A Comprehensive Study on Online Food Order System

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APPROVAL

Science and Engineering and approved as to its style and contents The project titled "A Comprehensive Study on Online Food Order System" submitted by Mahedi Hasan (CSE1903018154), Faria Afroj (2001019009), Marjuk Ahmed (CSE19030180499) to the Department of Computer Science and Engineering, Sonargaon University (SU), has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Computer.

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DECLARATION

We, hereby, declare that the work presented in this report is the outcome of the investigation performed by us under the supervision of **Md. Rashedul Islam**, Lecturer, Department of Computer Science and Engineering, Sonargaon University, Dhaka, Bangladesh. We reaffirm that no part of this project has been or is being submitted elsewhere for the award of any degree or diploma.

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ABSTRACT

E-commerce refers to the purchase and sale of goods and/or services via the Internet. Online Food Ordering System is a part of e-commerce. **ONLINE FOOD ORDER SYSTEM** is a website designed primarily for use in the food delivery industry. Through these services, restaurants can sell and distribute their resources at minimal resource usage effectively with high profits by gaining customer trust. This Online food order system database will be helpful for business owners to extend their business just by placing the orders online and not visiting the restaurant.

There is no confinement for placing and receiving the orders since the order can be placed online. There will be no waiting time with the vast amount of varieties at comfortable prices. To develop this application, the database is the main part which will communicate through the application to retrieve the details. We will be creating the online food ordering database with Oracle as a platform.

Database includes customers can place their orders from different food categories, and restaurant staff will process the orders and deliver the requested order with an expected delivery time, and asking the customers for the reviews and depends on the order quantity, providing the rewards to the customers where they can claim money.

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LIST OF ABBREVIATIONS

HTML	Hypertext Mark-up Language
CSS	Cading Style Sheets
DBMS	Database Management System
DOM	Document Object Model
FTP	File Transfer Protocol
JS	Java Script
MVC	Model View Controller
MVT	Model View Template
PC	Personal Computer
RTP	Real-time Transport Protocol
SDLC	Software Development Life Cycle
UI	User Interface
UX	User Experience
VI	Visual Instrument
WWW	World Wide Web

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CHAPTER 1
INTRODUCTION TO ONLINE FOOD ORDER

1.1. Introduction

The "Online Food Ordering System" has been developed to override the problems prevailing in the practicing manual system. This software is supported to eliminate and, in some cases, reduce the hardships faced by this existing system. Moreover, this system is designed for the particular need of the company to carry out operations in a smooth and effective manner.

The application is reduced as much as possible to avoid errors while entering the data. It also provides error messages while entering invalid data. No formal knowledge is needed for the user to use this system. Thus, by this all it proves it is user-friendly. Online Food Ordering System, as described above, can lead to error-free, secure, reliable, and fast management of the record keeping. Thus, it will help organizations in better utilization of resources.

Every organization, whether big or small, has challenges to overcome and manage the information of Category, Food Items, Order, Payment, and Confirm Order. Every Online Food Ordering System has different food item needs; therefore, we design exclusive employee management systems that are adapted to your managerial requirements. This is designed to assist in strategic planning and will help you ensure that your organization is equipped with the right level of information and details for your future goals. Also, for those busy executives who are always on the go, our systems come with remote access features, which will allow you to manage your workforce anytime, at all times. These systems will ultimately allow you to better manage resources.

1.2. Project Overview

Ordering is a process of the customers specifying what they want so that the order can be recorded by using a note, form, computer system, and many others, followed by passing it to the relevant department for processing and finally delivery of the services or products to the customers based on the order. An ordering system is referred to as a set of detailed methods that is being used in handling the ordering process. Food ordering can be computerized or done manually. A computerized ordering system or more often known as Ordering Management System (OMS) can be defined in several ways. An ordering management system is a computer software system used in a number of industries for order entry and processing. To discover information about this project, it is planned to have visits to the restaurant for observing the current ordering system. Besides that, browsing restaurant official websites is a must. Browsing through those websites can help to gather some information, such as, about the restaurant promotions, available foods, and the prices. A research on food ordering system is considered to get better understanding about the system. This can be done by reading through the journals and articles. Nevertheless, reviewing up-to-date documentation such as restaurants menus and receipts will also be included in the plan.

1.3. Project Background

The online food ordering system is one of the latest services most fast food restaurants in the western world are adopting. With this method, food is ordered online and delivered to the customer. This is made possible through the use of electronic payment systems. Customers pay with their credit cards, although credit card customers can be served even before they make payment either through cash or cheque. So, the system designed in this project will enable customers to go online and place orders for their food.

Due to the great increase in the awareness of the internet and the technologies associated with it, several opportunities are coming up on the web. So, many businesses and companies now venture into their business with ease because of the internet. One such business that the internet introduced is an online food ordering system. In today's age of fast food and takeout, many restaurants have chosen to focus on quick preparation and speedy delivery of orders rather than offering a rich dining experience. Until recently, most of these delivery orders were placed over the phone, but there are many disadvantages to this system. It is possible for anybody to order any goods via the internet and have the goods delivered to their doorsteps. But while trying to discuss the transfer method of the goods and services, attention is focused on the payment mode. In other words, how possible is it to pay for goods and services via the internet? This then leads to the discussion of the economic consequences of digital cash. What are the implementations from the viewpoint of economics? Since the world is fast becoming a global village, the necessary tool for this process is communication, of which telecommunication is a key player. A major breakthrough is the wireless telephone system, which comes in either fixed wireless telephone lines or the Global System of Mobile communication (GSM).

What I propose is an online ordering system originally designed for use in college cafeterias but just as applicable in any food delivery industry. The main advantage of this system is that it greatly simplifies the ordering process for both the customer and the restaurant. The system also greatly lightens the load on the restaurant's end, as the entire process of taking orders is automated. Once an order is placed on the webpage that will be designed, it is placed into the database and then retrieved, in pretty much real-time, by a desktop application on the restaurant's end. Within this application, all items in the order are displayed, along with their corresponding options and delivery details, in a concise and easy-to-read manner. This allows the restaurant employees to quickly go through the orders as they are placed and produce the necessary items with minimal delay and confusion. The greatest advantage of this system is its **FLEXIBILITY**.

1.4. Saving Time and Benefit

Smart restaurateurs are always looking for ways to streamline operations and have staff work efficiently. One great way to do so is to offer online ordering to your customers. Having an online ordering system has many benefits for your business. When you implement an online ordering system for your restaurant, you can expect to save lots of time in the following ways.

1.4.1. Avoid Miscommunications with Customers

One time-saving benefit of ordering online is that it eliminates misunderstandings between humans. Too often, orders that are taken over the phone can be misheard or written down wrong. Although these errors can be chalked up to simple human error, it can result in unhappy customers. Traditionally, the way to fix these problems was to spend time fixing the order so it meets the customer's expectations.

Preparing an entirely new meal for someone takes time, often while the customer is waiting and hungry. When an order is placed online, your customers have the opportunity to order their meals to their specifications and submit them online with just one click. The restaurant then has easy-to-read and easy-to-follow specifications on how to prepare the food exactly how the customer wants it. So, no time is wasted re-preparing food that was prepared incorrectly.

1.4.2. Updates Are Quick

Restaurants often update their menu offerings. Whether it is to add new items, remove old ones, or change the daily specials, menu updates are necessary and frequent. Without an online ordering system, the menu update process can be long and arduous. In fact, some restaurants do not bother and simply have to tell call-in customers, "we don't have that anymore" when they order something that is no longer on the menu, which just makes the restaurant look bad.

With an online ordering system, menu updates are automated and fast. In fact, they can be done in minutes rather than hours. A restaurant can save several hours over the course of just one week, and that time can be spent on other aspects that are also important to the restaurant.

1.4.4. Get Paid Faster

Despite the fact that you opened a restaurant because you love food and wanted to perform a service for people, the simple fact is that you own a business to make money. It is simply a fact of business that you need money to sustain it, so you want to make sure you get the money that is owed to you in a timely manner. When you implement an online ordering system, you can receive your money within one day's time.

If you choose the right online ordering service, such as Orders2Me, the money can go right to you rather than through the service, thus saving even more time. Some services take up to four weeks to get your money to you. That is an excessive amount of time to wait when you need the money to put back into your business. So, when cash flow is important to the sustenance of your business (and when isn't it?), choose your online ordering service wisely, and go with one that has a short turnaround time for the receipt of your money.

Now is the time to bring your restaurant into the technological age. There is no doubt that most, if not all, of your customers are almost constantly connected to the world through their computers, phones, and mobile devices. So, it is simply logical to reach them where they already are and offer the ease and convenience of online ordering.

Not only is it beneficial for your customers, implementing an online ordering system will save you and your staff an incredible amount of time. The time that is saved with a more streamlined and efficient online ordering system can be used to work on other projects that can better benefit your restaurant, or even allow you to take a night off every week.

1.5. Project Objectives

The main objective of the Online Food Ordering System is to manage the details of Item Category, Food, Delivery Address, Order, and Shopping Cart. It manages all the information about Item Category, Customer, Shopping Cart, and Item Category. The project is totally built at the administrative end and thus only the administrator is guaranteed access. The purpose of the project is to build an application program to reduce the manual work for managing the Item Category, Food, Customer, and Delivery Address. It tracks all the details about the Delivery Address, Order, Shopping Cart, Customer, and Order.

