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Ministry o Ministry of higher Education and scientific Research
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College of computer science and Information Technology
Multimedia department

RESTAURANT MANAGEMENT SYSTEM

For restaurant

A project present to computer dep. College of science as a partial fulfillment of requirement for the degree of B.S.c in computer science.

BY

MOHAMMED SELEEM KAREEM

AHMAD ABBAS KHADIM

SARA HAKEM FNEKH

ATHEER HASSAN

SUPERVISED BY

M.M. MOHAMMED HAMZA

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الاية القرآنية

((وقل اعملوا فسيرى الله عملكم ورسوله والمؤمنون وستردون الى عالم الغيب والشهادة فينبئكم بما كنتم تعملون))

صدق الله العظيم

التوبة - اية (١٠٥)

الاهداء

الى الذي اعطاني فكرة ومنحني قلبه ...

والدي العزيز ...

الى سراج الامل بلا فتور او كلل ...

امي الحنونة ...

الى من سارو معي نحو العلم خطوة بخطوة ...

اخوتي-اخواتي ...

نهدي هذا الجهد المتواضع

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(م.م محمد حمزه عبد) الذي وقف بجانبنا فيما كلفنا به .

والشكر موصول لأساتذتنا الذين تتلمذنا على ايديهم طيلة مراحل الدراسة الجامعية.

وامتناننا لكل من تفضل علينا بالدعاء وازرنا ووقف الى جانبنا في مشورانا .

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Abstract

The restaurant management software is a capstone project that aims towards developing an all-in-one application that addresses the various problems and challenges faced by high-end restaurant owners today . In order to achieve this goal, this project addresses various aspects of the modern business . It allows its users to access a variety of functionalities that are essential to the culinary business . Given that this project encapsulates more than one interface, it is by nature rich when it comes to the number of functionalities that are offered and these vary depending on the user's role. For example, it allows the waiter to take user orders through a straightforward, user-friendly, and smooth interface . All in all, this projects main aim is to reduce the time overhead in high-end management restaurants by providing an alternative to the traditional management system based on physical record keeping and paper work.

Chapter one

About the project

1-1 introduction

A restaurant management system is POS software designed for the foodservice industry. Like a standard POS system, restaurant management system helps you capture transactions and manage inventory with accuracy and generally run everyday processes more efficiently. A setup may include both software and hardware, too, like the cash register, barcode scanner, and receipt printer.
What is its difference with a general POS system? Restaurants (including bars, food trucks, and other foodservice business) have unique needs that a regular POS system may not meet. For example, a typical feature is an ingredient-level inventory that lets you track items that make up your menu down to the last pack of garlic. This solves one of the main pain points in running a restaurant: how to do inventory. That's something you won't find in a retail POS, which usually count inventory stocks by product and not what comprises it. A restaurant management system may also run the system using your tablet so the waiting staff can take orders and alert the kitchen and counter even before leaving the table.

These are but a few key differences between the definition of a restaurant management system and regular POS systems. Below you will see more core features such as split billing, kitchen display and open cashier for additional orders in the course of the meal that you won't get in a general POS software. You'll also find different types of this software in our database of restaurant management systems. We hope that answers your question–what is restaurant management system?

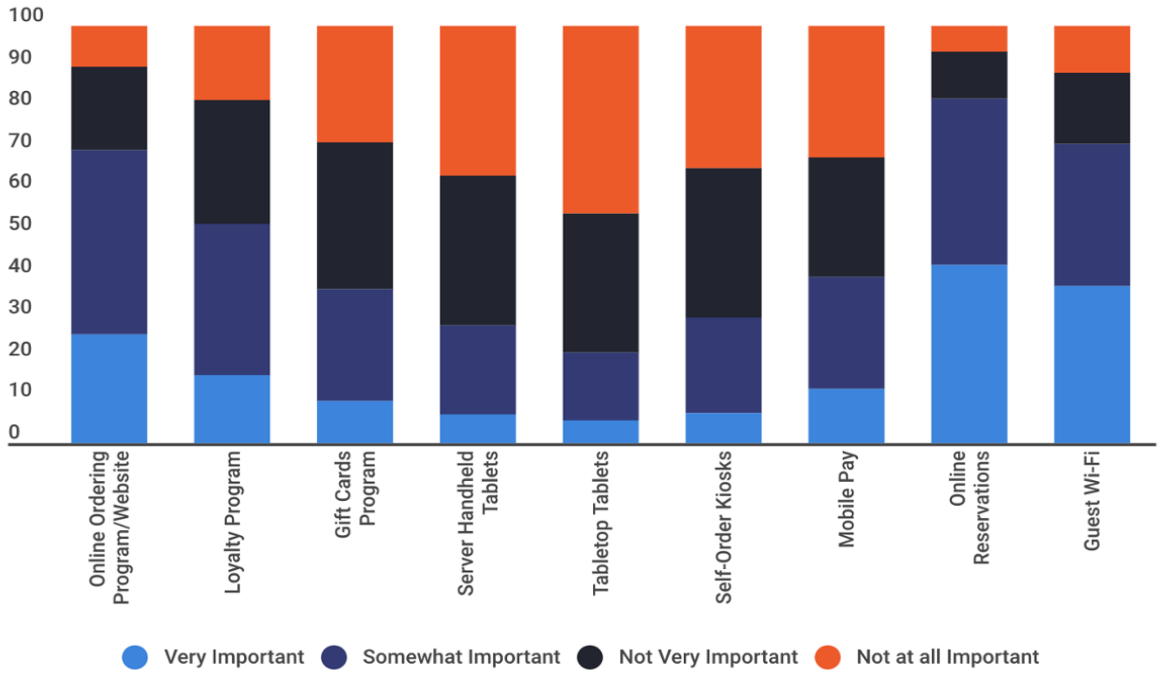

Figure (1-1) Top Features Desired by Restaurant Owners/Managers

1-2 Benefits of Restaurant Management System

What does a restaurant management system do? We list down the main benefits to expect when you use a restaurant management system. These benefits are your main reasons for getting a system. Not the least, 80% of restaurants are turning to technology for online ordering, reservation, inventory, and analytics. You wouldn't want to be left behind, would you?

