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Design of Web App for Online Food Services

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Abstract: ***Online Food Ordering has become an indispensable part of everyone's lives. The internet has grown so big on a various scale like what was it before and that has greatly affected the lifestyle of the whole world. This introduced a new concept of online ordering and delivery of food services. Thus, Online Food Ordering Application primarily helps in delivering the following tasks of order and delivery of food services. The online food ordering system provides convenience and is made for catering to the needs of the customers. Nowadays every person prefers to order food online rather than cooking food at home because of the quick and easy availability of these services. Because the meal menu is available online, it is simple to keep track of orders, manage a client database, and improve the quality of food delivery service. This technology enables the user to choose the meal items that they want from a menu that is provided. The meal products are ordered by the user. The information about the user is kept confidential and is only saved in the database if necessary. Each user is assigned a unique id and password that cannot be shared. As a result, it allows for the ordering of food products safely.***
Keywords: Web application, food ordering, Online, graphic, Rating.

I. INTRODUCTION

The rapid rise of the internet and related technologies has had a huge impact on the lives of people all over the world. The advent of virtual stores, through which marketers may sell items and services to customers all over the world, has had the largest impact on the marketing industry. Consumers can now purchase goods and services nearly anywhere, at any time of day or night, seven days a week, regardless of geographical or temporal limitations[1]. Individuals are now placing food orders using a website or an app, which is referred to as online food ordering, which is comparable to the operation of purchasing things through an internet-based environment[2]. In addition, the online food ordering system offers a variety of payment choices, including Cash on Delivery and online payment options through PayPal (Google Pay, Paytm, etc.). The tremendous advancement of technology has facilitated the entry of restaurants and food delivery enterprises into the online food ordering system, which has made everyone's lives more convenient. The internet makes it feasible for anyone to place an order for any type of food and have it delivered directly to their doorstep. An order placed in the app that will be designed is stored in a database and then retrieved in real-time by a desktop application on the administrator's end using a desktop application. All of the items in the order, as well as their accompanying options and delivery information, are displayed clearly and straightforwardly within this application. This enables the administrative staff to reply to requests as soon as they are received, and the items are manufactured with the least amount of delay possible, hence increasing customer satisfaction.

II. LITERATURE SURVEY

A. What is an Online Food Ordering System?

An online food ordering system is software that helps restaurants, coffee shops, etc. to accept orders in an online mode. It allows customers to choose and pay for the food from their home or anywhere else using any mobile or computer device. It alerts the kitchen when an order is made[3]. An admin is there to manage the orders and maintain the technical services. This happens without any kind of contact between staff and customers.

B. Features of Online Food Ordering System

Online ordering platforms must include both a browser-based system so the customers can order from their homes or offices, and an app that lets them buy on the move[4]. This gives customers complete ordering flexibility.

A good food ordering system should include the following basic features[5].

1) Offer rewards schemes and coupons to encourage repeated selling.
2) Let users create profiles to save payment information for quick purchases.
3) Rating and Review for the food purchased.
4) Give customers easy access to information such as the address, contact details, and opening and closing hours of restaurants.
5) Provide a customer support service in case of queries regarding bad delivery of service.

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C. Why set up an online food Ordering System?

Setting up an online food ordering system for a restaurant is a bit of work initially but in the future, it provides many long-term benefits[6].

1) Save money
2) Receive larger orders
3) Enjoy flexibility and control
4) Keep your customers

D. Disadvantages of Online Food Ordering System

Surely, there are tons of advantages of online food delivery but it has disadvantages too. Some of them are:

1) Deliverymen put themselves in danger as they deliver in all harsh environmental conditions.
2) Disguised Increased Expense.
3) Revenue Conflicts Between the Restaurants and Delivery Providers.
4) Juggling With Your Health.
5) The quality of food may suffer.