Features of Online Food Ordering System Are As Follows:

- Provides the searching facilities based on various factors such as Item Category, Delivery Address, Order, and Shopping Cart.
- The transactions are executed in offline mode, hence online data for Item Category and Food capture and modification is not possible.
- It tracks all the information of Food, Customer, and Order.
- Manages the information of Food.
- Shows the information and description of the Item Category and Delivery Address.
- All the fields such as Item Category, Delivery Address, Shopping Cart are validated and do not take invalid values.
- It generates the report on Item Category, Food, and Customer.
- Provide filter reports on Delivery Address, Order, and Shopping Cart.
- To increase efficiency of managing the Item Category, Food.
- It deals with monitoring the information and transactions of Order.
- Manage the information of Item Category.
- Editing, adding, and updating of Records is improved, which results in proper resource management of Item Category data.
- Manage the information of Order.
- Integration of all records of Shopping Cart.
- To develop a system that will surely satisfy the customer service.
- To design a system able to accommodate a huge amount of orders at a time.
- To evaluate its performance and acceptability in terms of security, user-friendliness, accuracy, and reliability.
- To improve the communication between the client and the server and minimize the time of ordering.

1.6. Aim and Scope of the Project

Order Food online system is a process in which one can order various foods and beverages from some local restaurants and hotels through the use of the internet, just by sitting at home or any place. And the order is delivered to the desired location.

Nowadays everyone is having a busy schedule whether it is urban areas or rural. But talking specifically about urban areas and deeply about the big cities, people out there are so busy in their life that they don't get enough time to have their meals properly. These days women are no less than men in any field.

So, in big cities, even wives are working women, therefore mostly the small families manage to have their food ordered from somewhere, as they lack time. Not only this is the case, if we talk about the children in the modern era, they like only fast food or something from the outside. But they ignore eating homemade meals.

So, the food ordering system these days has one of the fastest-growing markets, though being a new idea. In this project, we have developed something like the same to learn from and serve the nation in a much better way possible. Nowadays, people are more regular to dine-in at the restaurant for their meals.

The online food ordering system provides convenience for the customers that are nothing special but the general busy people of society. It overcomes the demerits of the manual hotel or mess system and the old-fashioned queuing system. This system enhances the ready-made foods that people prefer.

Therefore, this system enhances the speed of getting food on a person's plate and the quality and manner of taking the order from the customer. It provides a better communication platform.

User's details are stored using electronic media. The online food ordering system provides the menu online, and the customers can easily place the order by just clicking the mouse or by touching a button on their smartphones.

Also, with the food ordering system online, people can easily track their orders, and the admin can maintain the customer's database and advance the food delivery system. This food ordering system allows the user to select the desired food items from a list of available menu items provided by the local hotel or restaurant.

The user can place orders for the food items of their liking from the list. The payment can be made online or pay-on-delivery system. The user's details are maintained confidentially because it maintains a separate account for each user. An ID and password are provided for each user.

And several encryption techniques have also been used on the server side to protect the card details. Therefore, it provides a more secure and safe ordering system.

CHAPTER 2
BACKGROUND AND RELATED WORK

2.1. Introduction

When making a website, there's a lot to do! As well as writing PHP, Framework, HTML and CSS, JavaScript, Bootstrap, and many so on, tools may be needed to test a new website. It is mandatory to use programming languages and tools for developing any website. Our Find Lawyer system has been developed using PHP, HTML, CSS, JavaScript, Bootstrap, and MySQL. This project helps people save their time, having no stress, no bargaining. People can find a different kind of lawyer via reviews and ratings.

2.2. Languages and Tools

2.2.1. HTML

HTML originally stands for "Hypertext Markup Language." HTML is the language used to create webpages. "Hypertext" refers to the hyperlinks that an HTML page may contain. "Markup language" refers to the way tags are used to define the page layout and elements within the page. HTML is mainly used to design webpages using markup language. This language performs in the browser to manipulate text, images, and other content to display in the required format. Hypertext indicates the connection between the webpages, where a markup language indicates the text documentation among the tags that define the structures of the webpages. It makes note for the computer and annotates the text so that the machine can understand it and manipulates text accordingly. The language uses tags to define what manipulation has to be done on the text. HTML uses predefined tags and elements that tell the browser how to properly display the content. If omitted, the browser applies the effect of the opening tag until the end of the page.

2.2.2. CSS

Cascading Style Sheets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable. CSS handles the look and feel part of a web page. CSS has been designed to separate the presentation and content, including layout, colors, and fonts. This separation gives more flexibility and control in the design of presentation characteristics, improves content accessibility, and also improves page load speed between the pages that share files and its formatting. It can enable multiple web pages for sharing formatting, the relevant CSS in a separate .css file that lowers complexity and repetition in the structural content as well as enabling the .css file to be cached. Separation of formatting and content also makes it feasible to present the same markup page in different styles for different rendering methods, such as on-screen, in print, by voice, and on Braille-based tactile devices. CSS also has rules for alternate formatting if the content is accessed on a mobile device.

2.2.3. DATABASE

A database is an organized collection of data, generally stored and accessed electronically from a computer system. Where databases are more complex, they are often developed using formal design and modelling techniques. **The database management system (DBMS)** is the software that interacts with end-users, applications, and the database itself to capture and analyze the data. The DBMS software additionally encompasses the core facilities provided to administer the database. The total of the database, the DBMS, and the associated applications can be referred to as a "database system". Often the term "database" is also used to loosely refer to any of the DBMS, the database system, or an application associated with the database.

Computer scientists may classify database-management systems according to the database models that they support. Relational databases became dominant in the 1980s. These model data as rows and columns in a series of tables, and the vast majority use SQL for writing and querying data. In the 2000s, non-relational databases became popular, referred to as NoSQL because they use different query languages. For this project, we will use database management systems (MySQL). And for query, our database will use Structured Query Language (SQL).

2.2.4. JAVASCRIPT

JavaScript (.js) is a lightweight object-oriented programming language which is used by several websites for scripting the webpages. It is an interpreted, full-fledged programming language that enables dynamic interactivity on websites when applied to an HTML document. [4] JavaScript was first known as Live Script. Later, its name was changed to JavaScript by Netscape because of the excitement being generated by Java. After that, the

General purpose core of the language has been embedded in Netscape, Internet Explorer, and other web browsers. JavaScript client-side mechanisms have many opportunities over traditional CGI server-side scripts. This code is executed when a user submits the form and

2.2.5. TAILWIND

Tailwind CSS is a utility-first CSS framework designed to make building custom user interfaces faster and more efficient. Instead of providing pre-styled components, it offers a set of utility classes that can be directly applied to HTML elements to style them. These classes cover various aspects of styling, including layout, spacing, typography, colors, and more.

With Tailwind, you can design directly in your markup by combining small, reusable classes. This approach allows for precise control over the appearance of elements without needing to write traditional CSS. Additionally, Tailwind is fully customizable, enabling developers to tailor it to match the specific needs of their project.

It is widely used for building responsive, modern designs while ensuring consistency and flexibility. Tailwind also supports features like Just-In-Time (JIT) compilation, which optimizes CSS by including only the classes actually used in the project. This makes it a popular choice for creating lightweight and highly customizable designs.

2.2.6. REACT

React is a JavaScript library for building user interfaces. It focuses on creating dynamic and interactive web applications by using reusable pieces of code called components. These components allow developers to structure their applications in a modular way, making the development process more organized and maintainable. React is widely used for creating both small and large-scale web projects, enabling efficient updates and rendering of web pages as the application state changes. It is supported by a large community and has an extensive ecosystem of tools and libraries that complement its functionality.

2.2.7. NODE.JS

Node.js is a powerful, open-source, cross-platform JavaScript runtime environment that allows developers to run JavaScript code outside of a web browser. Built on Chrome's V8 JavaScript engine, it is widely used for building scalable and efficient server-side and network applications.

Node.js operates on a single-threaded, event-driven architecture, making it ideal for handling asynchronous programming and managing multiple simultaneous connections with high performance. It comes with a rich library of modules, known as npm (Node Package Manager), which provides a vast collection of tools and packages to accelerate development.

Node.js is commonly used for creating RESTful APIs, real-time applications, microservices, and full-stack applications when combined with front-end frameworks like React or Angular. It is widely appreciated for its speed, scalability, and ability to unify development across the client and server using a single programming language.

2.2.8. EXPRESS.JS

Express.js is a minimal and flexible Node.js web application framework designed to simplify the process of building web and API applications. It provides a robust set of features to create both single-page and multi-page web applications, as well as RESTful APIs.

Known for its simplicity and unopinionated design, Express.js allows developers to build applications using custom middleware and route-handling logic. It is lightweight and extensible,

enabling developers to add functionality as needed through third-party middleware or custom components.

Express.js is widely used in conjunction with Node.js to streamline back-end development, making it a popular choice for building server-side applications, APIs, and micro services. Its compatibility with templating engines and ability to handle dynamic routing make it a versatile tool for various web development projects.

2.2.9. FIREBASE

Firebase is a platform developed by Google that provides a suite of tools and services for building, improving, and growing web and mobile applications. It simplifies backend development by offering a variety of ready-to-use features that eliminate the need to manage complex infrastructure.

Firebase is commonly used for real-time data synchronization, authentication, hosting, analytics, and server less application development. It includes tools such as a real-time NoSQL database, Firestore (a scalable cloud database), authentication services for managing user accounts, and Firebase Cloud Messaging for push notifications.

The platform is particularly well-suited for developers looking to accelerate application development with a reliable, scalable backend, making it ideal for startups, prototyping, or projects where quick deployment is essential. It integrates seamlessly with popular frameworks and tools, ensuring flexibility in building modern, feature-rich applications.

2.2.10. MONGODBDATABASE

MongoDB is a popular **NoSQL database** designed to handle large volumes of data in a flexible and scalable way. Unlike traditional relational databases that store data in tables with rows and columns, MongoDB stores data in a **document-oriented format** using JSON-like structures called BSON (Binary JSON).