1. Track sales down to each item

All transactions are captured by the system, including orders, payments, voids, promo deals, and expenses, so your sales data is accurate and spot on to the last item. Revenues, therefore, are accurately giving you the real health of your operation.

Most systems have a built-in alert that notifies you of variances, for example, the gap between stock level and order volume at end of the day; or unauthorized order voids. Alerts are typically sent via email or phone or can be viewed from a dashboard.

Sales data can also be broken down into various categories that make sense to you, such as by bestselling item ranking, customer names or cash vs. card payment rate.

2. Generate financial statements fast and accurately

Where transactions are captured digitally, manual errors are avoided. For example, each transaction is time-stamped and the recorded with other details such as sold items and the employee's name who performed the transaction. Sales data is also synced with inventory and CRM (for customer data) to update their records as well. With data consolidated in one place, the integrity of your financial reports is protected. Likewise, generating these reports is a matter of a few clicks, the system simply runs analytics on the queried data and display the KPIs at once using graphs and charts.

3. Better customer service

This is probably the best reason why use restaurant management system: make customers happy. Most restaurant management systems come with a CRM. This module records customer information like name, contact details, and transactions. With more knowledge of your customer's likes, you can deliver a more satisfying service. You can build a mailing list, run campaigns that target their interest based on past orders or push deals that match their profile. The CRM typically comes with a loyalty program to help you reward your regular clientele.

Similarly, advanced features like online booking, mobile payments, and kiosk POS make it convenient for customers to place orders and transact business with you. Similarly, the use of iPad or Android tablet makes tableside order taking fast to the delight of customers.

Some restaurant management systems also give you the option to hook to a shared delivery network service so you can reach eager customers outside the neighborhood. Overall, the restaurant management system helps you run a restaurant business more efficiently to the satisfaction of your customers.

4. Access data wherever

Most restaurant management software today is cloud-hosted, which lets you access the system and your data from a web browser. You get real-time sales transactions and track employee performance even on the go. That means you can be a hands-on manager while out of the restaurant premises. Remote data access is also useful when presenting to a client or investor; you can showcase updated reports on your business.

5. Efficient Staff Management

A restaurant management system with an employee scheduler will help you allocate more staff during peak hours and less on downtime. By aggregating sales data with staff schedule you can match demand with supply and ensure your resources are optimized, neither over- or under-utilized.

Moreover, many systems allow employees to plot their schedule where everybody sees the available and taken slots. This feature avoids the conflict of schedule or nonappearance. It is also useful if you're managing shared waiting staff to fill in during peak hours; you can let your staff manage their own schedule, relieving you of a time-consuming, non-earning task.

6. Better communication between the kitchen, waiting, and cashier

The perennial problem in running restaurants is that somewhere along the way someone mixes up information. The result: an angry customer whose order is, if not wrong, remain unaddressed or improperly billed. A restaurant management system does away with this scenario. When waiting takes orders via a handheld device that data is automatically transmitted to the cashier so the right transaction is captured and billing is accurate. At the same time, the handheld device transmits the order

items to the kitchen. Barking orders to the head cook is a thing of the past.

7. Cost savings

There are many areas where you can squeeze out savings. With a better-managed employee schedule and inventory, you cut losses to your daily operations. Likewise, variances are avoided or at least significantly reduced, adding more savings to your budget.

Some vendors also hook you to an online marketplace and delivery service network, so you can scale operations minus the overheads that come with expansion. New restaurants grappling with marginal profits can cut down on losses by simply running their operations more efficiently.

1-3 Types of Restaurant Management System

The very definition of a restaurant management system tends to gloss over the fact that there is no hard and fast rule in classifying restaurant management systems. The practical way is to look at them by feature set and priority function to help you gauge the right-fitting system. Along with this line, we can identify the types of restaurant management system as follow:

1. End-to-end systems

These are the most robust restaurant management software, covering all aspects of your restaurant business. Main features include the core POS, inventory control, CRM & loyalty program, staff management, accounting, menu management, order management, payment processing, reporting & analytics, technical support, and hardware setup. Vendors may offer the whole bundle or let you pick and match features and scale for more tools in the future.

2. POS systems

A restaurant management system may only offer the core POS module and let you integrate it with third-party inventory control, accounting software, marketing software, and other key business systems.

3. iPad-only or Android-only systems

How a restaurant management system works also depends on the device type it is designed for, usually either for iPad or Android tablet, rarely both. The reason is to maintain the integrity of the system within a specific OS environment to make it more reliable. This is one major area to consider when getting a system for your business: what device are you using or want to use?

4. General POS systems

Some general POS systems that cater to retail position their system as viable for restaurants or they have an add-on module specific to this niche. This type is ideal if you're running a restaurant and a shop at once, making the cross-over seamless.[20

1-4 What does a Restaurant management system mean?

We all have heard so many management systems like school management, hotel management, even personal management system and what not? In this article, we are going to be talking about Restaurant management system.

Restaurant management system is something that we come across every day but the irony is that we don't know what it is. No matter where we go, all businesses make use of Restaurant Management systems or the traditional term 'POS systems' to track each and everything apart from the main use i.e Billing. Earlier, when someone says POS or a Restaurant management system, the only thing that comes to our mind is 'Billing' but the current scenario is right opposite.

With such systems, everything becomes digital. A Restaurant management software or a Restaurant POS is designed with the goal to ease the process of Restaurant by providing all the opt features that help to operate your Restaurant & Bar with ease.

