e-Menu

Submitted in partial fulfillment of the requirements of the degree of BACHELOR OF COMPUTER ENGINEERING

by

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(2022-2023)



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CERTIFICATE

This is to certify that the project entitled "e-Menu" is a bonafide work of Ayush Panigrahi (21102050), Krithik Patil (21102193), Savinay Pandey(21102125), Tejas Rathod(21102061) submitted to the University of Mumbai in fulfilment of the requirement for the Mini Project 2A of Bachelor of Engineering in Computer Engineering

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Project Report Approval for Mini Project-1B

This project report entitled "e-Menu" by (Ayush Panigrahi, Krithik Patil, Savinay Pandey, Tejas Rathod) is approved for the degree of Bachelor of Engineering in Computer Engineering, 2022-23.

Examiner Name	Signature
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Date:	
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Declaration

We declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Date:

Abstract

In today's digital world hiring people to just take orders from customers has become too expensive because of the salaries of the employees which adds on to the cost of cutlery and many other expenses of a restaurant. This is where the concept of e-Menu comes into the picture. This provides a fast and efficient solution to all the problems faced by the restaurants. Firstly, it allows the customer to order without waiting for anyone to come to them. This makes the customer happy and calm. Secondly, it helps the restaurant to cut on the cost for printing and designing the menu in a fancy way, except the cost incurred to make the e-Menu. Thirdly, it allows the customer to see the previously ordered items so that they can have what they want.

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Introduction

In today's digital world hiring people to just take orders from customers has become too expensive because of the salaries of the employees which adds on to the cost of cutlery and many other expenses of a restaurant.

This is where the concept of e-Menu comes into the picture. This provides a fast and efficient solution to all the problems faced by the restaurants. Firstly, it allows the customer to order without waiting for anyone to come to them. This makes the customer happy and calm. Secondly, it helps the restaurant to cut on the cost for printing and designing the menu in a fancy way, except the cost incurred to make the e-Menu. Thirdly, it allows the customer to see the previously ordered items so that they can have what they want.

We have implemented this using HTML, CSS, BOOTSTRAP and PHP for designing the webpages and connection to database. MySQL has been used to store the orders and login details of the customer. Finally, we have used AWS EC2 to host the dynamic website. The QR code is generated using the website QR code generator.

Literature Survey

1. Raibagi, T., Vishwakarma, A., Naik, J., Chaudhari, R., & Kalme, G. (2021). *Orderista - AI-based Food Ordering Application*.

We need a previous report of a project that is similar to ours, so that we can take reference from that and can carry out our work successfully. For that this publication/ project report came to our help by providing us the basic idea of what we have to do in our project.

This project is based on an AI-based cross-platform application that focuses on automating all the major canteen functionalities. It enables the user to register online, browse and choose from an E-menu card followed by placing the order and receiving confirmation after successful payment. With the help of this app, students and faculties can order food beforehand and can receive it during the break to ensure that the time spent in ordering and collecting the order is as low as possible. The app also docks in AI, which will help the users to get personal recommendations and food items which are popular amongst others. The objective is to reduce the manual paperwork as the app digitalizes every factor and provides a graphical representation of daily sales and allows comparison for weekly, monthly and annual sales. The feedback system allows the admin to monitor the app and make changes based on the user feedback

2. Shokeen, S., & Singh, A. (2019). "Deploying an e-commerce website using Amazon Web Services". 2019 International Conference on Contemporary Computing and Informatics (IC3I).

This Publication had the information about how t deploy our website in aws cloud, so that we

can create a live link for our website and place that link inside a QR-Code so that

the user can access our website easily, which is our main motive for our project.

AWS or Amazon Web Services is one of the most reliable and well known cloud computing platforms in the world. It comprises a wide range of storage, database, compute and content delivery, mobile and other services, and it's a great process to host simple websites in addition to complex web or mobile applications in the cloud. Deploying on AWS can save you money, manpower and time compared to building and maintaining more traditional systems as it is very safe and secure.

Amazon Web Services provides numerous advantages for IT firms and developers alike such as:-

- 1. cost effectiveness as we only have to pay for what we use, as we use it.
- 2. It is comprehensive
- 3. dependability as it resilient and secure.
- 4. Flexibility you can create any application using any programming model and platform you want or need.