Key Characteristics of MongoDB:

1. **Schema-less Structure**:
    - MongoDB uses collections of documents, where each document can have a unique structure. This makes it ideal for handling unstructured or semi-structured data.
2. **Scalability**:
    - MongoDB supports horizontal scaling through **sharding**, where data is distributed across multiple servers to handle large datasets and high traffic.
3. **Flexibility**:

    - The schema-less nature allows developers to add new fields or modify the structure of data without impacting existing documents or applications.
4. **Indexing and Querying**:
    - MongoDB supports powerful query mechanisms, including field-based searches, range queries, and regular expressions. Indexing is supported for better query performance.
5. **High Performance**:
    - Its design allows for fast read and write operations, making it suitable for real-time applications.
6. **Integration with Modern Applications**:
    - MongoDB is often used with modern programming languages and frameworks, including Node.js, Python, React, and Angular.

Common Use Cases:

- Content Management Systems (CMS)
- E-commerce platforms
- Real-time analytics
- Mobile applications
- Internet of Things (IoT) applications
- Social networking platforms

MongoDB is open-source and available in cloud-hosted versions (MongoDB Atlas) as well as on-premises. Its flexibility and performance make it a preferred choice for developers working on modern, data-intensive applications.

2.2.8. VISUAL STUDIO CODE

Visual Studio Code is a source-code editor made by Microsoft for Windows, Linux, and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git. Users can change the theme, keyboard shortcuts, preferences, and install extensions that add additional functionality. Visual Studio Code manages the following platform features and components:

- User settings
- Windows (placement, appearance, etc.)
- Storage
- Integrated development tools
- Framework wizard

Visual Studio Code uses components, also known as modules, to enable software development. Visual Studio Code dynamically installs modules and allows users to download updated features and digitally authenticated upgrades. Visual Studio Code IDE modules include NetBeans Profiler, a Graphical User Interface (GUI) design tool, and Visual Studio Code JavaScript Editor.

Visual Studio Code framework reusability simplifies Java Swing desktop application development, which provides platform extension capabilities to third-party developers.

2.3. Review Website Quality

Accepted that the quality of a system is dependent on the quality of users' experience directly and also considering that the quality of user experience is the most concise way of explaining the usability, now a brief explanation of review website usability will be presented.

Website qualities are:

Serviceability:
Serviceability, maintainability, implies their ability to be quick, simple, and secure when it comes to websites:

- Changed
- Expanded
- Updated
- Fixed

Usability:
The website must be easy to use and support the user - not go against.

Readability:

Reading the simplicity of the text to read and understand. Short words, paragraphs, and verb forms are used. All clutter and redundant words should be excluded and the use of adware and adjectives should be limited where possible.

Social media integration:

The integration of social media into the website offers further opportunities for users to share and communicate with content.

Quality of Comments:

Material is viewed as high-quality with a high number of comments. On the other hand, unrelated spam comments could damage rankings and make visitors look bad in their eyes.

Error sin Grammar:

People make grammatical errors, punctuation mistakes, and spelling errors because of social media applications. In most cases, people purposely type incorrect spellings to communicate their feelings about the product. This makes it hard for the computer to find out the exact meaning behind a customer's analysis.

2.4. Accessibility

Accessibility is the idea of whether anyone can access our website, regardless of whether they experience it. This refers to the ease with which a visitor via the website can see, read, and order food. If there is a query or problem with someone visiting the website, they do not have to look for customer service options. This should be available readily. It makes the visitor feel uneasy when customer service is unreachable. Two forms of users are accessible on this website. One user is non-registered and another user is registered. Both users can read comments, but non-registered users can't comment and can't rate, but ratings and comments can be given by registered users as feedback.

2.5. Privacy and Security

It's been a great concern that internet users have no concern over how websites are collecting, using, and sharing personally identifiable information. User feel a growing lack of control over how their personal information is used by companies and find it unacceptable for marketers to sell information about them. Consequences of such concerns may vary from not purchasing at the website, requesting to be taken off the mailing list, spreading negative word of the company, etc. The importance of consumer's privacy concerns has been found recently and its impact is big. Security issues are centered on the transmission and storage of transactional information by a website. As in the case of privacy, consumers experience a lack of control over the payment information provided to a website. Security issues are shared by the websites and consumers. This has led many websites to resolve technical issues related to security. Despite these measures, visitors may still perceive the website to be unsafe. Reduction in perceptions of security concerns affects web usage and also enhances satisfaction with the website. This website is independent of the platform. It can easily be used by both buyers and sellers. This website does not store any user data or any personal data and never promotes any form of brand.

CHAPTER 3

METHODOLOGY

3.1. Introduction

The methodology is the overall approach that underpins your research. You need to briefly explain this, showing you understand the meaning of quantitative and qualitative approaches. The methods are the tools of data collection, such as questionnaires or interviews.

3.2. Iterative Software Model

An iterative life cycle model does not attempt to start with a full specification of requirements. Instead, development begins by specifying and implementing just part of the software, which is then reviewed to identify further requirements. This process is then repeated, producing a new version of the software at the end of each iteration of the model.
The following illustration is a representation of the Iterative and Incremental model:

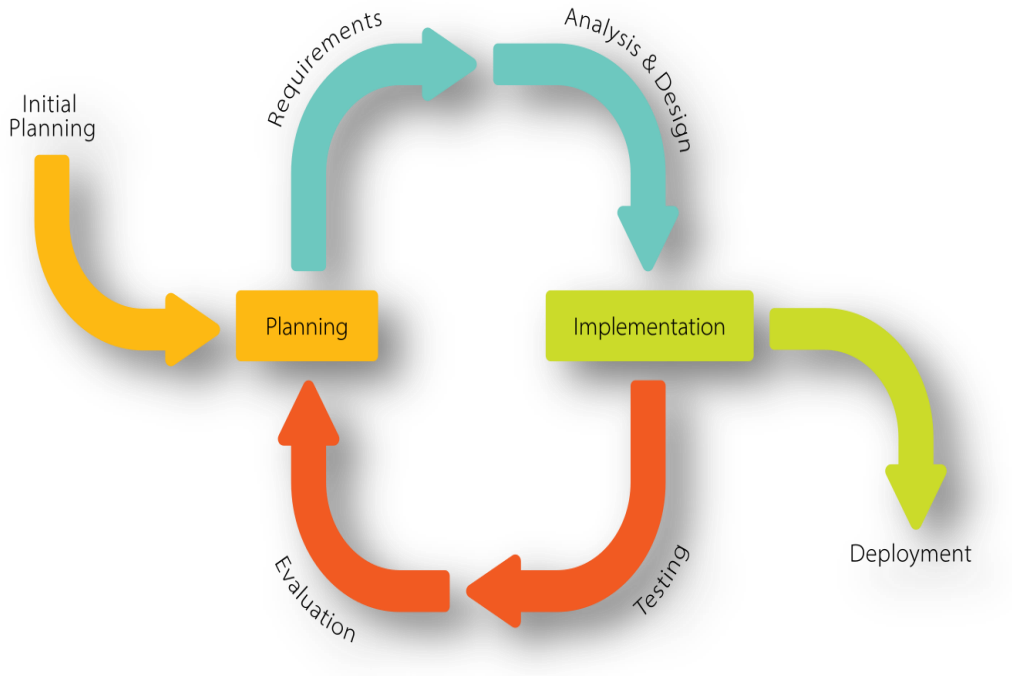


Figure 3.1: Iterative Model

Iterative and Incremental development is a combination of both iterative design or iterative method and incremental build model for development. "During software development, more than one iteration of the software development cycle may be in progress at the same time." This process may be described as an "evolutionary acquisition" or "incremental build" approach. In this incremental model, the whole requirement is divided into various builds. During each iteration, the development module goes through the requirements, design, implementation, and testing phases. Each subsequent release of the module adds function to the previous release. The process continues till the complete system is ready as per the requirement.

The key to a successful use of an iterative software development lifecycle is rigorous validation of requirements, and verification & testing of each version of the software against those requirements within each cycle of the model. As the software evolves through successive cycles, tests must be repeated and extended to verify each version of the software.

3.3. Proposed Methodology

As a part of the proposal narrative, the methodology is where you can clearly outline how you will use the requested funds to accomplish your project's objectives. It is the component in the proposal narrative where you bridge the gap between the objectives and the eventual outcome. It is also where you demonstrate your project's feasibility by detailing your experiences and resources.

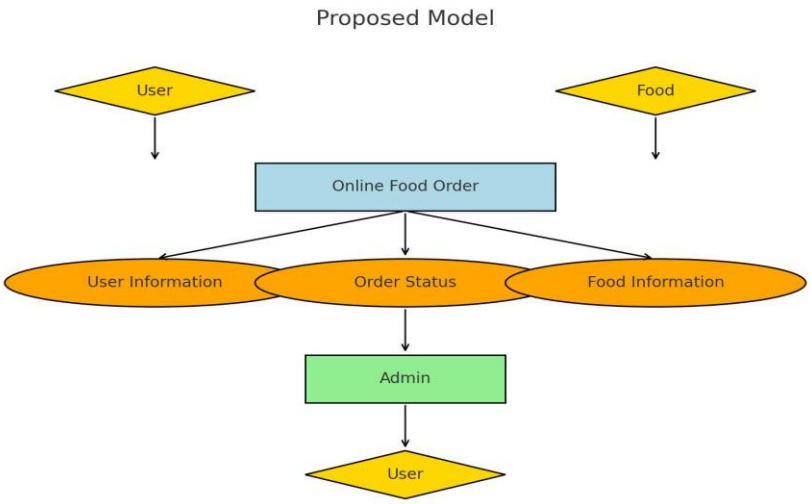


Figure 3:2: Proposed Model

The bulk of your methodology discussion should contain detailed descriptions of what project activities will be conducted and how they will be carried out. As your "plan of attack," your proposed methodology shows the funding agency that you have a logical and well-thought-out plan to carry out reasonable project activities that will lead to the desired outcome. The methods you describe should be presented in a coherent manner, naturally progressing from start to finish.