Gone are those times when POS was just a POS, today we are so dependent on it that almost no business runs without POS. Restaurant management systems help a restaurant in different situations right from being a Point of Sale for your restaurant to table reservation to managing the communications inside the restaurant and lots more.

With the market crowded with lots of options, you will have a challenge choosing the best one out of it. You might even wonder how to choose the best restaurant management software, but the truth is that it varies from person to person. Which means not two persons don't have the same requirement. But here are the essential features that I aggregated from different Restaurant management system :

1. Recipe & menu
2. Mobile order taking
3. Inventory & production
4. Tip management
5. CRM & Promotion
6. Pricing & wastage reports
7. Integrations with the third party
8. Cloud POS
9. User & Data Security
10. Chain management

The above mentioned are few features & few basic things that have become as a necessity these days to any given restaurant to make their whole process smooth.

Imagine being a restaurant owner, there are different processes happening simultaneously. Like a waiter taking an order, a waiter

delivering the order, a customer giving feedback, a customer paying the bill, a customer ordering a delivery, a customer ordering for takeaway and more. To Streamline all these processes in an efficient way, a Restaurant management system comes to action.

(1-5) Other important Benefits of Restaurant management system :

1- Complete control & tracking over your restaurant:

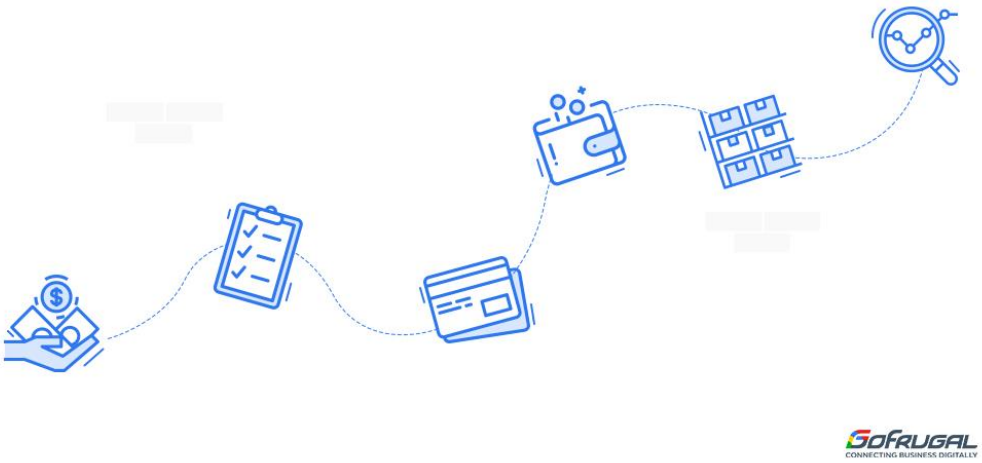

Figure (1-2) tracking order over restaurant

The complete happening in the restaurant i.e all the transactions, orders, payments, expenses, inventory & all other vital data are captured by the system. This way, all the sales data is made secure & accurate in depth.

These days, almost every Restaurant management system has a feature to alert the user in different situations, like KOT alert, Customer alert, Bill edit alert, Credit bill alert and more.

By going digital, there are chances where we rectify the mistake easily by looking at the reports. With each transaction being saved with accurate information, it will help Restaurants to generate Financial statements accurately and fast.

With all the data consolidated in one place, generating reports for your restaurant can be done in a click! This feature gives peace of mind to the

restaurant owners by owners getting their reports in one click and makes it easier for filing returns.

2- **Less Queues:** With Restaurant POS, the billing is made faster and easier allowing you to serve the most satisfied customer with higher priority. This way, it guarantees you to deliver the order on first come, first serve basis. So there won't be any
3- **Better communication:**

With a good Restaurant management software, the communication flow is smooth. Right from order taking, KOT management, to the end order. Our Restaurant management software allows you to take orders via a smartphone, the data is transmitted to the POS and KOT generation, Bill generation follows up.

This way, there is no confusion between the stewards and the Chefs as the communication is strong between them. To add on, KDS or Kitchen display system is a must for restaurants these days to ensure better restaurant management & communication.

Has this given you a clear Idea about what Restaurant Management system means?

This article would have definitely given you an idea of why you need a Restaurant management system. Share your views below.[21]

Chapter two

Introduction to the programming languages used in the project design

2-1 Introduction to the programming languages used in the project design

1- Introduction to php

PHP: Hypertext Preprocessor (or simply PHP) is a general-purpose programming language originally designed for web development. It was originally created by Rasmus Lerdorf in 1994;[5] the PHP reference implementation is now produced by The PHP Group.[6] PHP originally stood for *Personal Home Page*,[5] but it now stands for the recursive initialism *PHP: Hypertext Preprocessor*.[7]

PHP code may be executed with a command line interface (CLI), embedded into HTML code, or it can be used in combination with various web template systems, web content management systems, and web frameworks. PHP code is usually processed by a PHP interpreter implemented as a module in a web server or as a Common Gateway Interface (CGI) executable. The web server combines the results of the interpreted and executed PHP code, which may be any type of data, including images, with the generated web page. PHP can be used for many programming tasks outside of the web context, such as standalone graphical applications[8] and robotic drone control[9].

The standard PHP interpreter, powered by the Zend Engine, is free software released under the PHP License. PHP has been widely ported and can be deployed on most web servers on almost every operating system and platform, free of charge.[10]

The PHP language evolved without a written formal specification or standard until 2014, with the original implementation acting as the *de facto* standard which other implementations aimed to follow. Since 2014, work has gone on to create a formal PHP specification.[11]

2-2 Introduction to java script

JavaScript (/ˈdʒɑːvəˌskrɪpt/),[12] often abbreviated as JS, is a high-level, interpreted programming language that conforms to the ECMAScript specification. JavaScript has curly-bracket syntax, dynamic typing, prototype-based object-orientation, and first-class functions.

