

Dine-Out Cafeteria Web Application

¹Dr. Radha Pimple; ²Lokesh Bokde; ³Himanshu Sonkusale; ⁴Sonali Meshram; ⁵Swarangi Kharwade; ⁶Vaidahi Chahande; ⁷Dr. M.S. Chaudhri

¹Assistant Professor, Department of Information Technology, Priyadarshini Bhagwati college of Engineering, Nagpur, Maharashtra, India

²UG Student, Department of Information Technology, Priyadarshini Bhagwati college of Engineering, Nagpur, Maharashtra, India

Abstract:- Embark on a gastronomic journey with the "Dine Out Cafeteria Web Application," a paradigm-shifting platform at the convergence of innovation and culinary delight. This research paper unfolds the intricacies of building a dynamic web application that reshapes how individuals engage with cafeteria services, harnessing the combined prowess of Express.js, Node.js, Angular.js, and the fundamental trio of web technologies - JavaScript, HTML, and CSS. At the core of our application is the potent synergy of Express.js and Node.js, providing a robust server-side architecture. Augmented by the dynamic capabilities of JavaScript and the aesthetic prowess of HTML and CSS, our platform ensures swift responses and optimal performance. This synergy guarantees a fluid and responsive user experience, amplifying satisfaction during every cafeteria visit. The incorporation of Angular.js, in tandem with the expressive capabilities of HTML and the styling finesse of CSS, introduces a layer of interactivity and user-centric design to our application. Crafted with HTML and styled with CSS, the interface facilitates seamless navigation, allowing users to effortlessly explore menus, place orders, and personalize their dining preferences. Angular.js contributes real-time updates, creating an immersive and dynamic connection between users and the diverse culinary offerings. The Dine Out Cafeteria Web Application boasts key features such as an intelligent recommendation system, personalized user profiles, and a secure payment gateway. These features seamlessly integrate through the collaboration of JavaScript, HTML, and CSS. The research paper delves into the technical intricacies, offering insights into the design and implementation processes, showcasing the practical application of these foundational web technologies. In conclusion, the Dine Out Cafeteria Web Application not only redefines the traditional cafeteria experience but also exemplifies the harmonious integration of and envisioning the future landscape of enhanced digital dining experiences. As the culinary domain embraces the digital era, our web application stands as a testament to the transformative influence of technology in shaping the future of dining out.

Keywords:- *Android, Mobile Application, Table Reservation, Food Order, Table Order, Hall Booking Customer, Hotel Management.*

I. INTRODUCTION

"Dine-Out Cafeteria" is developed to automate day to day activity of a Cafe/Restaurant. This application will provide detailed information about all the cafes based on different searches of the user. The user has to select the options based on their needs which will be then approved / rejected by the owner of the Cafe. The main point of developing this system is to help Cafe administrator manage the Cafe business and help customer for online ordering and reserve table.

It is a valuable tool for Cafe/Restaurant of all sizes, as it can help them optimize their seating arrangements and ensure that their customers are able to get the tables they want. The application allows customers to view available tables and make a reservation for a specific time and date.

Customers can search for Cafe/Restaurant by location, type of cuisine, or other criteria, and then book a table for a specific date and time.

The "Dine-Out Cafeteria" app aims to build the system that provides ordering and reservation service by online to the customer.

In proposed system user can search for a menu according to his choice i.e. according to price range and category of food and later he can order a meal. The services that are provided is food ordering and reservation table management by the customer through the system online, customer information management and waiter information management, menu information management and report.

The restaurant menu is organized by categories (appetizers, soups, salads, entrees, sides, drinks, etc.) of menu items. Each menu item has a name, price and associated recipe. The present project consists of developing a system to reserve a table at a specific date and time which is subjected to availability of tables in the restaurants along with ordering system at the time of booking itself.