III. PROPOSED METHODOLOGY

In the restaurant industry, an online ordering system is a software that allows a restaurant to accept and manage orders sent through the internet. Customer orders are received and processed by the restaurant through an administrative interface, which is typically comprised of two components: a website or app that allows customers to view the menu and place an order, and an administrative interface that allows the restaurant to receive and process customer orders.

The following are some of the steps that are taken to complete this online ordering portal:

A. Requirement Analysis

In this step, the features and requirements were gathered, analyzed, refined, and scrutinized. The following three steps were undertaken in requirement analysis:

1) *Zero level Data Flow Diagram (0 Level DFD):* A zero-level DFD or context diagram[7] is a simple model that helps us identify and define the interfaces and boundaries of the external world with the system that is proposed. It can be used to identify the entities that are outside the system proposed that in any manner interacts with the system. Figure 1 is a zero-level DFD for the portal.

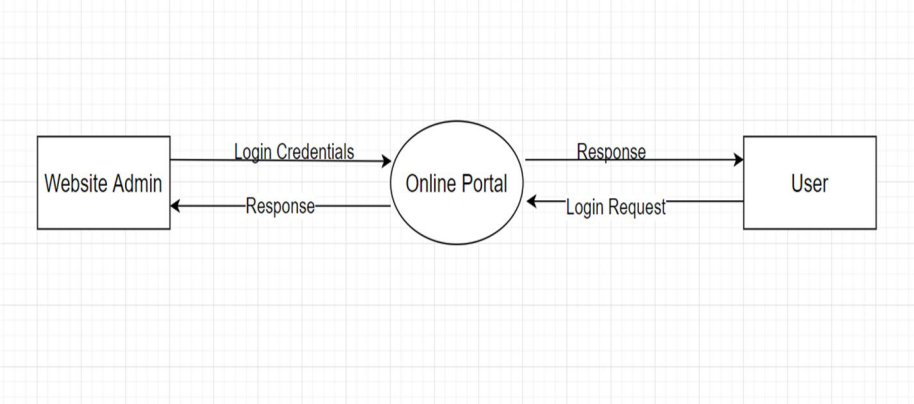


Figure 1. Zero level DFD (Online Food Ordering Portal)

2) *Modeling the Requirements:* After the modeling of zero level DFD, we constructed models that include level-1, level-2 DFD, and Entity-relationship diagrams to help find missing, incorrect, superfluous, and inconsistent requirements[8]. Figure 2 represents level-1 DFD.
3) *Finalizing the Requirements:* After having a better understanding of the system and its behavior and after resolving the ambiguities and inconsistencies, we finalize the requirements. The entity-relationship diagram of the proposed work is shown in Figure 3 which shows various entities involved and their attributes.

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B. Product Description- Mobile Food Ordering System

The Mobile Food Ordering System is available on the web as well as on the Android and iOS platforms as an application that allows customers to place food orders on the go. It is developed with a variety of features for users, such as the location of the nearest available restaurant and thorough menus for ordering food quickly and easily. It also has a feature that allows you to phone nearby restaurants. The suggested system is divided into two primary sections: one for administration and another for customers. The customer feature is comprised of a profile section that contains information about orders, ratings, favorite orders, delivery options, settings, and other features, as well as other sections. Business Management, Analytics & Report Generation, Customer Relationship Management, and Supervise the Action are the features that are required for the administration sector. When a consumer orders any type of food, all of the information related to the order will be kept in a database. After placing an order, a confirmation message will be provided to the customer, along with an option to track your order, indicating that your transaction has been successfully placed. This application was created employing the MERN stack technology, which stands for MongoDB, Express, React/Redux, and Node.js. The MERN stack technology was used in the development of this application. React.js is used for front-end development, Express.js and Node.js are used for back-end development, and MongoDB is used to store the information in a database.