Alongside HTML and CSS, JavaScript is one of the core technologies of the World Wide Web.[13] JavaScript enables interactive web pages and is an essential part of web applications. The vast majority of websites use it,[14] and major web browsers have a dedicated JavaScript engine to execute it.

As a multi-paradigm language, JavaScript supports event-driven, functional, and imperative (including object-oriented and prototype-based) programming styles. It has APIs for working with text, arrays, dates, regular expressions, and the DOM, but the language itself does not include any I/O, such as networking, storage, or graphics facilities. It relies upon the host environment in which it is embedded to provide these features.

Initially only implemented client-side in web browsers, JavaScript engines are now embedded in many other types of host software, including server-side in web servers and databases, and in non-web programs such as word processors and PDF software, and in runtime environments that make JavaScript available for writing mobile and desktop applications, including desktop widgets.

The terms Vanilla JavaScript and Vanilla JS refer to JavaScript not extended by any frameworks or additional libraries. Scripts written in Vanilla JS are plain JavaScript code.[15][16].

Although there are similarities between JavaScript and Java, including language name, syntax, and respective standard libraries, the two languages are distinct and differ greatly in design. JavaScript was influenced by programming languages such as Self and Scheme.[17]

2-3 Introduction to html

Hypertext Markup Language (**HTML**) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript, it forms a triad of cornerstone technologies for the World Wide Web.[18]

Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page. HTML provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. HTML elements are delineated by *tags*, written using angle brackets. Tags such as <**img** /> and <**input** /> directly introduce content into the page. Other tags such as <**p**> surround and provide information about document text and may include other tags as sub-elements. Browsers do not display the HTML tags, but use them to interpret the content of the page.

HTML can embed programs written in a scripting language such as JavaScript, which affects the behavior and content of web pages. Inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), maintainer of both the HTML and the CSS standards, has encouraged the use of CSS over explicit presentational HTML since1997.[19]

Chapter Three

THE PROJECT'S

GRAPHICAL INTERFACES

(3-1) Main interface of the project(Dashboard): Is the home page that appears for the Super Administrator to manage the restaurant . In the left side appears (Admin List) This menu contains several options through which the management process is done for the super administrator . In the center appears four shortcuts to easy access.

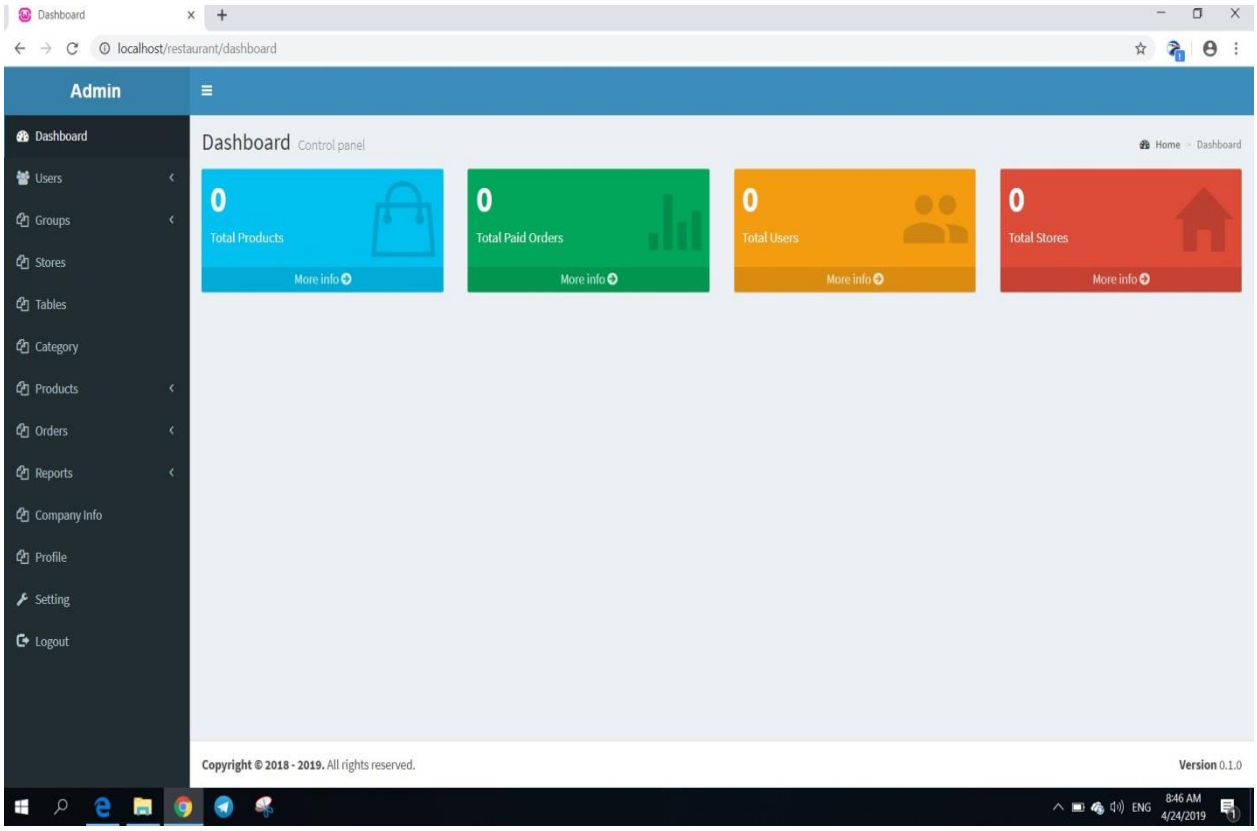

Figure (3-1). Dashboard

(3-2) Users Interface : this page contains two option the first one is (Add User) in this option allow to super administrator add users and give them permission that allow to this users to manage some of option . the second option is (Manage Users) through which users can be managed.

