

Benefits: Provides high performance, scalability, and reliability for managing large volumes of data. Supports ACID (Atomicity, Consistency, Isolation, Durability) properties to ensure data integrity and reliability. Offers a wide range of features including support for transactions, indexes, stored procedures, and triggers.

3.3 Activity Diagram:



Chapter 4

Result Analysis

Attached are screenshots presenting the output generated by the input codes. Let's delve into the analysis and interpretation of these results to gain insights into the functionality and performance of the provided code snippets.

4.1 Codes

```
Route::match(['get', 'post'], '/login', function () {
    return response()->json(['errors' => 'unauthenticated'], 401);
})->name('login');

Route::match(['get', 'post'], '/refresh-token', [RefreshTokenController::class, 'refreshToken']->middleware(['installed']));

Route::prefix('auth')->middleware(['installed', 'apiKey', 'localization'])->name('auth.')->namespace('Auth')->group(function () {
    Route::post('/login', [LoginController::class, 'login']);

    Route::prefix('forgot-password')->name('forgot-password.')->group(function () {
        Route::post('/', [ForgotPasswordController::class, 'forgotPassword']);
        Route::post('/verify-code', [ForgotPasswordController::class, 'verifyCode']);
        Route::post('/reset-password', [ForgotPasswordController::class, 'resetPassword']);
    });

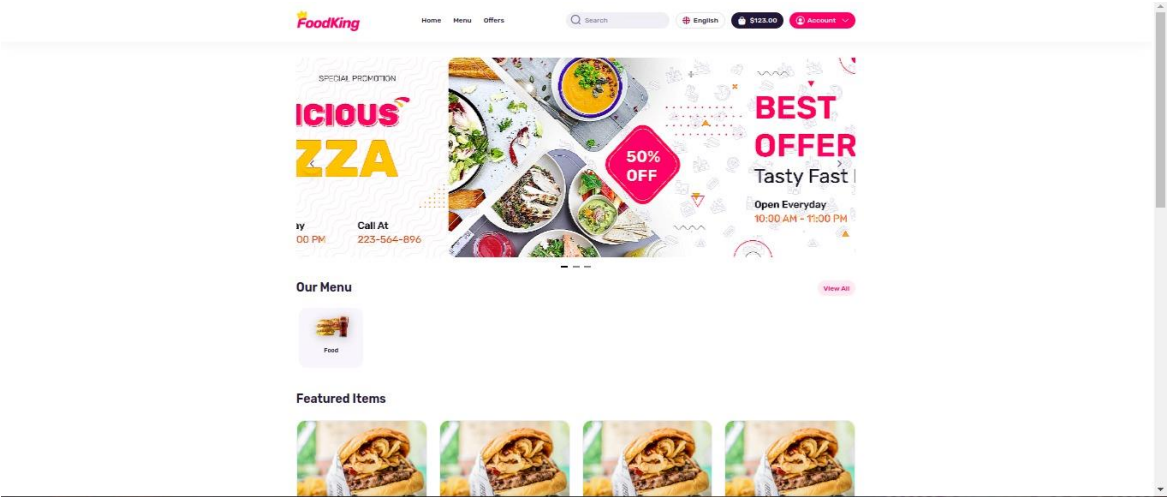
    Route::prefix('signup')->name('signup.')->group(function () {
        Route::post('/otp', [SignupController::class, 'otp']);
        Route::post('/verify', [SignupController::class, 'verify']);
        Route::post('/register', [SignupController::class, 'register']);
    });
});
```

```
/* Start axios code*/
const API_URL = ENV.API_URL;
const API_KEY = ENV.API_KEY;

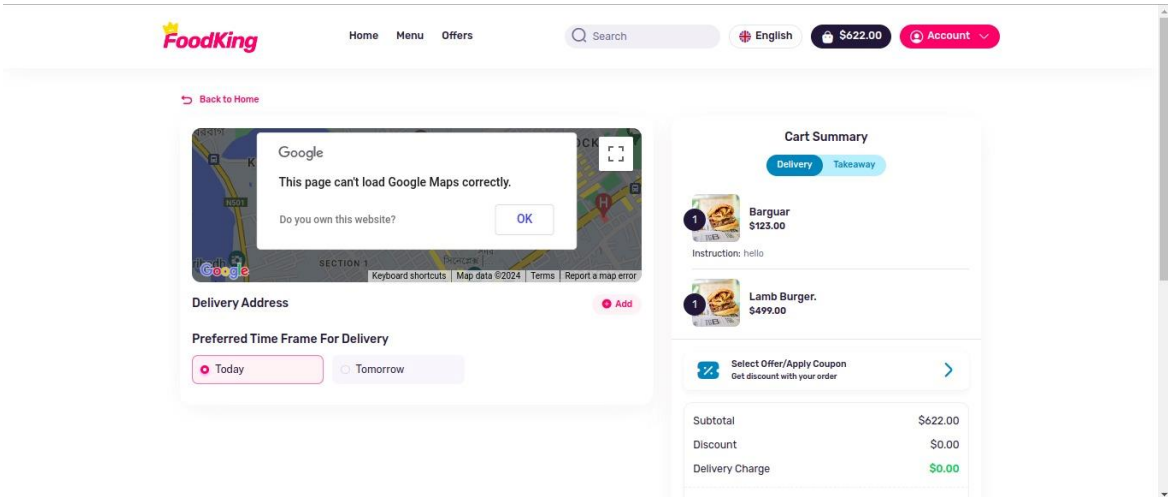
axios.defaults.baseURL = API_URL + '/api';
axios.interceptors.request.use(
    config => {
        config.headers['x-api-key'] = API_KEY;
        if (localStorage.getItem('vuex')) {
            const vuex = JSON.parse(localStorage.getItem('vuex'));
            const token = vuex.auth.authToken;
            const language = vuex.globalState.lists.language_code;
            config.headers['Authorization'] = token ? `Bearer ${token}` : '';
            config.headers['x-localization'] = language;
        }
        return config;
    },
    error => Promise.reject(error),
);
```