Amazon EC2 is a computing web service of AWS that provides instances which are nothing but virtual machines. It is very reliable, scalable, secure, flexible and easy to use. It is also integrated with other web services of AWS. It allows you to pay for only the computing capacity you really 978-1-7281-5529-6/19/\$31.00 c 2019 IEEE 94 use. You are also able to choose the amount of RAM you require and the quantity of CPU you need. In this project report, I'll launch a cloud server with the Bitnami WordPress Stack that present you with a pre-built WordPress blog that is left for you to start utilizing.

3. Mishra, B. K., Choudhary, B. S., & Bakshi, T. (2015). Touch based digital ordering system on Android using GSM and Bluetooth for restaurants. 2015 Annual IEEE India Conference (INDICON).

To know that what where the various other ways of taking an order from customer in past, and how that process got evolved with time, we tried to search for the information in a research paper and, finally got this one containing the evolution of food order taking method.

A. Pen and paper based traditional system

This is the simplest and the most widely used system even today. In this system, every time a customer enters the restaurant and occupies his table, a waiter comes at his table and presents him a menu card, with the record of food-items. Waiter then waits with a notepad and a pen to take down the customer's order. The waiter then notes down the order of the customer in his notepad and the record is stored in the paper.

B. Personal Digital Assistant (PDAs)

There were many improvements done in the food-ordering process, one among them was PDA based system. PDAs are small handheld devices that make them easy to handle and portable. PDA based system is a wireless system. Some examples of PDA based system are WOS, I-Menu, and FIWOS. These wireless food-ordering systems enable customers or waiters to key in order using mobile devices, called, Personal Digital Assistant.

C. KIOSK based system

KIOSK is a screen that contains the complete menu list. It is more advanced than previous two systems. It not only contains the textual information about the menu items but also contains images of every food-item along with their prices.

D. Computer based food ordering

This system is similar to KIOSK technology system. In this system, when

customer enters the restaurant, he has to orally tell the orders to the cashier and make the payment. The cashier makes a bill in his name with order number written in the bill. After placing the order the customer has to wait in his table. The cashier sends the order to the chef in the kitchen. When the order is completed, the waiter comes and serves the order to the customer at his table.

Book	Analysis
1. Raibagi, T., Vishwakarma, A., Naik, J., Chaudhari, R., & Kalme, G. (2021). Orderista - AI-based Food Ordering Application.	Information on digital menu card
2. Shokeen, S., & Singh, A. (2019). "Deploying an e-commerce website using Amazon Web Services".	Deploying our website in aws to create a link of the website.
3. Mishra, B. K., Choudhary, B. S., & Bakshi, T. (2015). Touch based digital ordering system	History and evolution of Menu cards

Table of reference

Problem Statement, Objective & Scope

Problem Statement: -

It gets difficult for a restaurant to take orders from a customer manually, the project tries to solve this problem by building an interface between the customers and the restaurant

Objective: -

• This project helps the restaurant to avoid the hassle of manually taking orders from the customers.

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• Instead it enables the customer to order from a website which can be opened by scanning a QR code and would be unique for every table.

Scope: -

- Can build a live chat bot, that can keep real time connection between the user and the restaurant for live updates on order
- Can create a track record on the number of visits the customer is making, and accordingly can give them specific amount of discount
- Can send messages to past visited customers that have not shown up since a very long time

Proposed System Architecture

Front End:

For front end we have used the most common and basic language, i.e. HTML and CSS

Here we had to make 2 interfaces. One for the user and another for the admin. The user interface had various pages, and the similarly the admin interface had various pages.

Each page in the website is hyperlinked to each other using "href" tag

CSS was used to beautify the look of our website. However, we have kept the design simple and minimal, as the main aim of our project was to learn how to apply database to it and deploy it and making a live active link of that website

Back End:

For back end, we have used PHP and MySQL

PHP has been used in our website to apply logic in it. That is when u click on the add to art button or order now button, where the data should be stored, and from where it should be fetched. All these logics are made possible using PHP.

We converted every html page into php as to host our website in local host we need the page to be in php format.