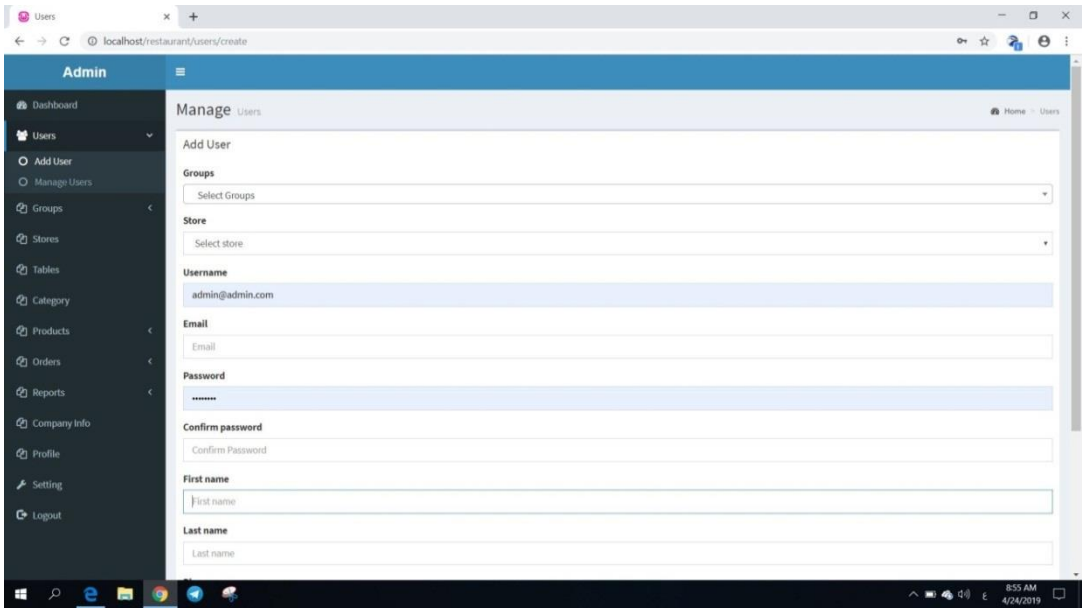

Figure (3-2). Add Users

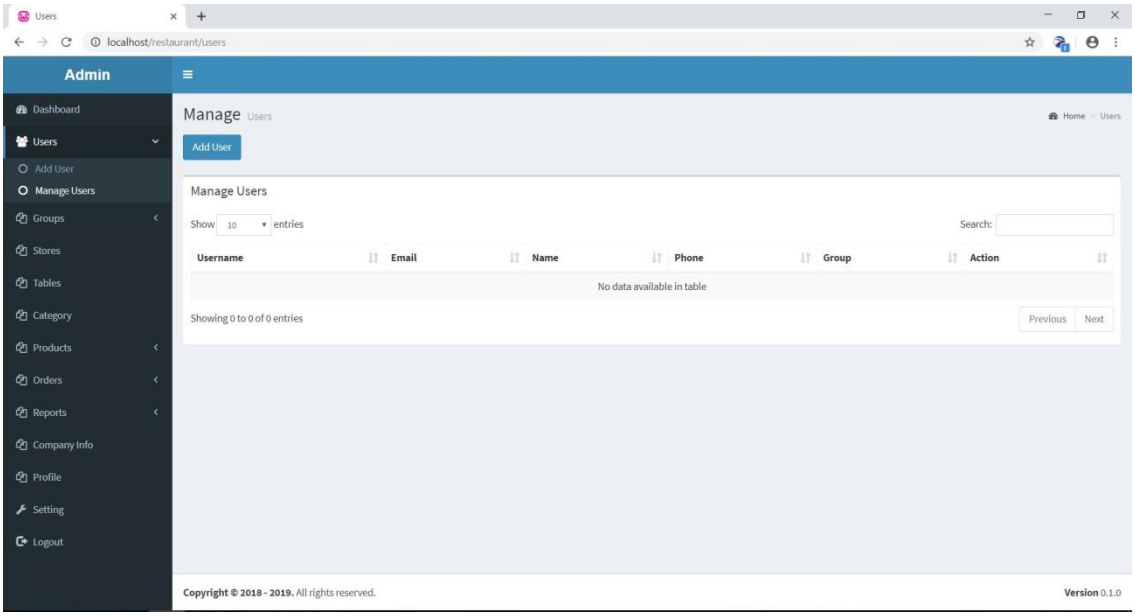

Figure (3-3). Manage Users

(3-3) Groups page : In this page the super administrator add the new groups and give them permission to be use in the (Add Users) . this option only appear to the super administrator . the sub option from Groups page is (Manage Groups) through which groups can be managed.