II. LITERATURE SURVEY

Title of Paper	Methods/Tech-niques used	Analysis and Observations
<p>“ Resturant Table Reservation System using Android Mobile Application”, International Journal pf Advance Research in science Engineering and Technology and Vol. 5, Issue 9 , September 2018.</p> <p>International Journal of Advanced Research in Science, Engineering and Technology International Journal of Advanced Research in Science, Engineering and Technology</p>	<p>They made use of emerging technologies and hand held devices (PDAs) for easier communication between service providers to their consumers.</p>	<p>User-friendly. To lessen the measure of time to and exertion utilization by the client to save. Great for a minute ago reservations.</p>
<p>Design and Implement An Online Rest System”, Journal Volume 7, Issue 4 August 2018.</p> <p>“A Survey On Touch Based Food Ordering System In Resturants” International Journal on Recent and Innovation Trends in Computing and Communication and Vol 6, Issue 3, March 2018.</p>	<p>Used the model serves as a software approximation to a real-world process, so simple real-world modeling techniques apply when defining the model, there will be a model called User that will represent the table in the database for storing details of customers.</p> <p>This paper presents touch based food ordering system considering android as the base and various other technologies such as Java and Html, CSS, AJAX, etc. for web based applications.</p>	<p>Highlights of Similar Implementation from Vendors There are several implementations of online food ordering and table reservations that I would like to highlight from different vendors.</p> <p>In India the food industry i.e., the restaurants still follow the traditional pen and paper method. This method often tends to waste the time of both the customers as well as the restaurants, plus there is a possibility of getting the wrong order.</p>
<p>Implementing Customizable Online Fo Using Web Based Application”, Intern Innovative Science, Engineering & T Issue 4, April 2015.</p>	<p>Using wireless technology there was easy communication between the PDA’s and server. But PDA based system also had several drawbacks.</p>	<p>The kitchen staff would then prepare the dishes according to order and after completion of order they would inform to waiter, who collected and delivered the dishes to the respective tables. After serving the order, bill was generated at the cash counter as per customer order.</p>
<p>“Mobile Based Online Resturant Reservation System”, International Research Journal of Engineering and Technology (IRJET), Volume. 8 Issue 4, April 2021.</p>	<p>Therefore, how to effectively improve the service quality for customers by using advanced technologies has received much attention in recent years.</p>	<p>Intelligent Restaurant” it’s all about getting all of your different touch-points working together-connected, sharing information, personalizing experiences and speeding processes. It helps us to avoid from waiting for food and confusion on selecting a table on that time. For better accessibility online payment is available. The administrator can keep track of the details of booking tables and foods.</p>

III. PROPOSED METHODOLOGY

The Outline of the methodology involves: -

- Import Datasets
- Missing Value's Imputation
- Exploratory Data Analysis
- Feature Engineering
- Model Building
- Model Evaluation

IV. PROCEDURE

A. Modular Design philosophy:

Develop a scalable and maintainable architecture for the cafeteria web application.

- **Implementation:** Leverage the modular capabilities of Node.js and Express.js to break down the application into reusable components. Each component focuses on specific functionalities such as menu management, order processing, and user profiles. This approach

ensures code modularity, making it easier to update and expand the system.

recommendations. This real-time interactivity ensures a seamless and immersive user experience.

B. Real-Time Interactivity with Angular.js:

Enhance user engagement and responsiveness through real-time updates and dynamic content.

- **Implementation:** Integrate Angular.js for the front-end to create a responsive, single-page application (SPA) architecture. Utilize Angular.js data binding and event-driven features to provide users with instant updates on menu changes, order status, and personalized

C. Seamless Integration of the Express.js and Node.js:

Leverage the asynchronous, event-driven nature of Node.js to handle concurrent connections effectively. Express.js is employed to set up robust API endpoints, facilitating smooth communication between the client and server. This integration ensures rapid data retrieval, order processing, and seamless user interactions.