MySQL is a basic database storing software. We use MySQL to store the data of everything. Right from the data of the user to admin to the food that the user has ordered. MySQL stores these data in Table format. The table have been given various constraints for security purpose. Like the phone number to be inputed by the user should be integer type only ranging from 0-9 or the email address entered by the user should be in "@gmail.com" format.

We made various table for the user, admin, food orders and cart for a clear and systematic database.

Hosting The Website;

Our main aim of the project was to put the whole website in a QR code, so that any user can scan it and can access the website in mere seconds, by decreasing the human labour in hotel management field. So in order to create a QR code of the website, we had to create a live link for it. We initially thought of using GIT-Hub to deploy our website, but then came to know that it is just for making a live link of a static website, i.e. a website with just Front-end and no database.

So we did a little bit research on how we can deploy th whole website with backed and create a live link with it. And we came across **AWS cloud.** We made an account there, and then created an instance. We then deployed our whole project with database in that instance, and hosted It in the local host has usual. Then we just substituted the starting myphpadmin with the ip address of the instance. And yes, a live link was created.

Then we used and online QR-code generator to make the link available to everybody easily

This is How we started making our project using HTML/CSS and ended it by deploying the whole project in an instance of AWS cloud.

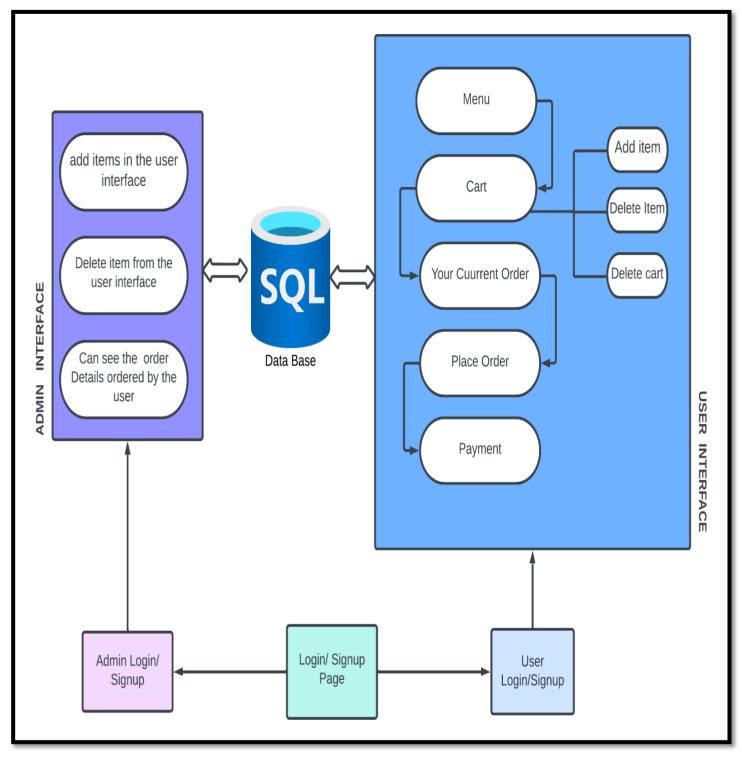


Figure 1: Architecture Diagram

Chapter 5 Project Planning



Figure 2: Gantt Chart

Experimental Setup

• Software Requirements: -

HTML:

It is one of the most basic building blocks of every website, so it's crucial to learn if you want to have a career in web development.

CSS:

CSS stands for Cascading Style Sheets. It describes how HTML elements are to be displayed on screen, paper, or in other media. It saves a lot of work. It can control the layout of multiple web pages all at once. External stylesheets are stored in CSS files

JS:

JavaScript is a dynamic programming language that's used for web development, in web applications, for game development, and lots more. It allows you to implement dynamic features on web pages that cannot be done with only HTML and CSS.

VScode:

Visual Studio Code (famously known as **VS Code**) is a free open source text editor by Microsoft. VS Code is available for Windows, Linux, and macOS.

PHP (Hypertext Preprocessor) is a server-side scripting language that is widely used for web development. When a PHP script is executed, the server sends a response back to the client in the form of HTML, which can be displayed in a web browser.

Here is a general overview of how **PHP works**:

- 1. The client sends a request to the server for a PHP file.
- 2. The server receives the request and identifies that it is a PHP file.
- 3. The server sends the PHP file to the PHP interpreter.