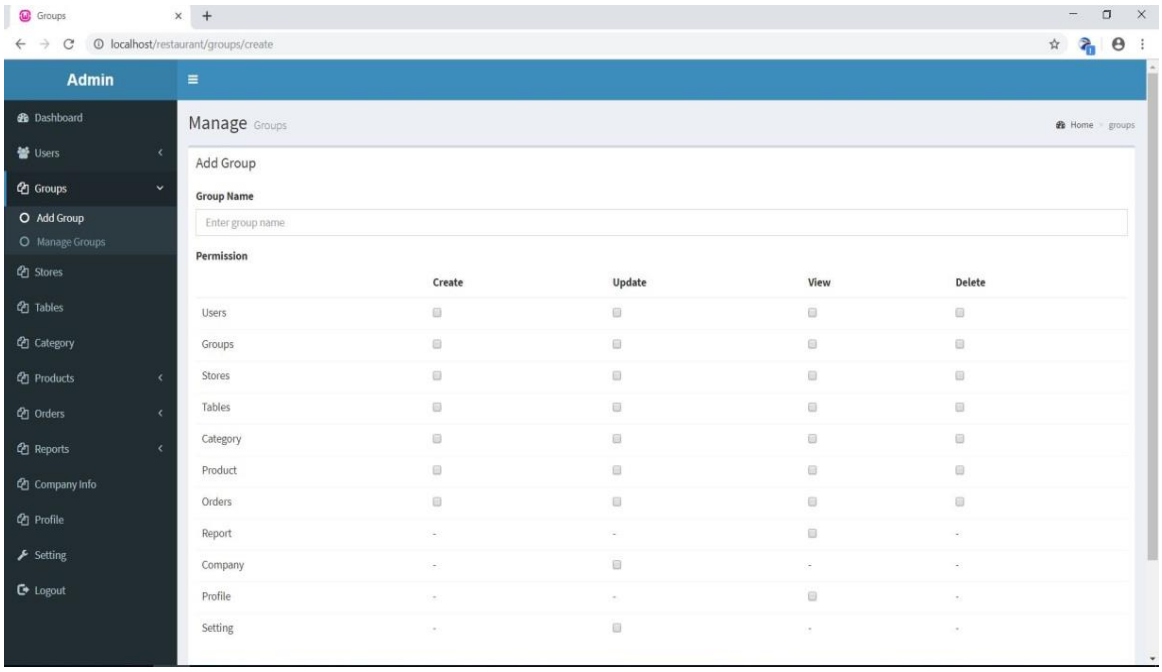

Figure (3-4). Add Groups

(3-4) Stores page : On this page you will find the stores of this restaurant and each store containing the different products and you can also add stores according to the needs of this restaurant.

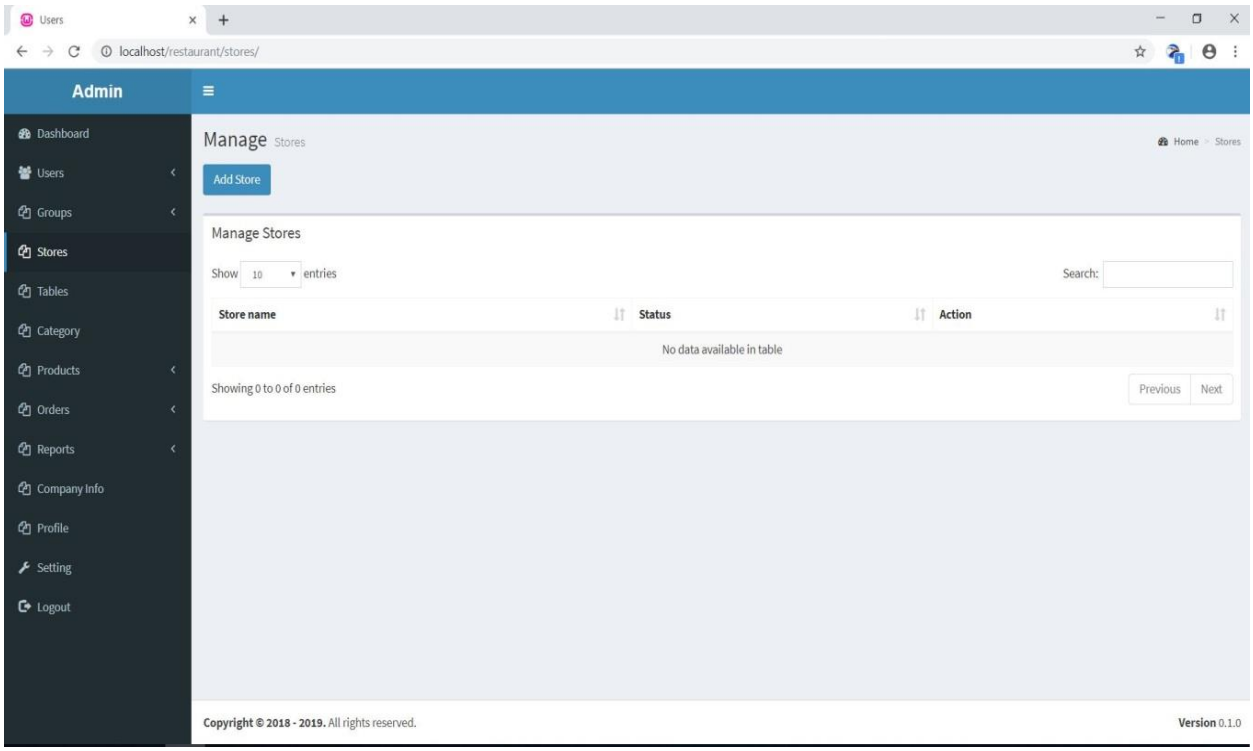

Figure (3-5). Stores page

(3-5) Tables Page : This page displays all the stores available in the restaurant with the status of the store if it is active or not available, as well as the capacity of each store in the form of a table and each table contains a specific name.

