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Online Cafe - Food Ordering Management System: An Innovative Pilot Study

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Abstract: Catering Service for food/Online Cafe (OC) is the software designed to order food online for Customers. The prime objective of the project is to provide smart and effective service to the end-users. It is a web-based application that is built using JAVA with a user-friendly interface for customers to browse the catalogue and order the food online. The shop keepers can include as many products as possible and also categorize them as they prioritize, manage orders and process the payments. The clients have to make their own choice and choose their preferred mode of payment and wait for the delivery of their food items.
The OC system processes all sorts of information related to the order type options. It facilitates an end to end solution in online food ordering. By adopting this new approach, the information can be accessed with just a single click.
The study focuses on a web application in JAVA for online food ordering system and provides an option for the restaurant owners to update their food menu as well. This study also focuses on establishing effective connectivity between the front end (shopkeeper and customer) and back-end (admin) using JAVA database connectivity with MySQL.
Keywords: catering, customer, food order, online cafe, shopkeeper

I. INTRODUCTION

The technological innovations and advancements in information and communication technology have undergone a paradigm change in the last decade. Ever-rapidly evolving strategies that adapt itself to the ever-changing human practices are the need of the hour. Despite innovations happening very rapidly across various industries, Food industry had always been lagging in terms of innovations, novelty and modernization. With online presence being felt across all industries, the food industry has undergone a revolutionary change in practice in the last five years. Food systems these days have undergone a massive shift from being supply-driven to demand-driven [1]. In the past, the food industry traditionally lagged behind other industries in adapting itself to innovations and newer technologies. Recent advances in the field of computer technology and ever-increasing expectations from the end-users (consumers) have made it mandatory for the food industry to bring in a full-fledged automated process that enabled complete transparency in the food sale and distribution process [2].

Another motivation can be considered as the increasing use of smartphones by the customers so that any users of this system get all service of the system. The system will be designed to avoid users doing fatal errors where users can change their profile also where users can track their food items through GPS and where users can provide feedback and recommendations to Restaurants/Mess service providers. There's a need for the system due to lack of a full-fledge application that can fulfil the customer requirements by providing him food from restaurants/mess service.

For the students studying in different cities, our system will be very helpful. The flexibility to the Customers/Users to order from either Restaurants or Mess is provided by our system. A recommendation to the customers is also provided from the restaurants/mess owners which are updated daily. There will be no limitation on the amount of order the customer wants by ordering food from our system. As a Startup Business for the developers, the same system application can be used. Real-time customer's feedback ratings are provided by our system with the comments to the restaurants/mess owner. It gives appropriate feedbacks to users, so if there is any error happened, and then there will be a feedback dialogue toward users. To avoid users doing fatal errors and inappropriate action our system application is designed. Input will be taken by the user from the graphical user interface. The major attributes such as name, address, and email-Id, mobile no, other personal related values will give input to the dataset. The User/Customer's Order, Bill, Feedback and Recommendation will provide the output. For the initial implementation of the system, we have considered 2 restaurants and 2 mess services in 5 areas.

Khairunnisa proposed a project that presented an in-depth technical operation of the Wireless Ordering System (WOS) that included systems architecture, their function, various limitations and possible recommendations [3]. Our research project aims to design and develop a fully automated wireless food ordering system facility for the customers ordering food from a restaurant.

II. OBJECTIVES

A. To develop a web application in JAVA for online food ordering system and provide an option for the restaurant owners to update their food menu as well.

B. To develop a methodology that links, syncs and facilitates effective communication between the admin and the shopkeepers with the end-user (consumer).

C. To establish an effective review process whereby the customer's feedback about the quality of food ordered, hygiene and service of the restaurant, to be made visible to the shopkeeper and the admin backend.

D. To establish a firm connection between the front end (shopkeeper and customer) and back-end (admin) using JAVA database connectivity with MySQL.

III. EXISTING SYSTEM

Traditionally, in any restaurant, the food order process involves several steps for ordering the food. To begin with, the customer has to start browsing the paper-based menu and then orders to the waiter for the food items. This process necessitates that the customer has to visit and be seated in the restaurant before placing any order. An alternative innovative method that might facilitate the customers is a "Food Pre-Order System using Web Based Application" in which customer would be enabled to place an order before they visit the restaurant [4]. In the existing system of the office, the cafeteria is working on manual management process where user information and billing details are updated in records. Catering Services involves a lot of human work and the resources required. So managing the resources and the people will become difficult. In this world of very busy working atmosphere, one cannot afford to spend so much of time to order food in a queue. To solve these problems, the catering management system will be of great help.