- 4. The PHP interpreter reads the PHP code and executes it.
- 5. The PHP code may interact with a database or other resources to generate dynamic content.
- 6. The PHP interpreter sends the output of the PHP script back to the server.
- 7. The server sends the output back to the client in the form of HTML.

Here are some of the **key features of PHP**:

- 1. It is an open-source language, which means that it is free to use and distribute.
- 2. It is a server-side scripting language, which means that it runs on the server and generates HTML that is sent to the client.
- 3. It is a dynamically typed language, which means that data types are determined at runtime.
- 4. It is easy to learn and has a large community of developers, which makes it a popular choice for web development.
- 5. It can interact with databases, manipulate files, and perform other tasks to generate dynamic content.
- 6. It supports a wide range of web servers and operating systems, making it a flexible language for web development.
- Overall, PHP is a powerful and flexible language that is widely used for web development. Its ability to generate dynamic content and interact with databases makes it a popular choice for building dynamic web applications.

AWS:

AWS (Amazon Web Services) is a cloud computing platform that provides a wide range of cloud-based services and tools to businesses and individuals. It offers various cloud-based services such as computing, storage, database, networking, machine learning,

- analytics, security, and many more.
- AWS can be used to host and run a website in a highly scalable and reliable way. Here are some of the ways in which AWS can be used in website hosting:
- 1. EC2 (Elastic Compute Cloud): AWS EC2 provides virtual servers in the cloud that can be used to run web applications, host websites, and perform other computing tasks. EC2 instances can be easily scaled up or down based on website traffic, making it highly scalable.
- 2. S3 (Simple Storage Service): AWS S3 provides highly scalable object storage service that can be used to store and retrieve website content such as images, videos, and static web pages.
- 3. CloudFront: AWS CloudFront is a content delivery network (CDN) that can be used to distribute website content to users around the world, reducing latency and improving performance.
- 4. RDS (Relational Database Service): AWS RDS is a fully managed database service that can be used to create and manage relational databases for websites, making it easy to manage data.
- 5. Route 53: AWS Route 53 is a highly scalable and available DNS (Domain Name System) service that can be used to manage website domain names and routing traffic to the correct resources.
- 6. Elastic Beanstalk: AWS Elastic Beanstalk is a fully managed service that makes it easy to deploy, manage, and scale web applications in the cloud without having to worry about the underlying infrastructure.
- 1) Overall, AWS offers a wide range of cloud-based services that can be used to host and run websites in a highly scalable, reliable, and cost-effective way. It provides a flexible and powerful platform for website hosting, making it a popular choice for businesses of all sizes.

• Hardware Requirements: -

1) CPU: Intel core i386

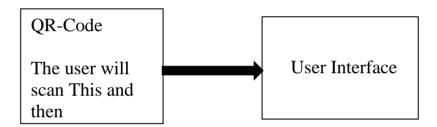
2) RAM: 8 GB

3) STORAGE:1TB HDD

4) OS: Windows/ Mac

Implementation Details

1) User Module



The user when enters in the restaurant firstly takes his/her seat, and then the thing that any user will do is placing an order. But this time the user doesn't have to all for waiter to place an order and wait for him to come and take it. The privilage of placing an order is now in the hands of user itself. There will be QR-Codes placed in every table, which is the menu of that restaurant.

The user will then scan the QR-code and access the menu to place an order. The first thing the user has to do to access the e-menu is to signup if not registered, and signin if already registered.

Then after sigining successfully, the user will be seein the menu of the website. User have to select the quantity of food he/ she wants in the menu itself and then click on the add to cart button to go aahead with one step with placing an order.

Once the user has added all the food he/ she wants in the cart, they can last time edit the

food ordering list by removing some item or by adding few, and then click on the place the current order. Now, the first slot of order has been placed.

If the user has to continue eating, they can again repeat the same process, if not then there is a different page showing the orders placed by them and a button showing "end session". By clicking on this the user will be taken to the payment portal of, and the session will come to an end by paying the amount reflecting in the bill.

This is how we have designed the User Module.

2) Admin Module:

If there is an e-menu, then ofcourse updating that menu should also has to be digitally, so we have designed a admin inteerface that can help the admin of the restaurant to manipulate the menu remotely.