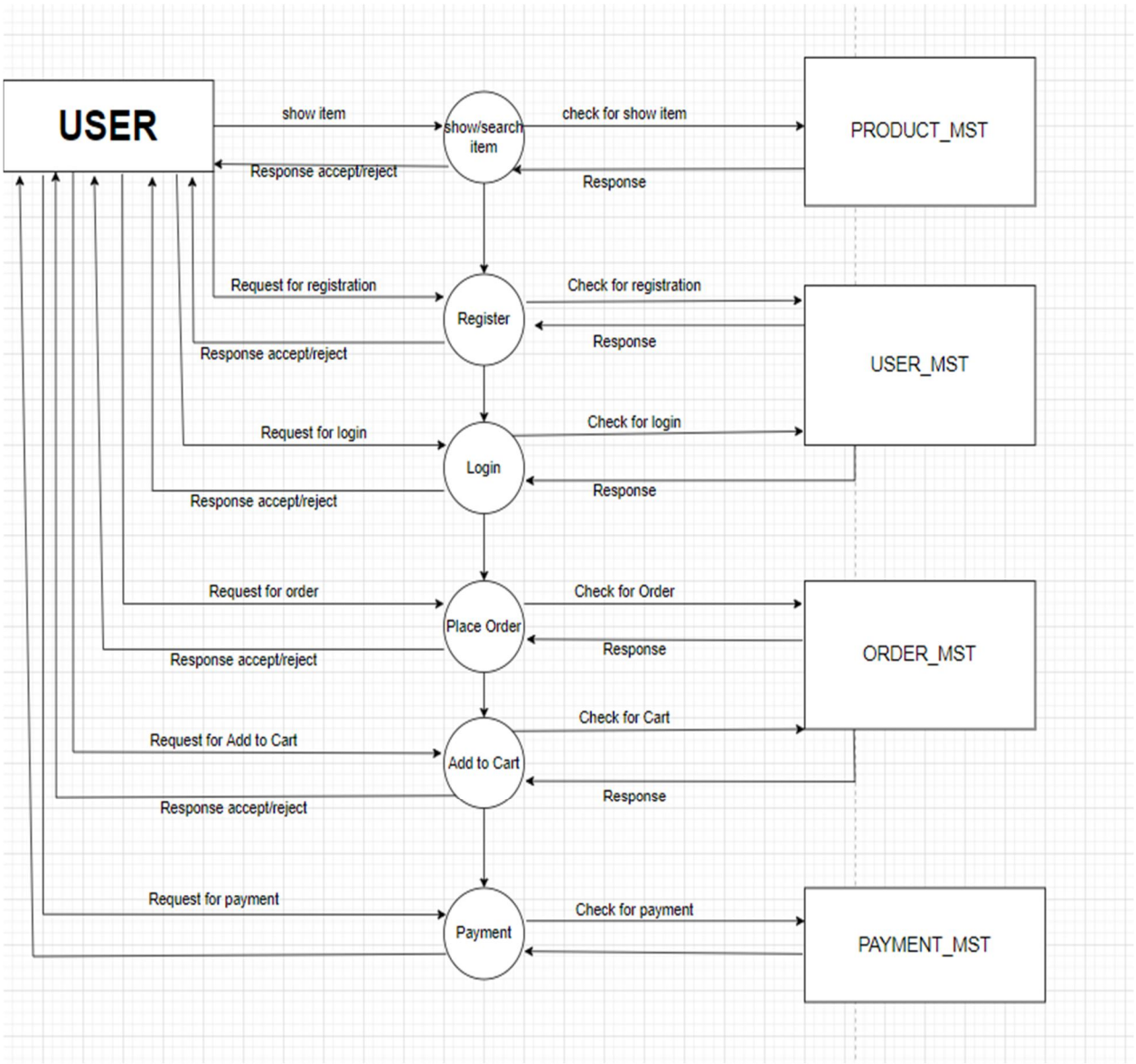


Figure 2. 1-level DFD (User side)