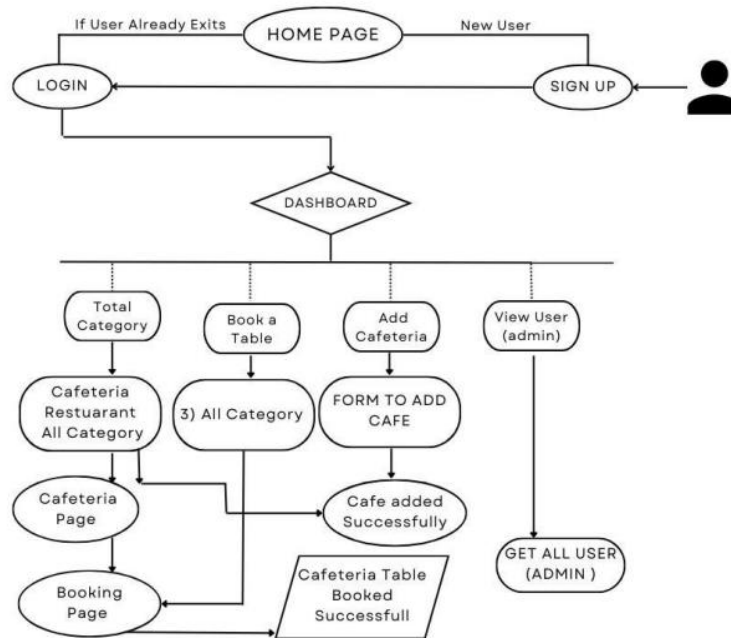


Fig. 1: Flow Chart

V. NUMBERS OF MODULES AND PROCESS LOGIC

The main motive to build this web application is for digitalizing the table booking of a Cafe/Restaurant, where a user can reserved a table before reaching, select the food and order it, in a single application.

- **Login, Sign up Module:** The login, sign up, and sign out module is an essential component of our web app that requires user authentication. This module is responsible for ensuring that only authorized users can access certain resources or functionalities, thereby maintaining the security and integrity of the system. The login module allows users to sign in to their account, which gives them access to the cafe's services.
- **Book a table Module:** The book a table module is an essential feature of “Dine-Out Cafeteria” web application that offers table reservations to its customers. This module allows customers to make a

reservation for a table at the desired Cafe/restaurant, thereby ensuring that they have a guaranteed spot upon arrival.

- **Add Cafe/restaurant Module:** The add Cafe/restaurant module is a crucial component of “Dine-Out Cafeteria” web application that offers a directory of restaurants or cafes. This module allows cafe owners to add new restaurants or cafes to the directory, thereby expanding the list of available options for customers to choose from.
- **Admin approval Module:** The admin approval module is an essential feature of “Dine-Out Cafeteria” web application that allows cafe administrators to review and approve the Cafe owner’s request to add a Cafe. This module helps maintain the quality of content on the web app and ensures that inappropriate or harmful content is not published.

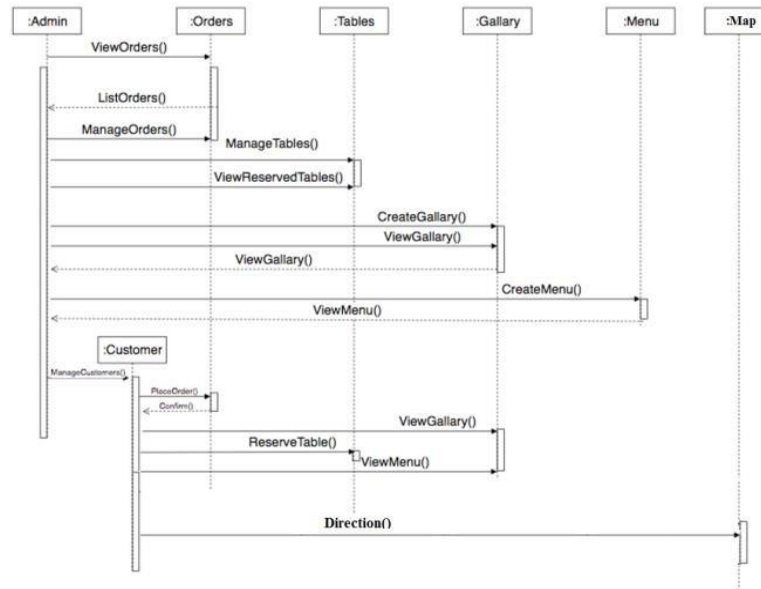


Fig. 2: Data Structures and Tables

In univariate analysis, it was observed that a input features like 'chlorides', 'residual sugar', 'total sulfur dioxide', 'sulphates' are skewed due to the presence of outliers A Structure Chart in software engineering is a chart which shows the breakdown of a system to its lowest

manageable parts. They are used in structured programming to arrange program modules into a tree. Each module is represented by a box, which contains the module's name.