In addition, the methodology should be justifiable or have some form of expert approval to support the viability of the project. This could be documented through studies related to feasibility, market analysis, site control, surveys, data collection, and other forms of justification. The methodology should also demonstrate the resources that you have available to achieve your project objectives, such as a description of personnel needed and how they will be selected. You can use this section of the narrative to detail any financial and/or in-kind resources and the clientele to be served. Clearly documenting any and all resources available to a project will validate your ability to carry out and accomplish a project.

Another important issue to keep in mind is that all project needs must be reflected in the project budget. Using the example above, if the project requires collecting data on the incidence of homelessness in a community, the costs associated with surveying, compensating personnel, and other expenses should be detailed as part of the total project cost within a proposed budget.

Having a logical project methodology within a proposal narrative is a vital part of a complete proposal narrative. Painting a vivid picture of how a project will be accomplished will not only demonstrate a carefully planned application, but will also provide the funding agency with evidence of your capacity to produce the desired results. In other words, submitting an application with a detailed yet clear project methodology will increase your chances of securing the funding needed to make your project possible.

3.4. System Planning

First of all, in the planning phase, the system for development will be identified and selected to solve the problem. Several studies are needed to have a clearer understanding of the system requirement. Besides, the SWOT analysis techniques will be used to interpret the strengths, weaknesses, opportunities, and limitations of the basic requirement for the proposed solution. Next, an information table will be created to have a clear understanding of what should do according to the project life cycle. On this project, we worked for 90 days. In the first phase discovering and planning took 30 days. The Documentation includes the design of the system; this served as a reference to allow us to develop the prototype of the proposed project more efficiently. Started on the 31st day, the prototype of the project started developing. After that, the full project development was started in the next semester and has been continued until the testing phase. The system was being tested and debugged to solve any error found during testing. The feedback we got from the system tester, had been collected and used as the reference in the system.

3.5. System Analysis

In the process of system review, an interview with the potential user of the proposed solution will be performed to gather and collect relevant information for the proposed system. Next, system specifications such as user requirements, software, and hardware requirements are generated and specified based on the requirements of the system, project scope, and target.

Analysis requires the determination and specification of specifications. Analysis of systems is a problem-solving method that breaks down a system into its component to study how well certain parts function and interact to achieve their purpose.

3.6. Requirement Analysis

Analysis of system engineering and software engineering specifications involves certain activities that evaluate the needs or criteria to be met for a new or changed product or project, taking into consideration the often-conflicting requirements of the different stakeholders, evaluating, and recording, validating, and handling requirements for software or systems.

Examination of specifications is important for a system or software project to succeed. The specifications should be recorded, actionable, observable, testable, traceable, and relevant to the business needs or opportunities identified and specified to a level of detail appropriate for system design.

3.7. System Requirements

The computer system is made up of units that are put together to work as one in order to achieve a common goal. The requirements for the implementation of the new system are:

- The Hardware
- The Software

Software Requirement
For the effective implementation of the new system, the following software has to be installed on the computer:

- Windows 7, Windows 10
- MySQL
- PhpMyAdmin
- Visual Studio Code

Hardware Requirements

- 4 GB RAM and above
- 100 GB HDD
- Monitor
- Printer
- Scanner
- Keyboard
- Intel Pentium
- Mouse

CHAPTER 4
REQUIREMENT ANALYSIS AND SYSTEM SPECIFICATION

4.1. Software Requirements
The software requirement features are follows –

4.1.1. Data Requirements

Data requirements specify the set of data that is involved in any project. The login credentials for registering the website and the food details are the most important information for this project. The program will not be able to complete the transaction without this information.

4.1.2. Functional Requirements

The properties that must be present in the final system are known as functional requirements. To use any website, we must go to any browser. Depending on the store or seller, the website could be free or charged. He or she logs in after that.

4.1.3. Performance Requirements

The performance requirements that should be considered while creating any system include response speed, scalability, platform dependencies, and tolerance. When the user interacts with the website, the system should be able to reply rapidly. When we wish to expand the website, it should be constructed in such a way that it is scalable enough to accept new features. The software from the project's design phase onwards, it should run in all of the required software and hardware requirements. In addition, the program's tolerance rate (fault tolerance) should be set higher in the event of network challenges, connectivity issues, and when the website crashes or quits. When the system is up and running, it should be able to provide information to the user about any of those difficulties.

4.1.4. Testing and Maintainability Requirements

In a test environment, the website should be able to meet all of the conceivable good and bad test scenarios. When a user uses a website, it should be created in such a way that it does not have any faults or crashes. When we expand the code or add new functionalities to the existing website, it should be able to extend itself.

4.2. Validation

Before releasing the website to users, it is critical to validate it. If information supplied by users is not validated, it may be redundant, formatted incorrectly, and unmaintainable. For instance, we can validate a mobile number so that it only contains digits and characters. If the validation isn't done, there's a probability the user will make a mistake. The authorized person is unable to contact the appropriate person in the event of an emergency. Validations for all fields that are used to save information in any application are also essential. Error warnings are displayed when fields such as login, email, password, and cellphone number are not correct. The username must not contain any digits, the password must be at least six letters long, the email must be a legitimate address, and if the email address has already been registered, an error notice will appear stating that the email address already exists. The mobile number should only contain digits and when looking for an item by name, the search field should not contain any digits.

CHAPTER 5
SYSTEM DESIGN

5.1. Introduction

The design phase is concerned with the physical construction of the system. Included are the design or configuration of the network (hardware, operating system, programming, etc.), design of user interfaces (forms, reports, etc.), design of system interfaces (for communication with other systems), and security issues. The proposed design must be tested for performance, and to ensure that it meets the requirements outlined during the analysis phase. In other words, the main objective of this phase is to transform the previously defined requirements into a complete and detailed set of specifications that will be used during the next phase. Some of the activities that need to take place during the design phase are:

- Design the application
- Design and integrate the network
- Design and integrate the database
- Create a contingency plan
- Review the design
- Articulate the business processes and procedures
- Establish a transition strategy
- Review final design

5.2. System Architecture Design

A system architecture or systems architecture is the conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system.

System architecture can comprise system components, the externally visible properties of those components, the relationships (e.g., the behavior) between them. It can provide a plan from which products can be procured, and systems developed, that will work together to implement the overall system. There have been efforts to formalize languages to describe system architecture; collectively these are called architecture description languages.

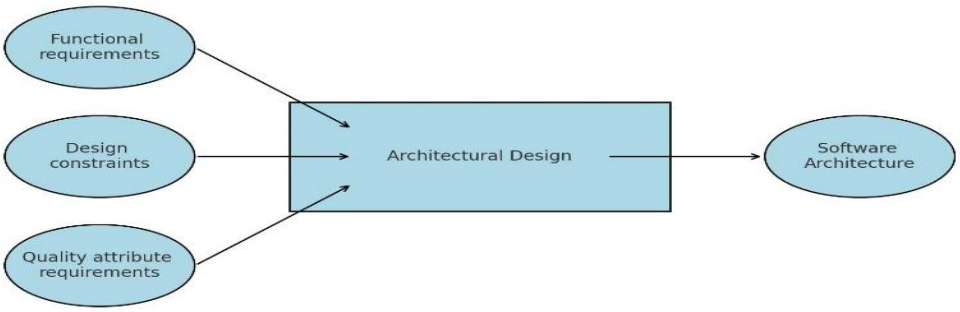


Figure 5.1: Software Architecture Design

Software architecture refers to the high-level structures of a software system, the discipline of creating such structures, and the documentation of these structures. It is the set of structures needed to reason about the software system. Each structure comprises software elements, relations among them, and properties of both elements and relations. The architecture of a software system is a metaphor, analogous to the architecture of a building.

5.3. Website Diagram

The main aim of the system design is to explain the scenario using use case diagrams. Use case diagrams clarify the flow of the application by deriving the use cases for all the functionalities in form of a diagram for the users.