By manipulating, I mean, the admin can add, delete the food item or the food item price in the menu, and the changes can be seen in the user interface.

We also can see thet what are the order from which table number. In order to give the customer a perfect experience in any restaurant. Once the customer clicks on place current order, the admin can see those list in his/her interface.

This decreases the time complexity of going, takin order manually, putting the order in computer and then again generating bill separately. This is a way more efficient and speed way to organizely, and systematically place and pay for your orders.

Result

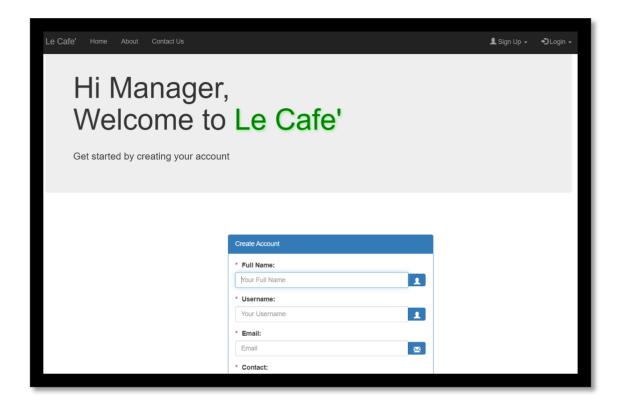


Figure 3: Manager signup page

Whenever there is a new manager of a new restaurant, and want to use our site for their menu representation, they have to register themselves here, the data entered here will be stored for further sing-in purpose

Admin with this can further edit the menu accordingly and can add/ delete item from the list

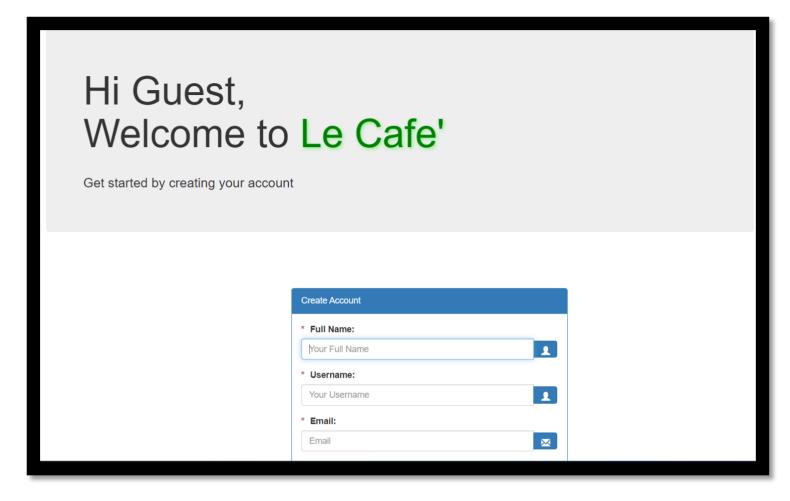


Figure 4: Customer Signup Page

The customer wisiting the site for the first time will have to register their selves in this site for accessing the menu and then ordering food items for them.

Once the user is registered, the user can login with the same account when they come to the same restaurant again for a visit.

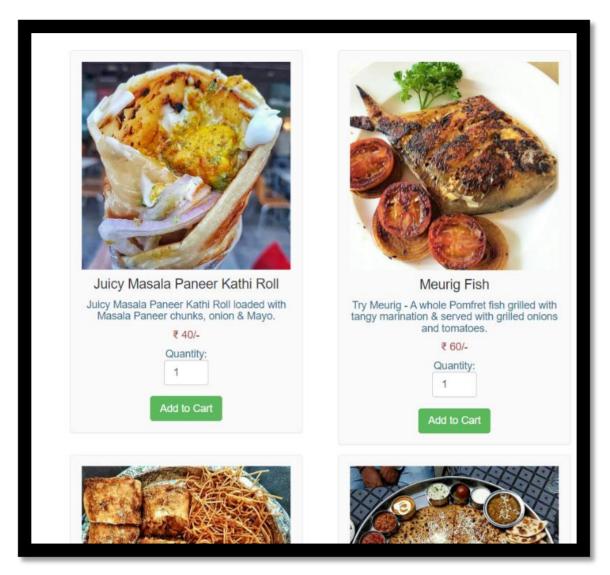


Figure 5: Menu

Once the user has registered into the website and signed in, they will see this page to order and have to place an order using this. As you can see there exists a text box asking for quantity of the food item. The user has to enter the quantity they want to order and then click on the "add to cart" button that is below the quantity text box.