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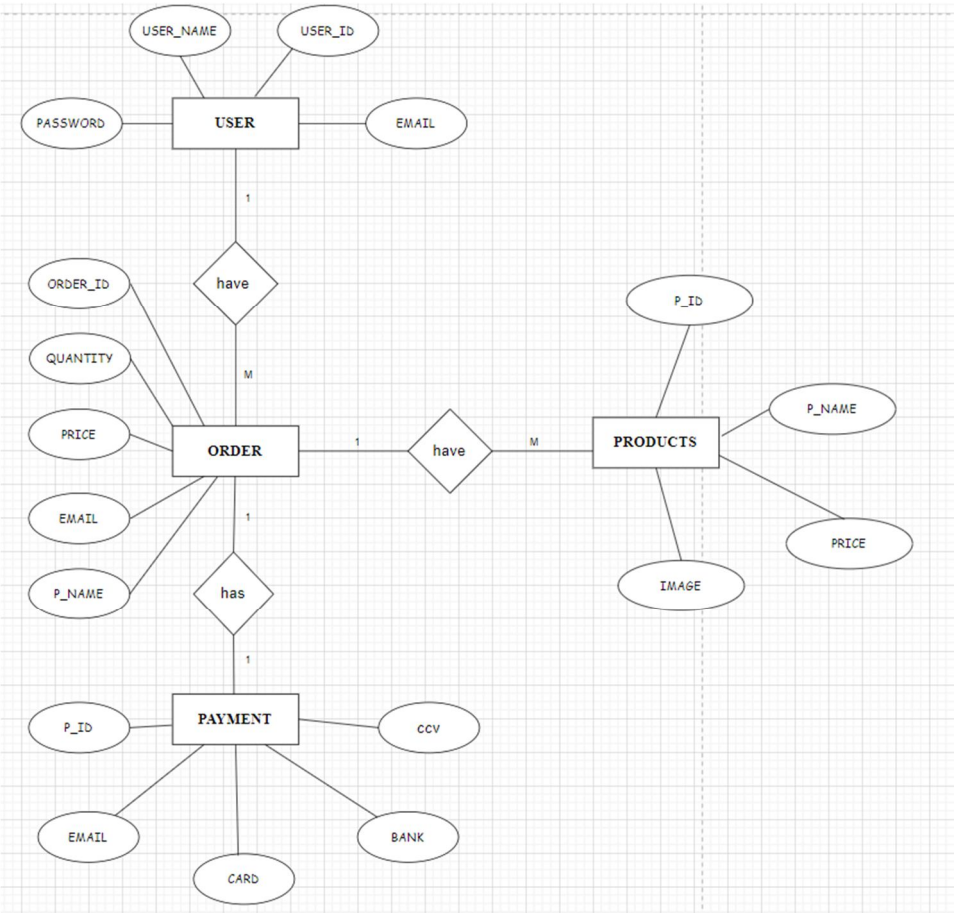


Figure 3. ER diagram (Food Ordering App)

1) *Main Interface:* This is the landing page of the portal and the website. This is a homepage where the users can access various resources and have access to various functionalities. Figure 4 showcases the main interface and the landing page.