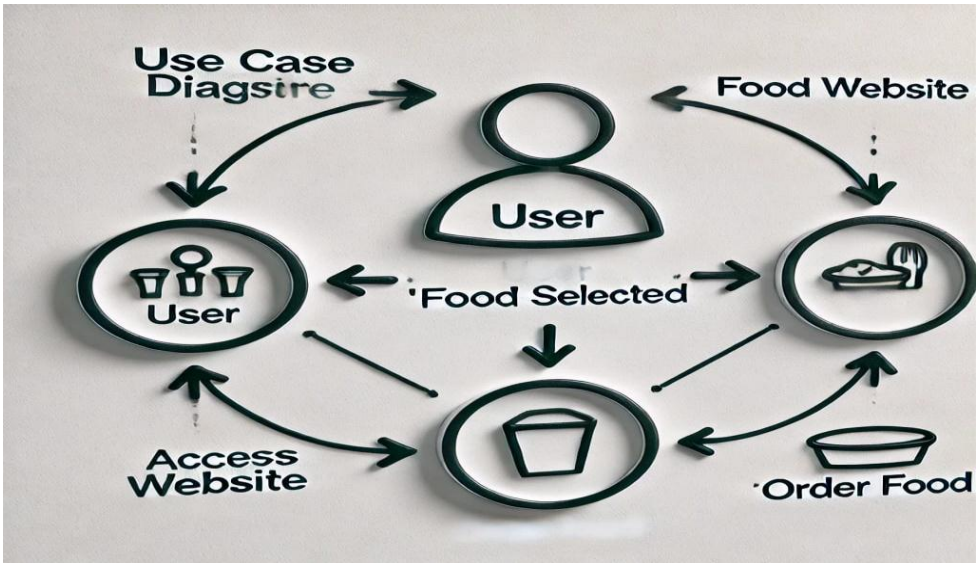


Figure 5.2: Use Case Diagram for User

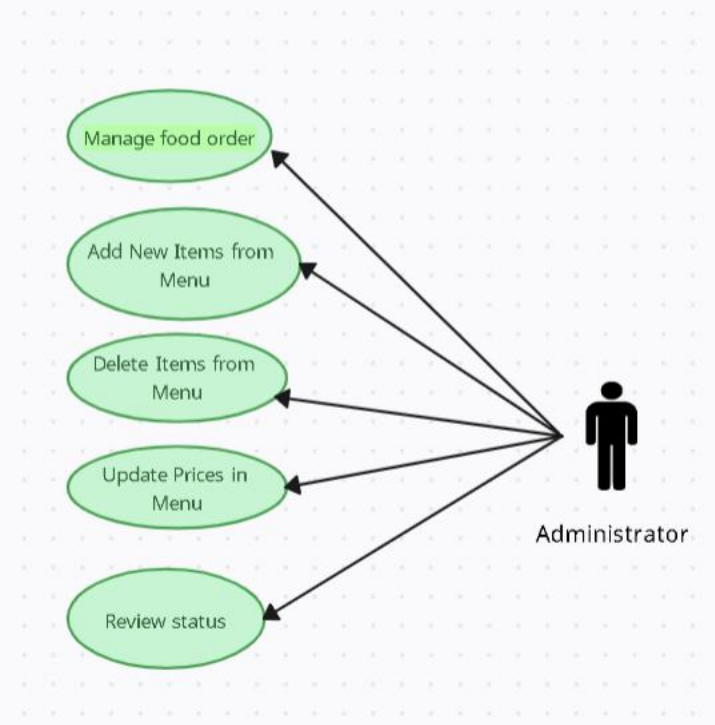


Figure 5.3: Use case diagram for admin

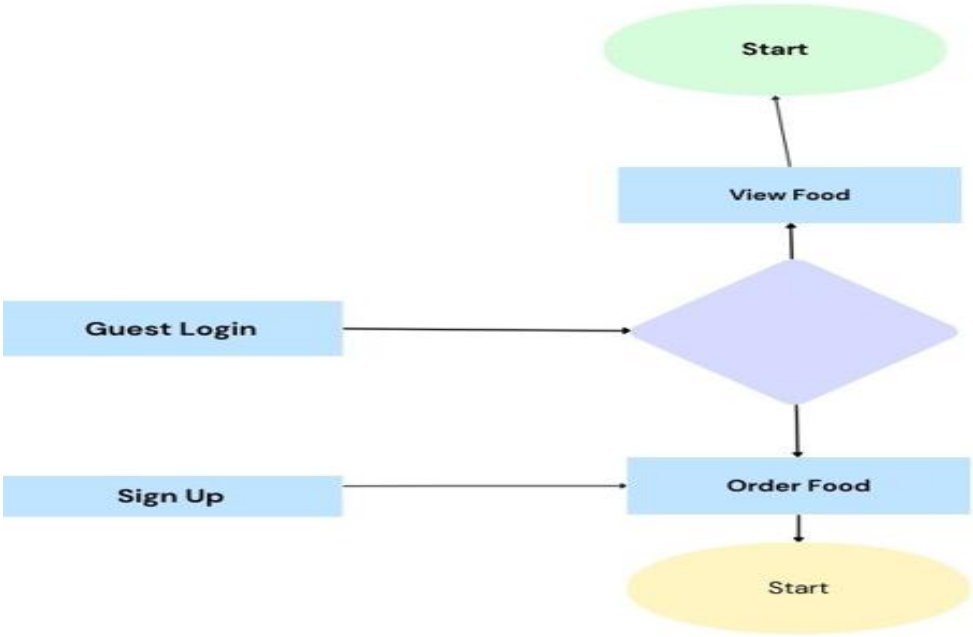
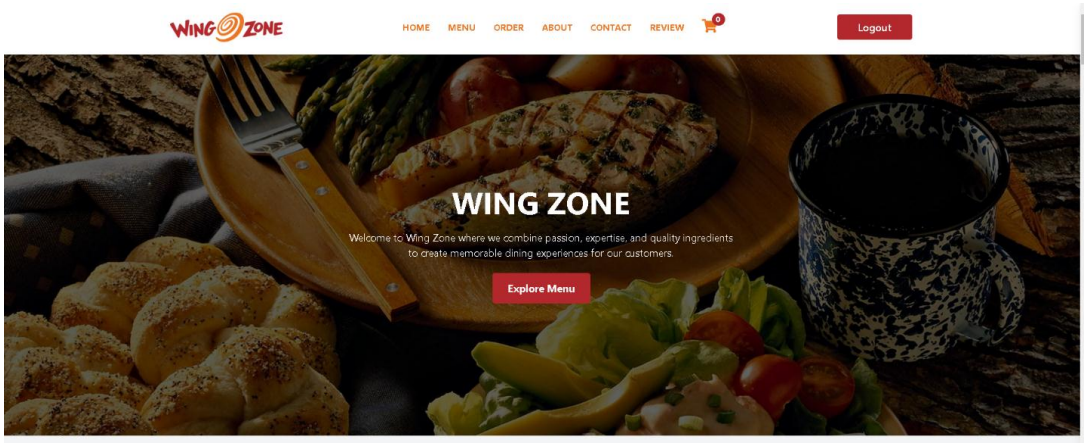
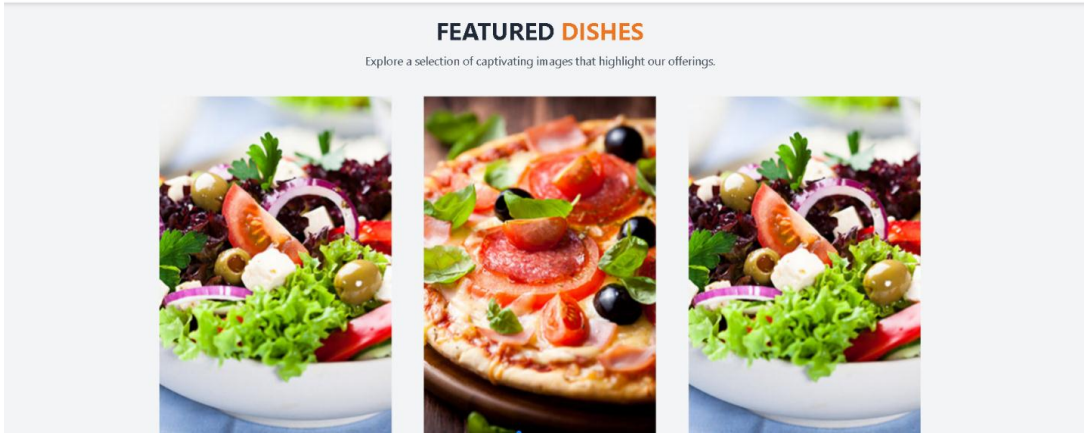


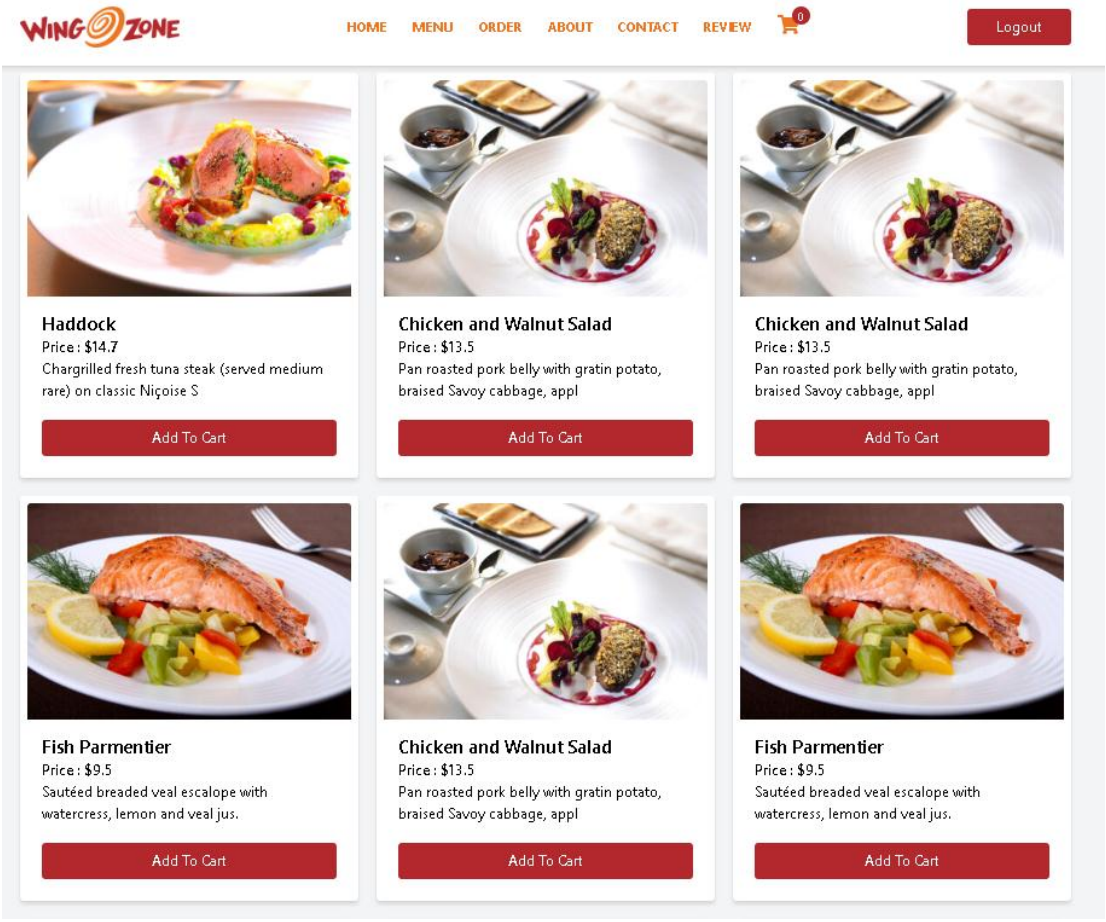
Figure 5.4: User Data Flow for Online Food Order

5.5. User Interface Design

Any user can visit the food order site. There are food categories, food items, a contact page, and an admin panel on the website. Customers can choose food from categories and food menus and order the desirable food. Customers can also order food directly by giving information without creating an account. However, customers can contact us through email and mobile phone.