A. Disadvantages

Until very recently, food delivery orders were given to the waiters either in person or over the telephone, but there are many inherent disadvantages to this system. These include an inconvenience to the customer as a hard copy of the food menu may be needed and a lack of a visual confirmation that the correct order has been placed.

IV. PROPOSED SYSTEM

In the present era of software revolution, web services technology has become an essential component to integrate heterogeneous systems and development of various newer applications. Ashutosh proposed a Digital Hotel Management that integrates various systems of the hotel industry including Ordering System using Kitchen Order Ticket (KOT) [5]. With the proposed OC system, maintaining and processing all sort of information about order type option control the life cycle of an order. The food ordering system would aid in managing the available people, their resources and their timings as well. The algorithm used here is a Collaborative Filtering Algorithm. OC will help in solving the problems related to the catering at the events that are conducted. A system created for catering services for online reservations to organize the schedule of reservations. This includes the capability to generate a unique reservation code for security purposes. This system will help to reduce time to generate reports and process reservations. This helps the user by saving a log of time and providing the user with up to date information.

A. Advantages

The main advantage is that the user can come to know about the best Service provider. He has various options to choose the best one. As the whole process is made digital, the person has to fill the various forms and multiple copies of the forms can be easily generated at a time. It is also not necessary to create the manifest but we can directly print it, which saves a lot of time both for the shop keeper and the end-beneficiary. Real-time feedback to customers is another advantage with such systems. The Customizable wireless food ordering system with real-time customer feedback (CWOS-RTF) enables restaurant owners to set up the system in a wireless environment and update menu presentations easily [6].

V. SYSTEM ARCHITECTURE

Fig 1 illustrates the flowchart of the system architecture. The schematic representation gives a bird's eye view of the network between the admin, employee and the shopkeeper, keeping in mind the comfort of the customer. Emphasis is given to make the application more user-friendly to the customer, with a sole motto to motivate the end-user to use the application more frequently. As the word of mouth from the end-user would be the best advertisement for any business, priority is given to make the whole process (starting from ordering a food item online up to the receipt of the safely packed food item) so very transparent.
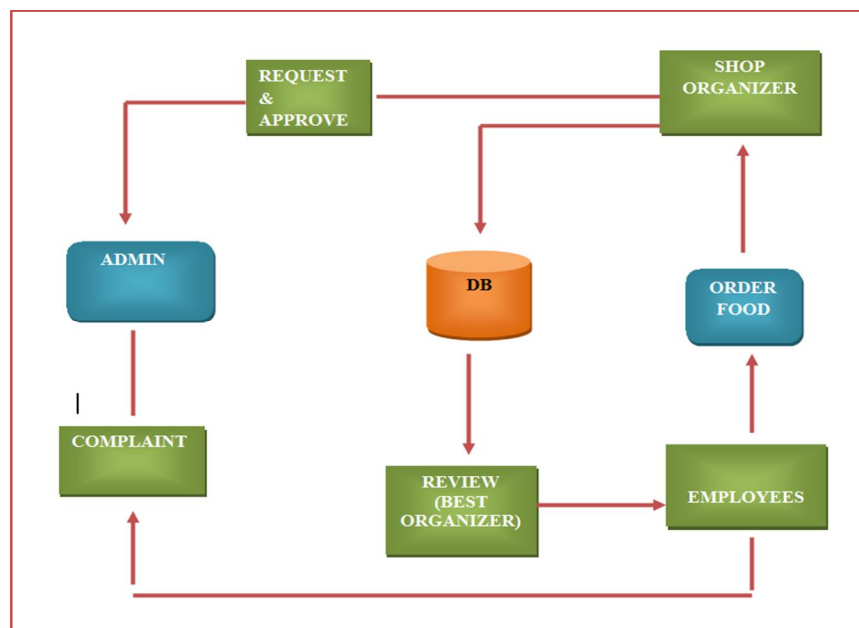
Fig 1: Flowchart of the system architecture