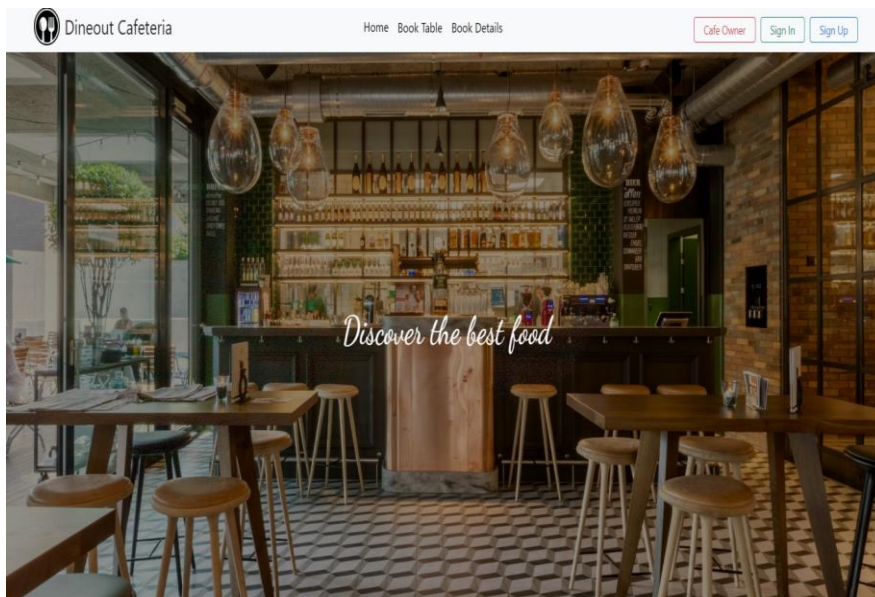


Fig. 3: Input screen & Output Screen

VI. SYSTEM DESIGN

The home page of an online cafe booking website is typically the first page that users see when they visit the site. It serves as a gateway to the rest of the site's content and functionality, and is therefore crucial for making a good first impression on users and encouraging them to explore further.

- **Login/signup:** A login/signup form is typically located on the home page, allowing everyone (user/admin/cafe owner) to create an account or sign in to their existing account.

- **Navigation menu:** A navigation menu is typically located at the top or side of the page, providing links to other sections of the site such as Home, Book Table, Book Details, etc.
- **Cafe owner:** A sign up form for a Cafe owner allowing them to create the account and add their cafes.

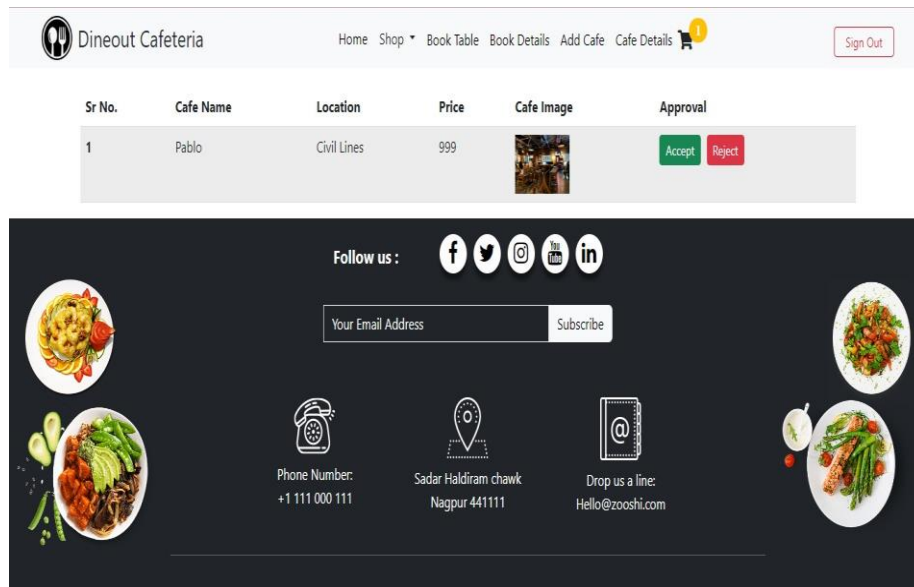


Fig. 6: Admin Approval Module

VII. TESTING AND VALIDATION CHECKS

Validation testing can be best demonstrated using V-Model. The Software/product under test is evaluated during this type of testing.