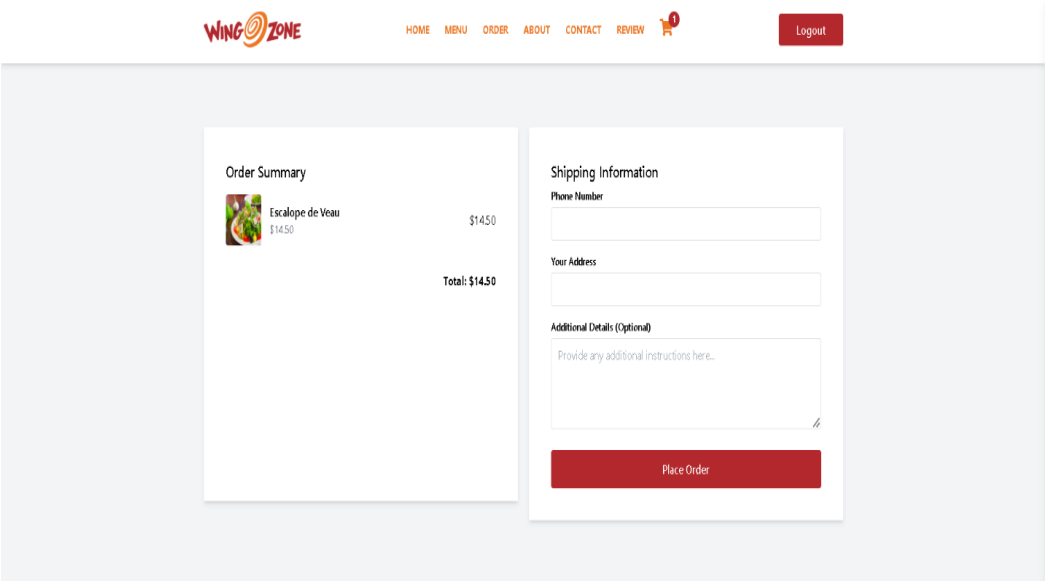




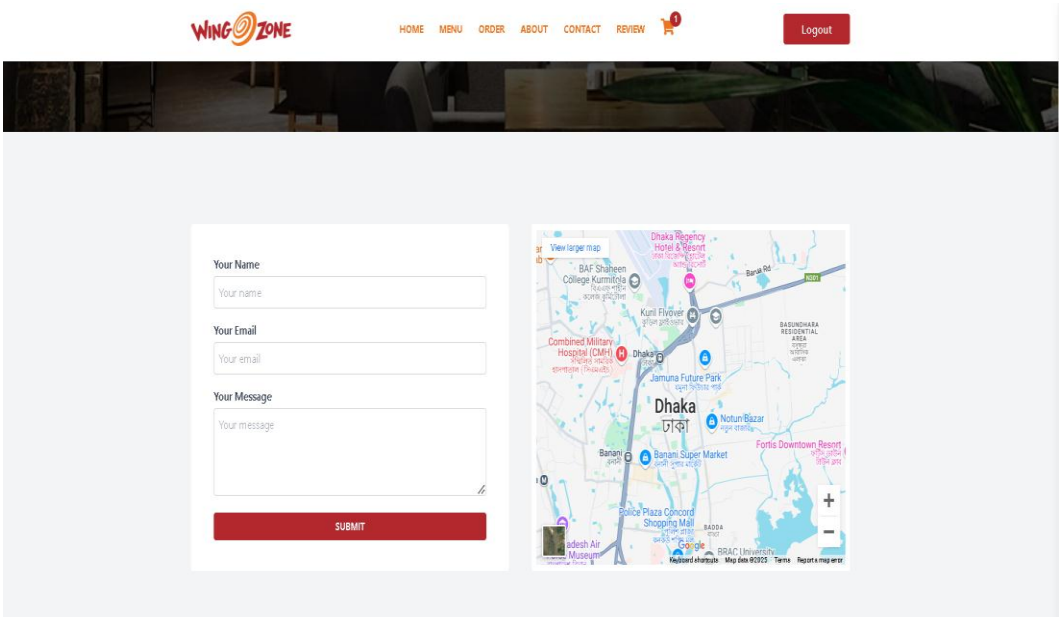
Our Food Menu:

5.6 Food Order

Customers can choice the food and order from the website. It is very easy to order food everyone

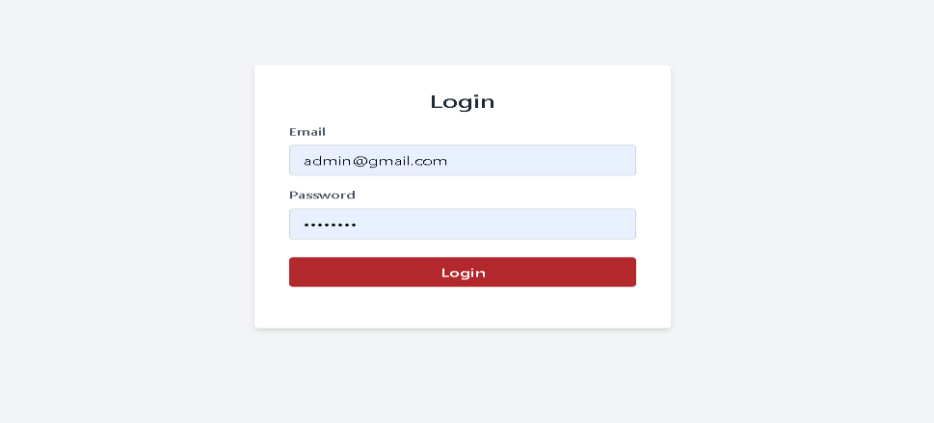


5.7 Contact


WING ZONE
HOME
MENU
ORDER
ABOUT
CONTACT
REVIEW
Logout
Your Name
Your name
Your Email
Your email
Your Message
Your message
SUBMIT
View larger map
Dhaka Regency Hotel & Resort
BAF Shaheen College Kurmitola
Kuril Flyover
Combined Military Hospital (CMH)
Dhaka
Jamuna Future Park
Dhaka
ঢাকা
Notun Bazar
Fortis Downtown Resort
Banani
Banani Super Market
Police Plaza Concord Shopping Mall
BASUNDHARA RESIDENTIAL AREA
BAIDDA
BRAC University
Google

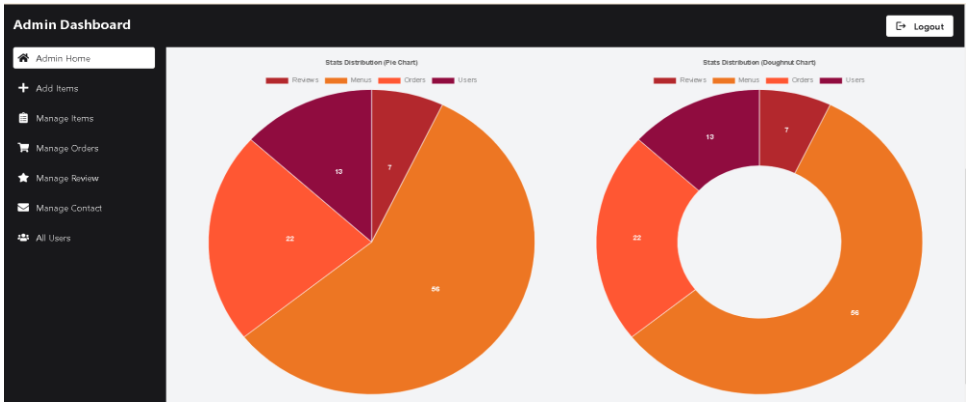
5.7 Admin interface

Admin can add, edit, and delete food items in the admin dashboard.