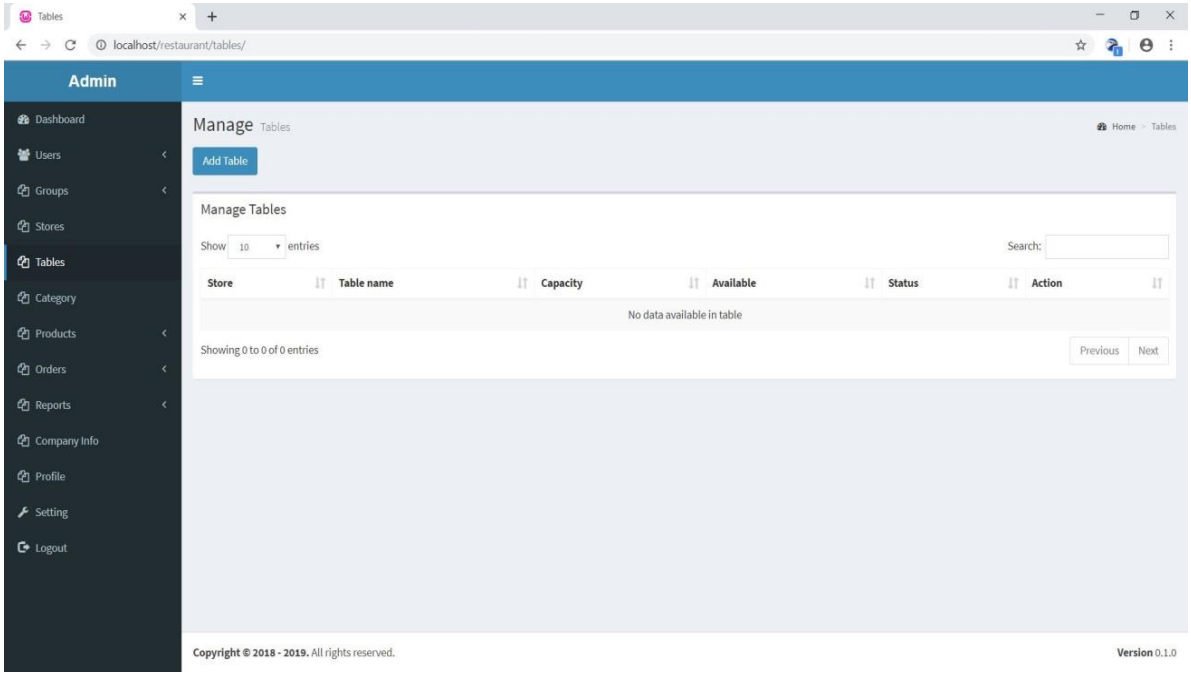

Figure (3-6). Tables Page

(3-6) Category Page : From this page you can list the menus that are available in this restaurant with the status of the menu

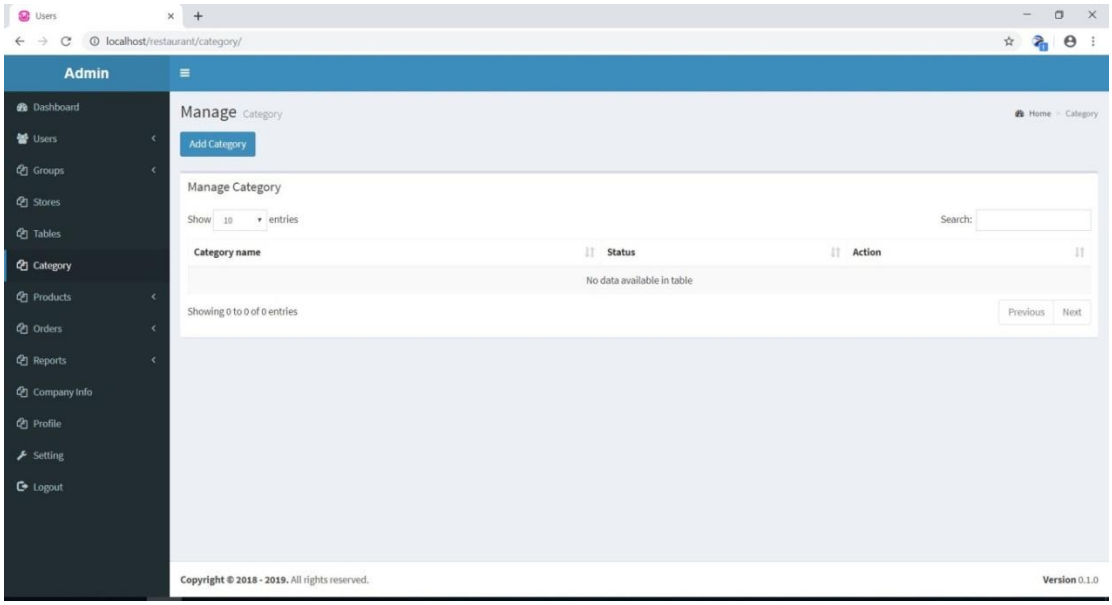

Figure (3-7). Category Page

(3-7) Products Page : On this page you can add dishes to the menus and to any store located in this restaurant with a description of the situation and price and also include a description of these dishes. It also contains the management page of the dishes or products that this restaurant contains.