By doing so, the user adds that particular food item in the cart, and can similarly add as many item the user wants to add in the cart by following the same process.

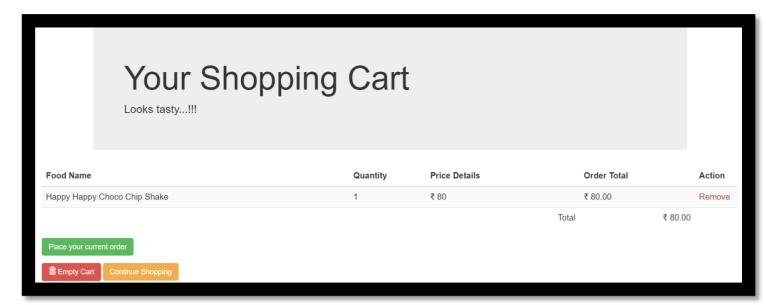


Figure 6: Cart page

This the cart page where the user can see all the items that he has added for ordering them. The cart contains name of the product, quantity of the product to order, price of that product.

Then there exists a action column with remove button that is to remove a particular food item from the cart if the user wants to.

Then below the cart item list, there exists 3 buttons namely, "place your current order", "Empty Cart", "Continue Shopping".

The "Place your current order" will place an order of the currently showing food items, and will empty the cart for further order.

The "Empty cart" will empty your whole cart without placing any order.

The "Continue Shopping" will take you back to the menu list if you still want to add some more food items to your list.

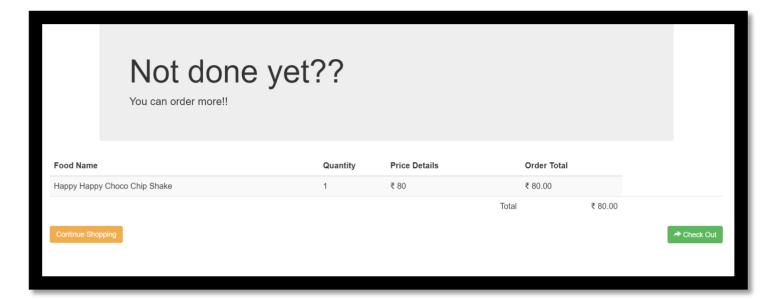


Figure 7: Current Order Page

Once you click on the place my current order button in the cart page, the items will move from the cart page to this page and the items will be sent to the admin placing an order for the items that you have ordered for the 1st session.

Here there are 2 buttons for you.

- 1) Continue shopping: For example if you have placed an order for your starter, and now want to order your main course followed by the dessert, you can click on this button and follow the step, i.e. adding the required items in the cart and then placing the current order.
- 2) Check Out: If you have completed all the sessions, i.e. you have ordered your last food item and now want to end the session by paying, you have to click on the "check out" button, which will take you to the payment portal, and you can end your session by paying the amount shown in the bill/receipt.

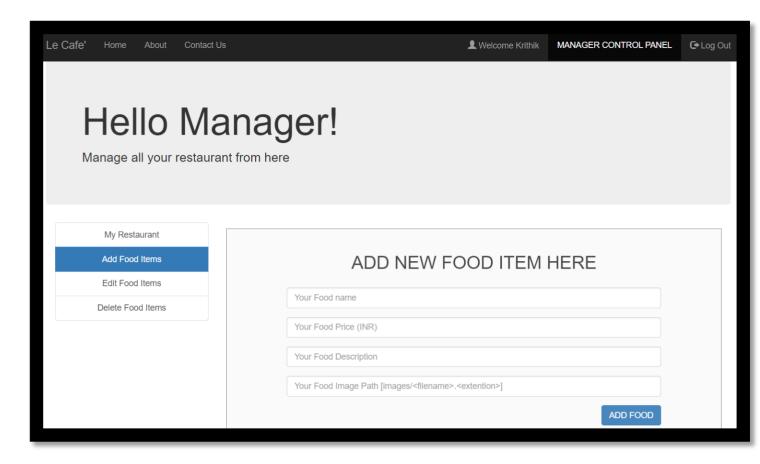


Figure 8: Admin Add item to the menu

Once the admin has logged in the account of the restaurant, this is one of the privilege given, i.e. to add a new item that is new to the restaurant.