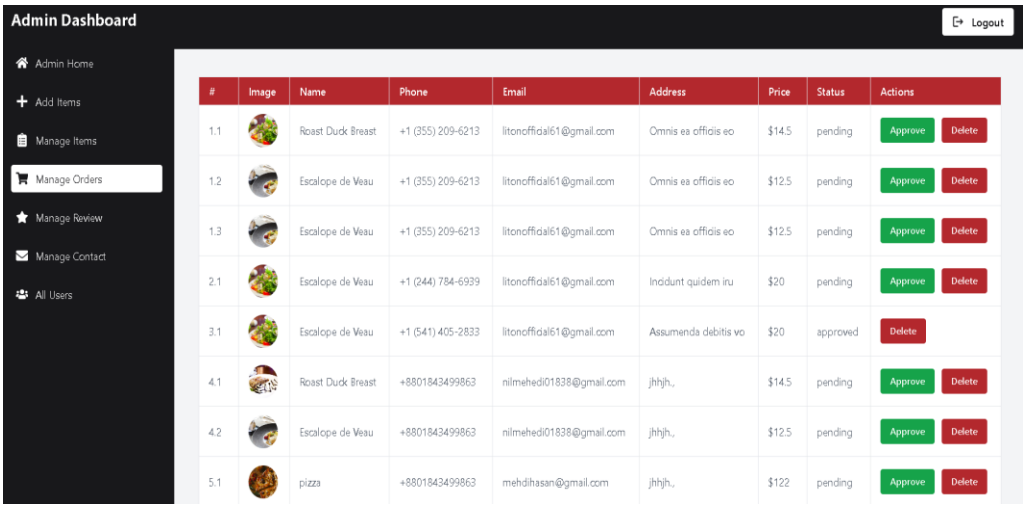


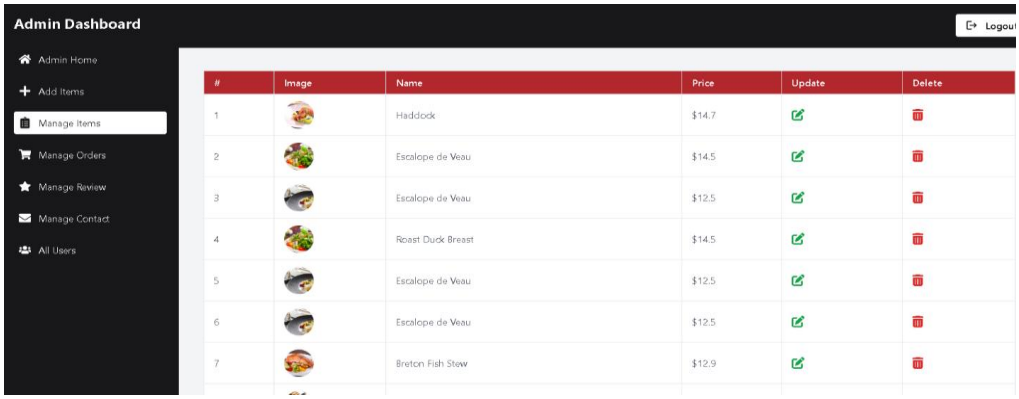
5.8 Manage Food order



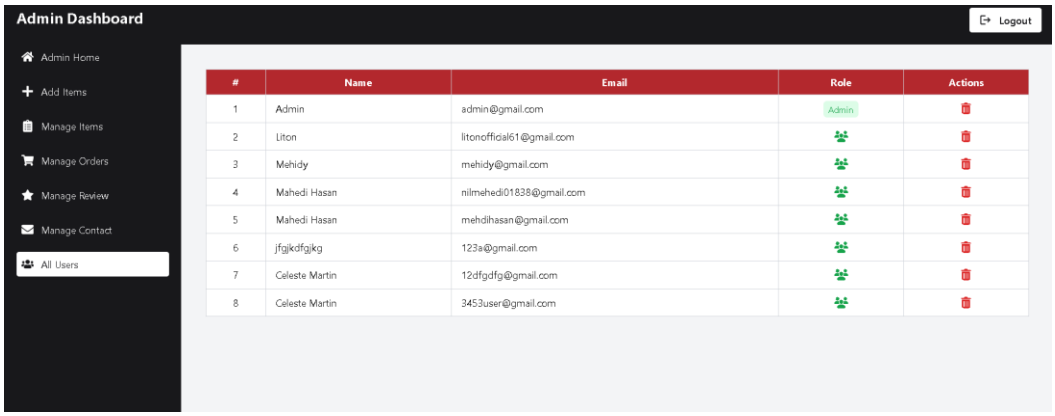


5.9 Manage Food Item



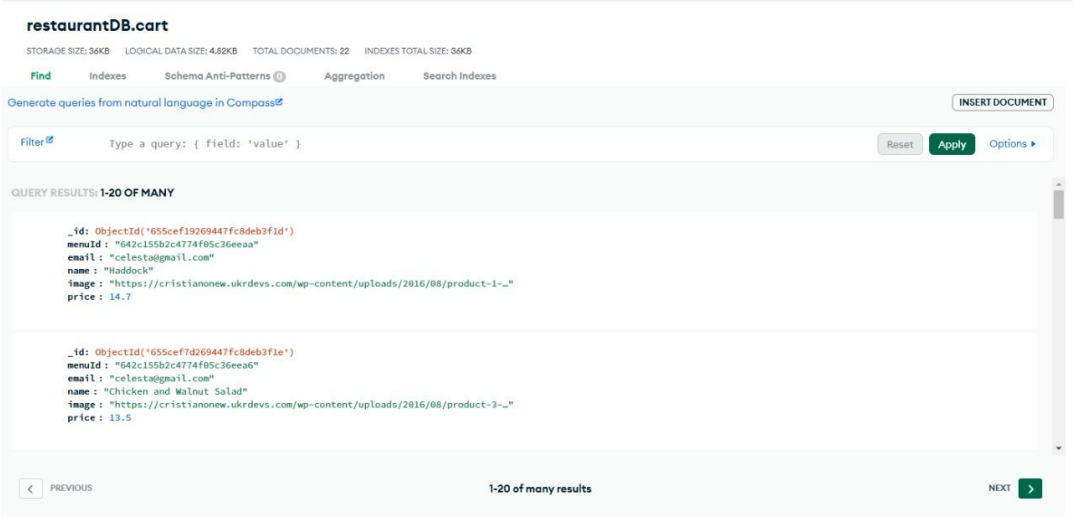


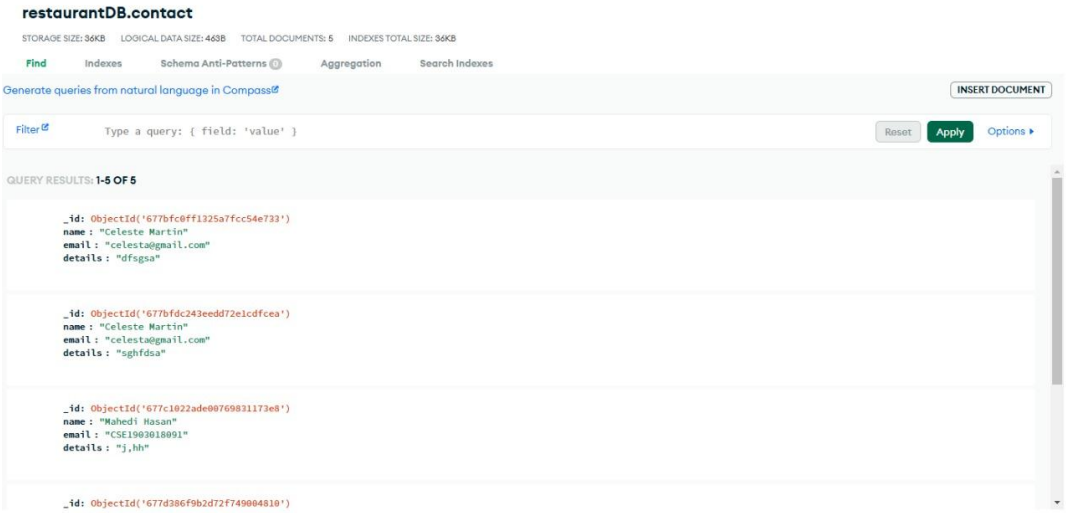
5.10 Manage admin User

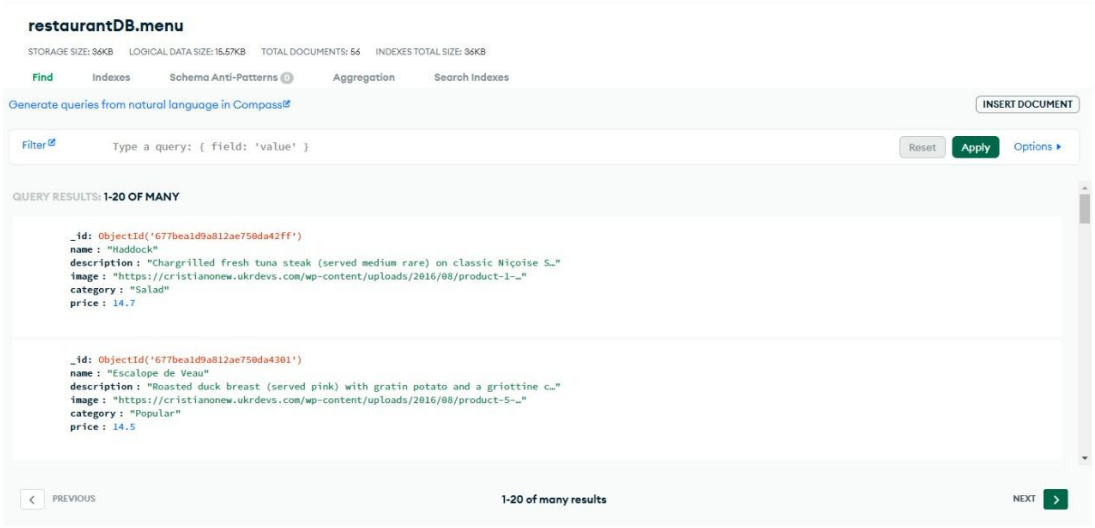


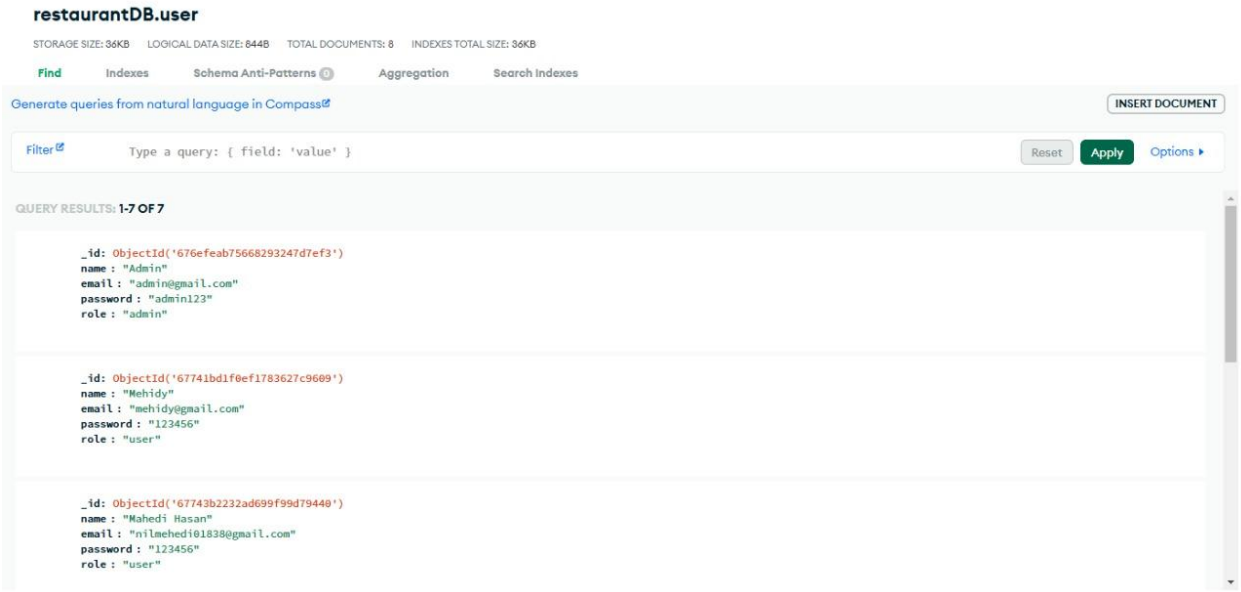
5.8 Mongodb Database

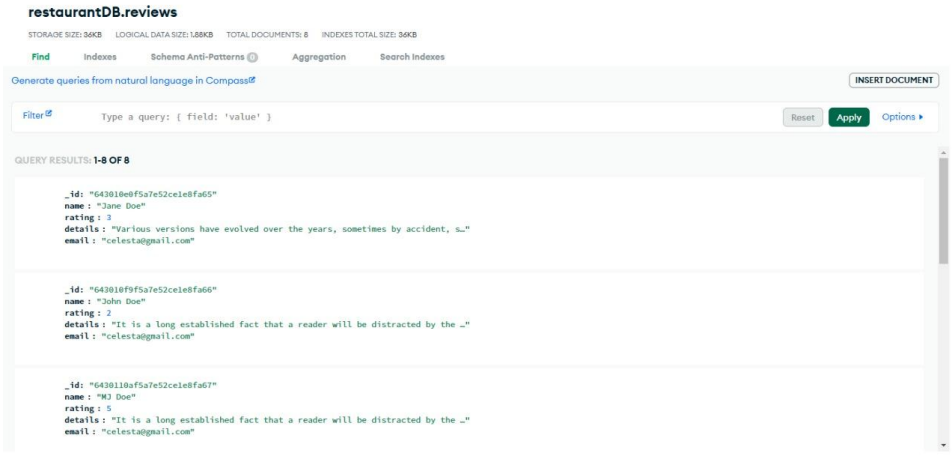
Database name is set as ‘‘online food order’’ according to the name the project ‘‘online food order’ ’the database is designed according to the project development and system analysis.

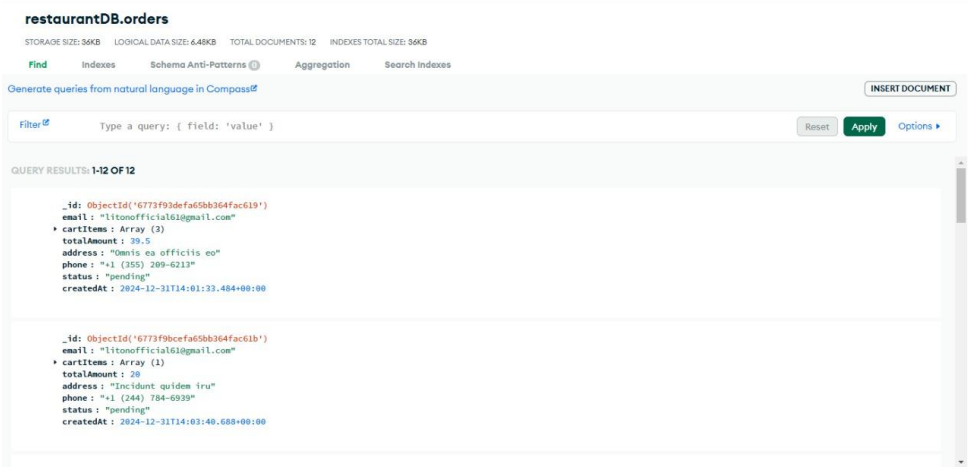





restaurantDB.menu
STORAGE SIZE: 36KB LOGICAL DATA SIZE: 15.57KB TOTAL DOCUMENTS: 56 INDEXES TOTAL SIZE: 36KB
Find Indexes Schema Anti-Patterns Aggregation Search Indexes
Generate queries from natural language in Compass
INSERT DOCUMENT
Filter
Type a query: { field: 'value' }
Reset Apply Options
QUERY RESULTS: 1-20 OF MANY
_id: ObjectId('677bea1d9a812ae750da42ff')
name : "Haddock"
description : "Chargrilled fresh tuna steak (served medium rare) on classic Niçoise S…"
image : "https://cristianonew.ukrdevs.com/wp-content/uploads/2016/08/product-1-…"
category : "Salad"
price : 14.7
_id: ObjectId('677bea1d9a812ae750da4301')
name : "Escalope de Veau"
description : "Roasted duck breast (served pink) with gratin potato and a griottine c…"
image : "https://cristianonew.ukrdevs.com/wp-content/uploads/2016/08/product-5-…"
category : "Popular"
price : 14.5
PREVIOUS
1-20 of many results
NEXT


restaurantDB.user
STORAGE SIZE: 36KB LOGICAL DATA SIZE: 844B TOTAL DOCUMENTS: 8 INDEXES TOTAL SIZE: 36KB
Find Indexes Schema Anti-Patterns Aggregation Search Indexes
Generate queries from natural language in Compass
INSERT DOCUMENT
Filter
Type a query: { field: 'value' }
Reset Apply Options
QUERY RESULTS: 1-7 OF 7
_id: ObjectId('676efeab7566829324 7d7ef3')
name : "Admin"
email : "admin@gmail.com"
password : "admin123"
role : "admin"
_id: ObjectId('67741bd1f0ef1783627c9609')
name : "Mehidy"
email : "mehidy@gmail.com"
password : "123456"
role : "user"
_id: ObjectId('67743b2232ad699f99d79440')
name : "Mahedi Hasan"
email : "nilmehedi01838@gmail.com"
password : "123456"
role : "user"


restaurantDB.reviews
STORAGE SIZE: 36KB LOGICAL DATA SIZE: 1.88KB TOTAL DOCUMENTS: 8 INDEXES TOTAL SIZE: 36KB
Find Indexes Schema Anti-Patterns Aggregation Search Indexes
Generate queries from natural language in Compass
INSERT DOCUMENT
Filter
Type a query: { field: 'value' }
Reset Apply Options
QUERY RESULTS: 1-8 OF 8
_id: "643010e0f5a7e52ce1e8fa65"
name : "Jane Doe"
rating : 3
details : "Various versions have evolved over the years, sometimes by accident, s…"
email : "celesta@gmail.com"
_id: "643010f9f5a7e52ce1e8fa66"
name : "John Doe"
rating : 2
details : "It is a long established fact that a reader will be distracted by the …"
email : "celesta@gmail.com"
_id: "6430110af5a7e52ce1e8fa67"
name : "MJ Doe"
rating : 5
details : "It is a long established fact that a reader will be distracted by the …"
email : "celesta@gmail.com"