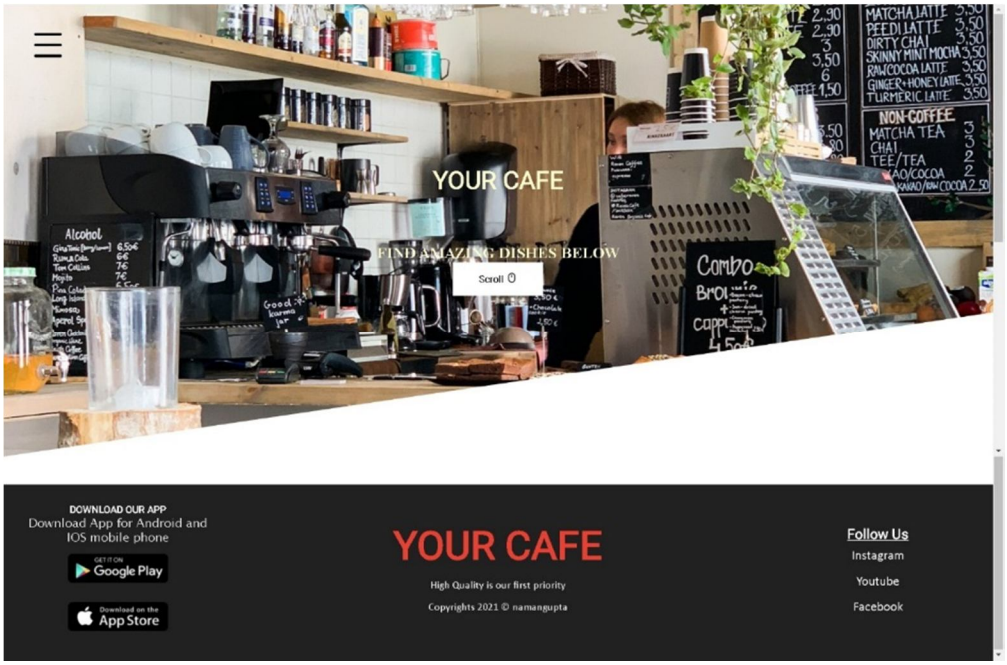


Figure 4. Home page

2) *Register and Login:* First, if anyone wants to use our website to order food they have to register first then they can login to order anything they want and use all the other functionalities provided by application. Figure 5 shows the GUI of the register and login page.
3) *Our Services*

a) *Search and Menus:* The most important thing is to first collect all the displays and provide the related information about products and offers to the customers. This is created using technologies like GrubHub's API and FourSquare's API.
b) *Secure Payment Integration:* This is used to perform in-app payments to our services. The technologies used here are Stripe and Paypal.
c) *Accurate time of Food Delivery:* It is important to deliver food at an accurate time because nobody likes to wait. So our system uses a Machine Learning algorithm to predict the delivery time of food items.
d) *GPS Tracking:* It provides the driver's real-time location on your device so that the order can be tracked easily. Here various APIs like Google Maps API and Google Places API is used to provide this tracking information.
e) *Ratings and Reviews:* The final thing is providing a feedback system so that users can tell about the experience which results in greater customer service by fixing all the things from the feedback. Hence it is really important to integrate this feature into the app.