For example suppose, it is Diwali time and you have new sweet dishes in you restaurant, then you can add them using this page to keep you menu updated.

As soon as the item is added from the admin side, the user interface can see the changes in the menu that anew item has been added to the list.

To add a new items, you have to enter the following data with respect to that dish:

- 1) Name of the food item.
- 2) Price of the dish.
- 3) Describe the dish in few lines, it's history or what ingredients are used to make it.
- 4) Add an image of the dish, that will make the users buy it.

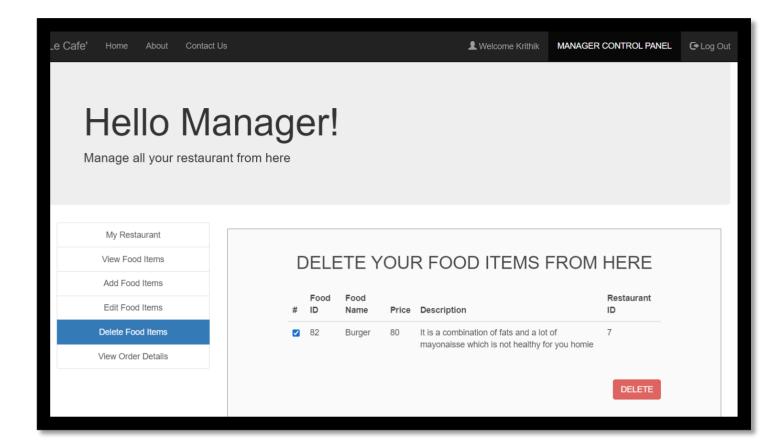


Figure 9: Admin Delete item from the menu

Similar to adding items in the menu list the admin can also delete the items from the menu list, and the changes are reflected in the menu as soon as the dish is removed from the admin side.

For example, if there is some dish not available due some issue like unavailability of the ingredients or something, so to update the customer side, that this dish is currently not available here, the admin can simply remove the dish from the menu.

To delete the item from the menu, admin has to simply select the item that he needs to delete, and then click on the "Delete" button to delete it from the menu.

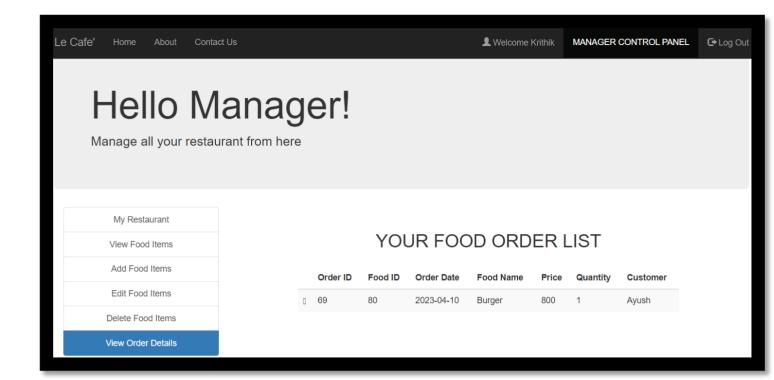


Figure 10: View Order page

Whenever the user places an order from the user end, the food item that has been stored is been reflected in this page pf the admin side.

This helps in keeping a accurate record of the orders that the customer place for future use.

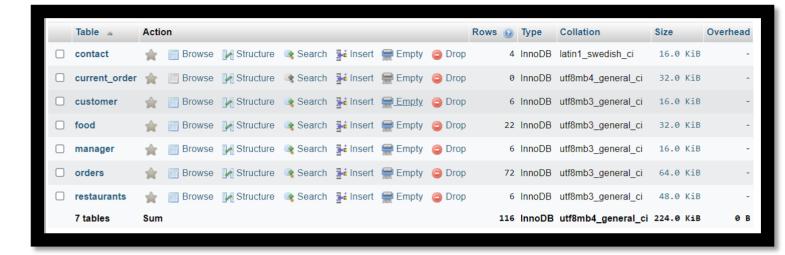
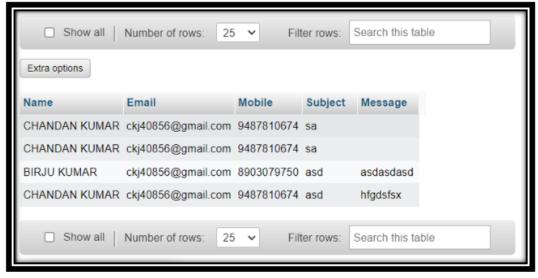