4.2 Outputs

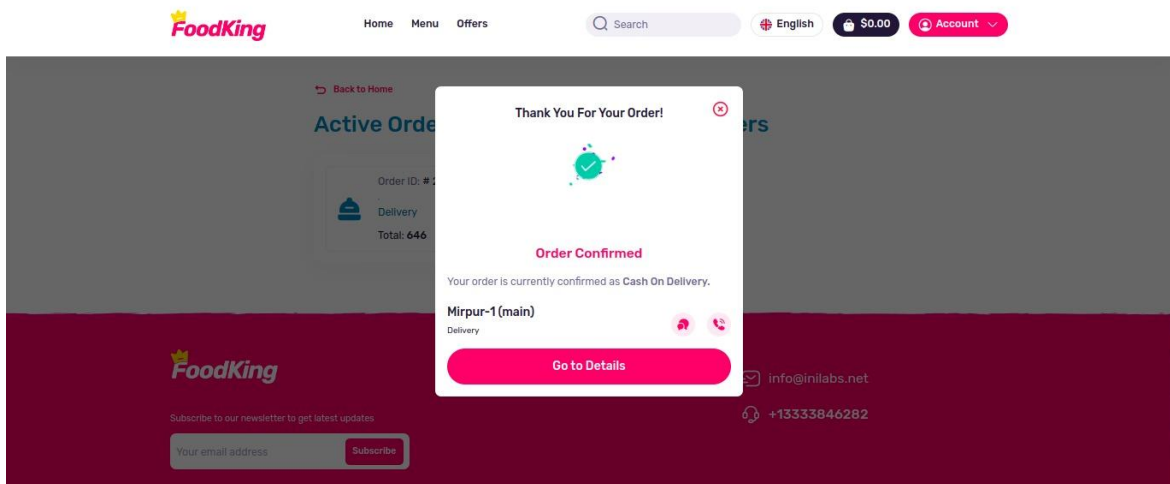
Home page Output:



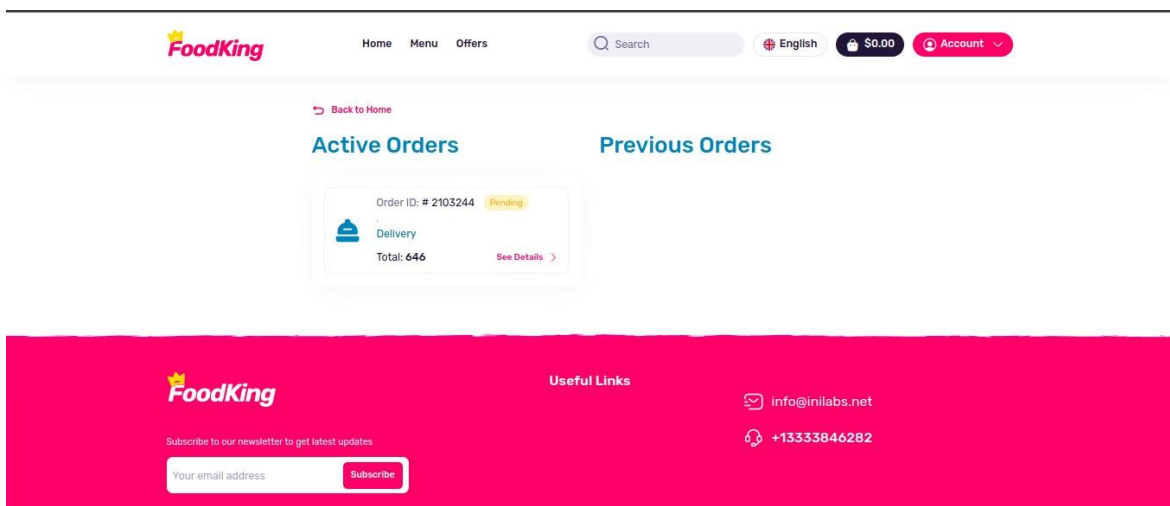
Order Summary Output:



Order Confirmation Output:



Order Delivery Output:



Chapter 5

Conclusion

In conclusion, the development of the E-commerce Restaurant Ordering System using HTML, CSS, Bootstrap, Laravel, Vue.js, and MySQL has been a significant endeavor aimed at revolutionizing the way customers interact with restaurant services. Through the integration of these technologies, we have successfully created a comprehensive solution that facilitates seamless ordering, enhances user experience, and streamlines restaurant operations.

The system provides a user-friendly interface for customers to browse menus, place orders, make payments, and track delivery status. Leveraging the power of Laravel and MySQL, the back-end of the system ensures secure and efficient management of orders, inventory, and customer data. Furthermore, Vue.js components enhance the interactivity and responsiveness of the user interface, while Bootstrap ensures consistency and adaptability across different devices and screen sizes.

5.1 Future Work:

Enhanced User Personalization: Implement features such as user profiles, order history, and personalized recommendations based on past orders to enhance the overall user experience and foster customer loyalty.

Integration of Advanced Payment Options: Explore integration with additional payment gateways and digital wallets to offer customers more flexibility and security in their payment options.

Real-Time Order Tracking: Develop functionality to provide real-time updates on order status, including preparation, dispatch, and delivery, to improve transparency and customer satisfaction.

Implementing Analytics and Reporting: Integrate analytical tools to gather insights into customer behavior, popular menu items, peak hours, and other key metrics to inform decision-making and optimize business operations.

Expanding to Mobile Platforms: Develop native mobile applications for iOS and Android platforms to reach a wider audience and provide a more tailored experience for mobile users.

Enhanced Inventory Management: Implement features

for automated inventory tracking, low stock alerts, and supplier management to streamline inventory operations and prevent stockouts. Integration with Third-Party Services: Explore integration with third-party services such as food delivery aggregators, online reservation systems, and loyalty programs to extend the functionality and reach of the platform. Accessibility and Localization: Ensure compliance with accessibility standards and support for multiple languages to make the system accessible to a diverse range of users and expand into international markets.

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