VI.   IMPLEMENTATION

This project has three modules in Food Recommendation Management that includes an Admin, Employee and a Shop organizer. Fig 2 illustrates the data flow diagram (DFD) of the system design. The four levels of the system design provide information about the outputs and inputs of each entity and the process itself.
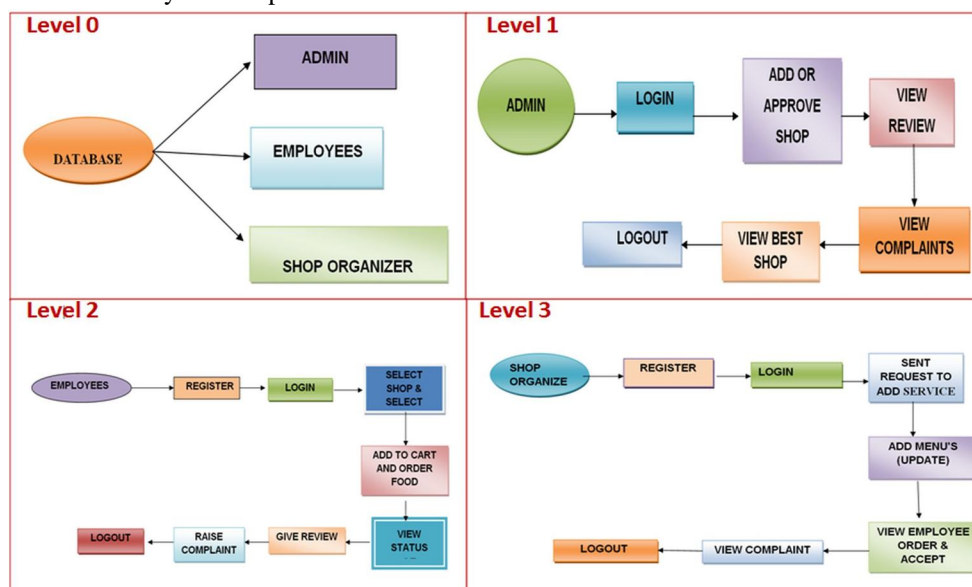

Fig 2: data flow diagram of the system design

The 4 levels include the database, admin, employees and the shop organizers.

Level 0 is the backend, which includes a complete database of all the admin, employees and the shop organizer. This preliminary level facilitates a thorough interactive knowledge between the admin, employee and the shop organizers.

Level 1 should begin with the admin logging in the application by giving their username and password. The next step would be to add and approve the shortlisted shopkeepers. Periodic viewing ad reviewing of the shop performance is done by the admin by taking into consideration the reviews and the complaints registered by the clients and customers. This also facilitates the admin to take necessary action on those shops about which repeated complaints are received. The data provided to the admin would also facilitate them to consolidate all the reports and decide on the best performing shop keepers, motivating them by financial incentives.

Level 2 mainly emphasizes the role of the employees. The employee needs to initially register the account by giving their information. After registration, the employee can log in into their account, select shop & select the menu and then display all the list of items selected. The food items selected are then added to the cart, food is ordered by making a payment. Once the payment process is through, the employee would be in a position to view the status of the order. A review of the food available, the pricing, details about the shop and the shopkeeper can all be done by the employee to enhance the quality of the product supplied by the shopkeeper. Wherever appropriate, based on the observations made, the employee can register a formal complaint about the quality of food supply, its hygiene and the ambience of the shop. This level is extremely crucial in this pandemic period, whereby, the employee, sitting remote, can observe all the happenings in the shop online and ensure proper and adequate measures are taken by the shopkeepers in ensuring the hygiene of the food supplied and safety of the customers.

Level 3 is the most crucial part of this chain. This level revolves around the shop organizer, as this step is very crucial in acting as a liaison between the admin and the end-user. The shop keeper is first encouraged to register an account by giving his basic information and identity. Once the registration process is completed, this enables the employee to access the shop keeper's registered account. Once the access is accomplished, the shopkeeper would be asked to feed all the information to the admin about the various types of services available at the shop. This step aligns all the three (admin, employee and the shopkeeper) and enables them to sync to perfection. Once the shopkeeper feeds the list of all food items available for the end-user, the employee makes it visible to the customers to make an order of their choice. Once the ordering by the customer is complete and the payment is done, the shopkeeper is now able to view and accept all the orders made. This method of practice makes the entire chain of events work hassle-free. Viewing of the complaints made by the customers is also made possible to the employee, who either can sort them out at their level or can bring it to the notice of the admin, depending on the severity.

VII. CONCLUSION

The application is based on the user's requirement and is user-centred. All issues related to all users which are included in this system are developed by this system. If people know how to digitally operate, a wide variety of people can use this application. This system will solve the various issues related to food orders. It can be concluded that, based on this application, food orders can be made easily. Receiving orders and modifying its data is possible through the application and it also helps admin in controlling all the Food system.

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