restaurantDB.orders
STORAGE SIZE: 36KB LOGICAL DATA SIZE: 6.48KB TOTAL DOCUMENTS: 12 INDEXES TOTAL SIZE: 36KB
Find Indexes Schema Anti-Patterns Aggregation Search Indexes
Generate queries from natural language in Compass
INSERT DOCUMENT
Filter
Type a query: { field: 'value' }
Reset Apply Options
QUERY RESULTS: 1-12 OF 12
_id: ObjectId('6773f93defa65bb364fac619')
email : "litonofficial61@gmail.com"
cartItems : Array (3)
totalAmount : 39.5
address : "Omnis ea officiis eo"
phone : "+1 (355) 209-6213"
status : "pending"
createdAt : 2024-12-31T14:01:33.484+00:00
_id: ObjectId('6773f9bcefa65bb364fac61b')
email : "litonofficial61@gmail.com"
cartItems : Array (1)
totalAmount : 20
address : "Incidunt quidem iru"
phone : "+1 (244) 784-6939"
status : "pending"
createdAt : 2024-12-31T14:03:40.688+00:00

CHAPTER 6
CONCLUSION AND FUTURE WORK

6.1. Conclusion

Our project is only a humble venture to satisfy the needs to manage their project work. Several user-friendly coding techniques have also been adopted. This package shall prove to be a powerful package in satisfying all the requirements of the school. The objective of software planning is to provide a framework that enables the manager to make reasonable estimates made within a limited time frame at the beginning of the software project and should be updated regularly as the project progresses. Finally, for the online meal ordering system, we created a secure, user-friendly food ordering administration system. Whether they are Administrators or Customers, this system can look after them all. This system will let them manage client meals, delivery boy data, and expand without creating any disruption.

6.2. Future Work

The following section describes the work that will be implemented with future releases of the software:

- Customize orders: Allow customers to customize food orders.
- Enhance User Interface by adding more user interactive features. Provide Deals and promotional offers.
- Offer details to home page. Provide Recipes of the Week/Day to Home Page.
- Payment Options: Add different payment options such as Bkash, Rocket, Nagad, PayPal, Gift Cards etc. Allow to save payment details for future use.
- Allow to process an order as a Guest.
- Delivery Options: Add delivery option.
- Order Process Estimate: Provide customer a visual graphical order status bar.
- Order Status: Show only Active orders to Restaurant Employees.
- Order Ready notification: Send an Order Ready notification to the customer.
- Restaurant Locator: Allow to find and choose a nearby restaurant.
- Integrate with In-store touch screen devices like iPad.
- Signup and Login option with user panel.
- Improve the user interface by including more interactive features for the user. Add information about deals and promotional offers on the home page. Add a week/worth days of recipes to the home page.
- Generate an app.

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[3] Marijn Haverbeke. (2019). Eloquent JavaScript: A Modern Introduction to Programming (3rd edition).

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