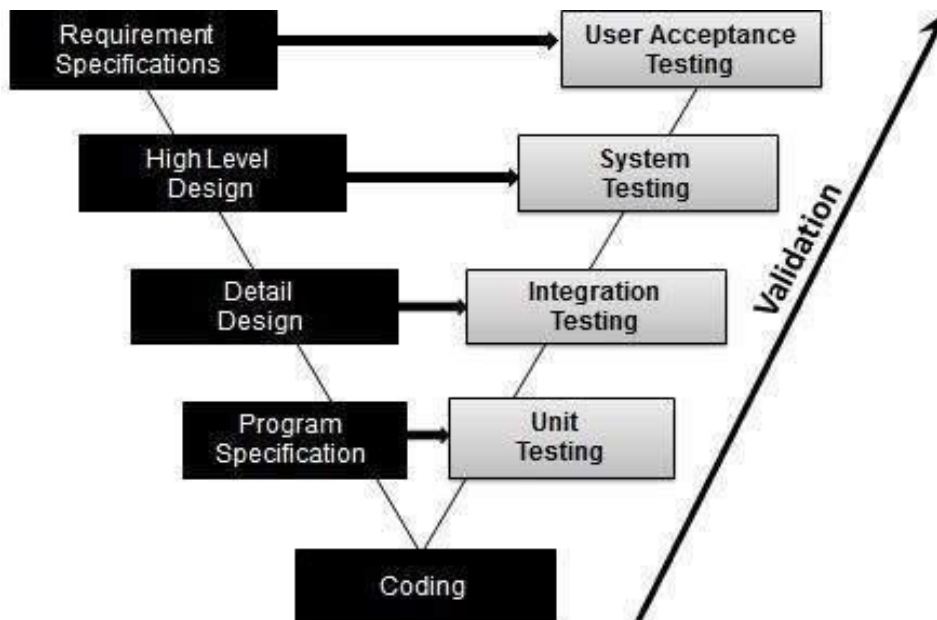


Fig. 7: Testing and Validation Checks

VIII. IMPLEMENTATION, EVALUATION AND MAINTENANCE

The software or technology which needs to run in our system is node.js, angular and for database MYSQL. Once this technology is installed in our system with the current version then we can install its library and packages for our work. Node.js is a server side scripting language which helps us to make a server for or application which works on the basis of taking response from user or sending response from the user it helps us in implementing request respond methods it is commonly used for making API for our system in an optimized and authentic model

IX. RESULTS

The project user enters the individual points of interest to get a record which0 is should have been utilized in the Android App. The client can see the sustenance. This will enable the client to save a table and the reservation subtle elements are sent to the email ID of the client.

- **System Architecture:** The web application employs a robust and scalable architecture, leveraging Node.js for server-side logic, Express.js for middleware, and Angular.js for dynamic client-side interactions. This ensures a seamless and responsive user experience.

- **User Interface (UI) Design:** The Angular.js framework is utilized to create an intuitive and aesthetically pleasing user interface. Features such as dynamic content loading, single-page application behavior, and responsive design contribute to an engaging user experience
- **Feedback and Reviews:** The web application incorporates a feedback and review system, allowing users to share their dining experiences.
- **Future Enhancements:** The research identifies potential areas for future enhancements, such as incorporating machine learning algorithms for personalized menu recommendations, implementing progressive web app features, and exploring blockchain technology for transparent transaction records.

X. CONCLUSION

The project has concluded that if a customer is willing to visit the restaurant and he finds no table is available for the dinner/lunch then he/she has to wait long for the table availability. With the help of this app user can choose the table's location according to their need and willing e.g. Table can be reserved as according to number of visitors. Moreover, you can easily book the hall for a celebration party or any mega event and can see pictures of interior from the Web Application.

Keeping in view the demand of proposed project that gives a series of services and provides the customer to easily book hall or to reserve their available table without waiting through an web application.

This is achieved through an easy to use graphical interface menu options. The users can add any number of items to the cart from any of the available food categories by simply clicking the Add to the Cart button for each item. Once item is added to the cart, user is presented with detailed order to review or continue.

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