Figure 11: Database Tables

These all are the different tables that are been used by the website to store the data and fetch them when needed from.

Every table is having different columns with different constraints.

Each table stores different values, whereas some are inter dependent on each other.



1) Contact Table:



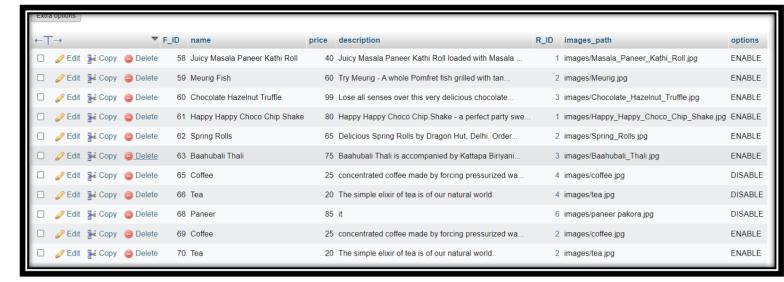
2) Current order table



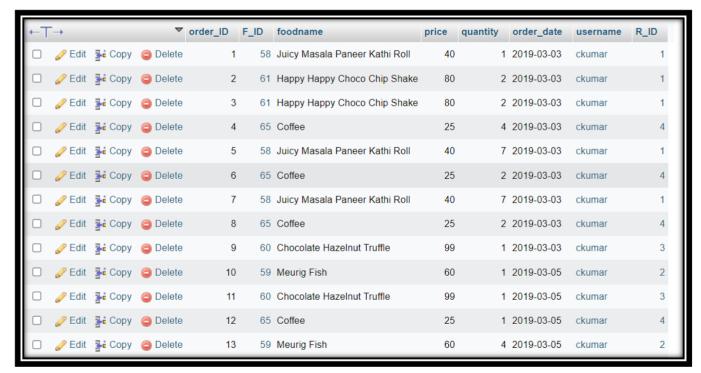
3) Customer Table



4) Admin Table



5) Food Item list



6) Order List

Conclusion

At the end of the completion of our project, we can conclude, that we have successfully made a website that can efficiently decrease the human work by making things digital, more accurate and efficient.

The completion of this project helped us to know various things, like how to add database to your static website, and how to add logic to your website making it easy and convenient for the users to use.

We also learned how to deploy the project in AWS-cloud and make a live link out of it, and then storing that link ina QR-code for easy access by the user.

And hence we are now familiar with many concepts, such as:

- 1) HTML
- 2) CSS
- 3) PHP
- 4) MySQl
- 5) AWS

References

- [1] Raibagi, T., Vishwakarma, A., Naik, J., Chaudhari, R., & Kalme, G. (2021). *Orderista AI-based Food Ordering Application*
- [2] Shokeen, S., & Singh, A. (2019). "Deploying an e-commerce website using Amazon Web Services". 2019 International Conference on Contemporary Computing and Informatics (IC3I).
- [3] Mishra, B. K., Choudhary, B. S., & Bakshi, T. (2015). *Touch based digital ordering system on Android using GSM and Bluetooth for restaurants.* 2015 Annual IEEE India Conference (INDICON).

ACKNOWLEDGEMENT:

We have a great pleasure in presenting the mini project report on "e-Menu". We take this opportunity to express our sincere thanks towards our guide **Prof Archana Kotangale**, Dept. f Computer Engineering, APSiT thane for providing the technical guidelines and suggestions regarding line of work. We work like to express our gratitude towards his constant encouragement, support and guidance through the development of project.

We also thank the entire staff of APSIT for their invaluable help rendered during the course of this work. We wish to express our deep gratitude towards all our colleagues of APSIT for their encouragement.

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