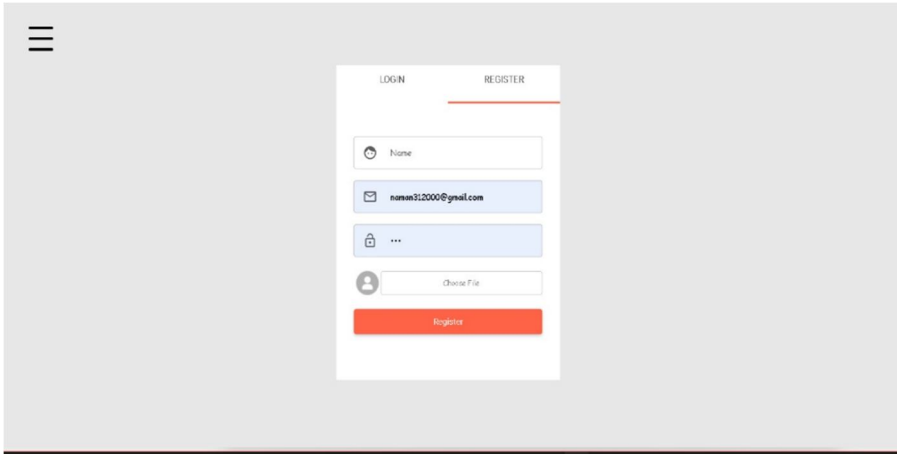


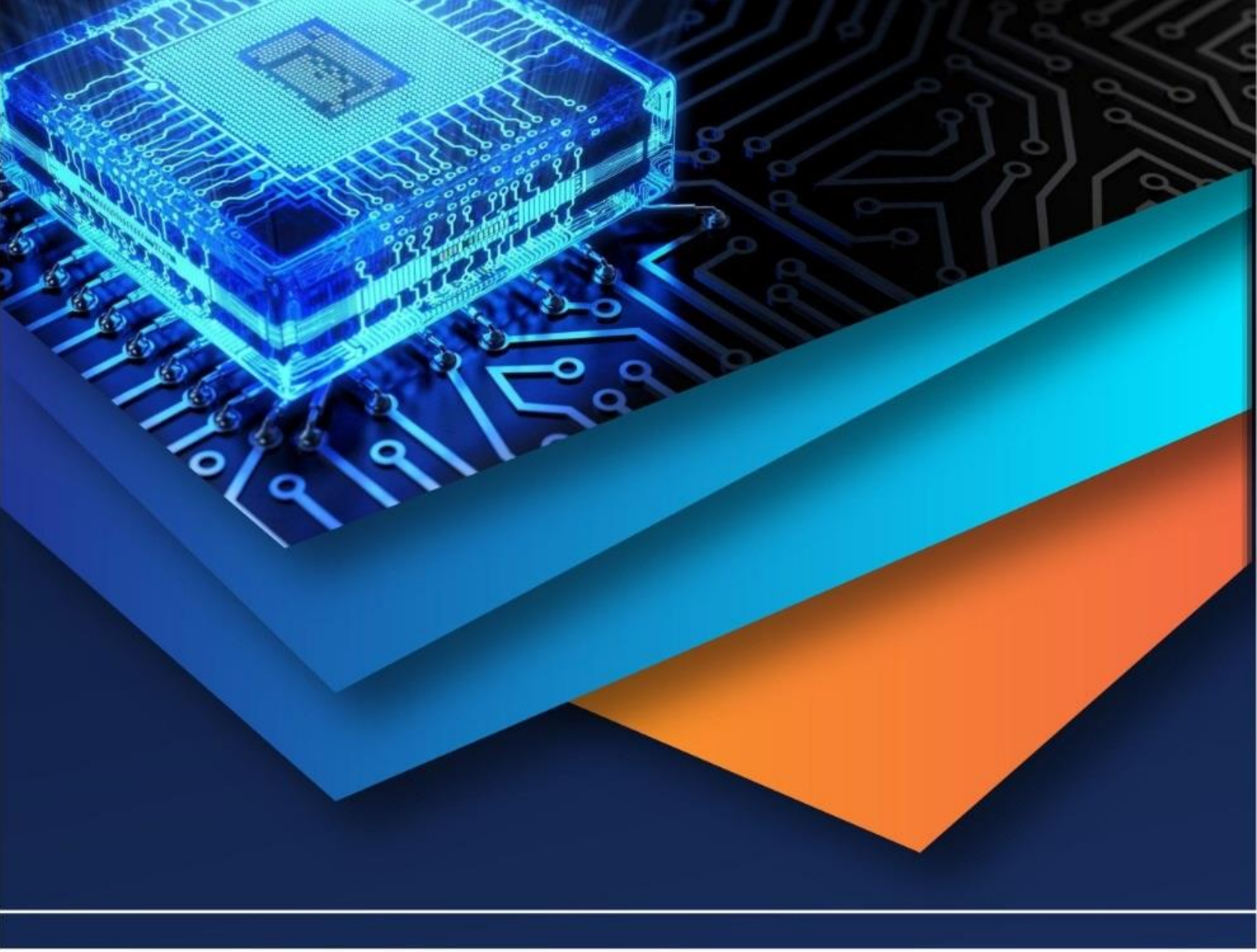
Figure 5. Login and Signup page

IV. CONCLUSION

This paper is focused on primarily creating online food ordering apps for the comforts of people but the global pandemic has pushed this business to an unbelievable extent in the food market. Most of the food sector is an unorganized sector. However, the market is now growing and is crossing the bounds that were never been before, restaurants can now use this app as a medium to approach their potential customers and can increase their sales and profits. Thus, this method of food delivery is fulfilling customers' expectations with a wide choice of restaurants with ease of ordering of foods from the comfort of home with reduced cost.

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