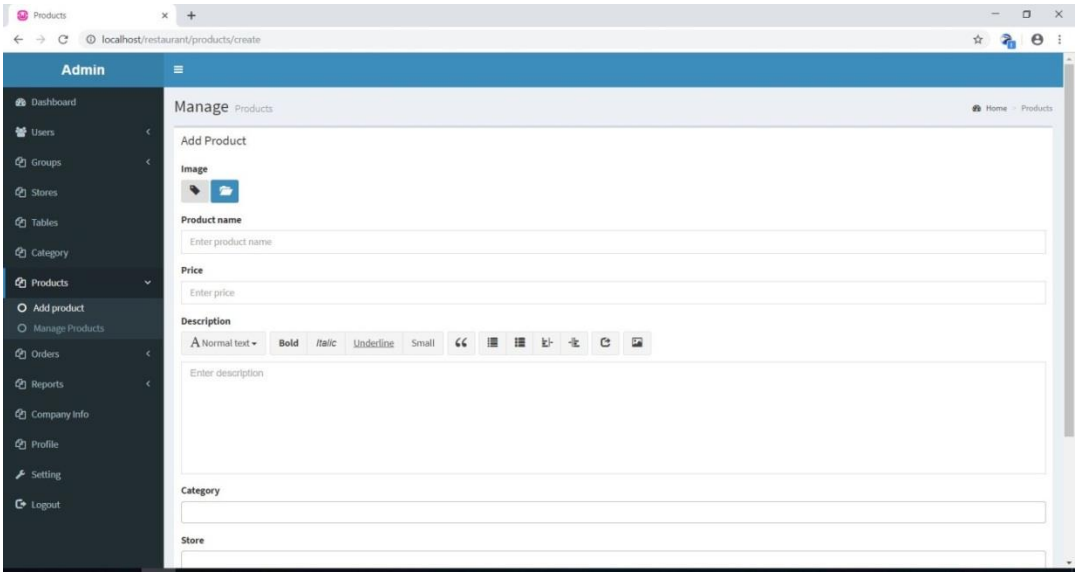

Figure (3-8). Add Products

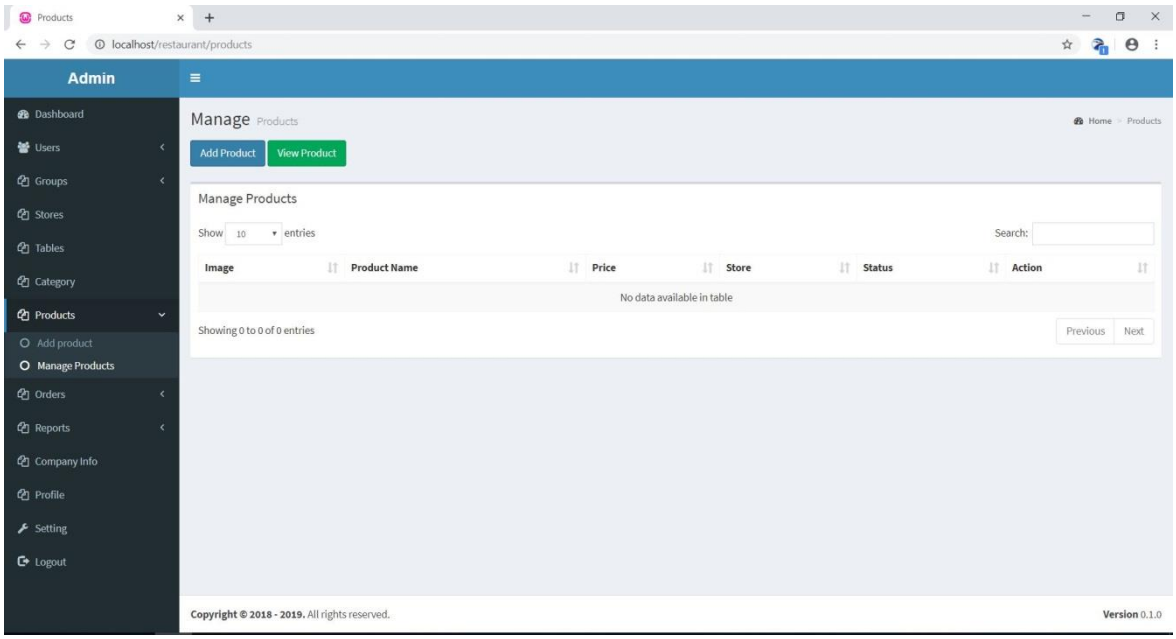

Figure (3-9). Manage Products

(3-8) Orders Page : Is the interface through which the process of adding orders with the order quantity is determined. When the orders is created, it will be stored in the database and the order will be printed. The Orders Management option displays the quantity of orders with a full description.

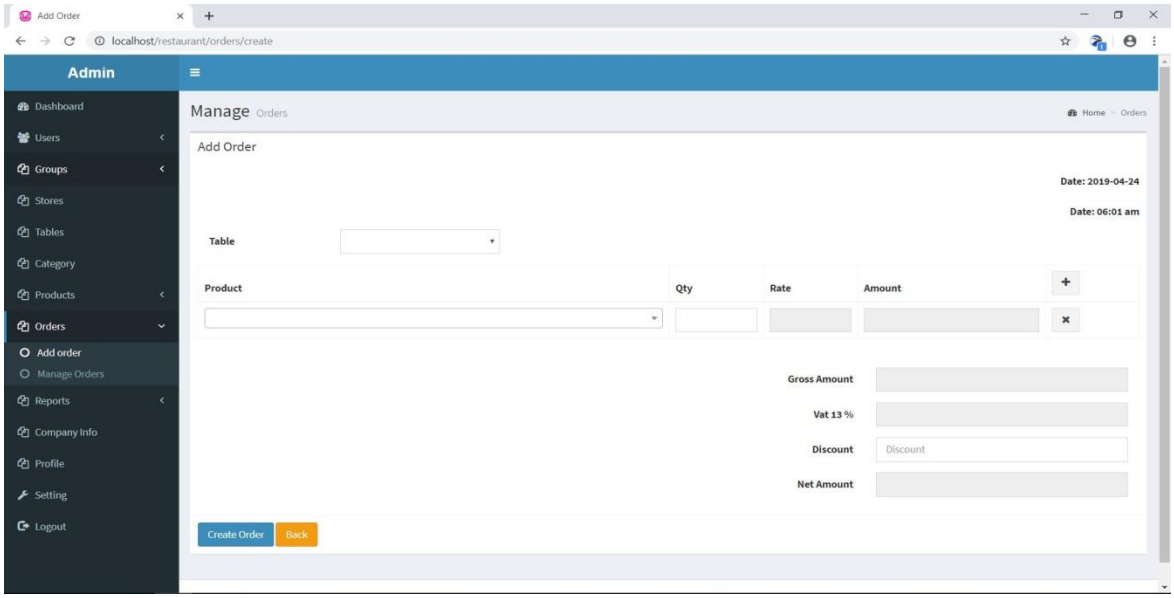

Figure (3-10). Orders Page

(3-9) Reports Page : Is the page responsible for displaying a complete scheme for profits and loss from the restaurant during the months of the year.

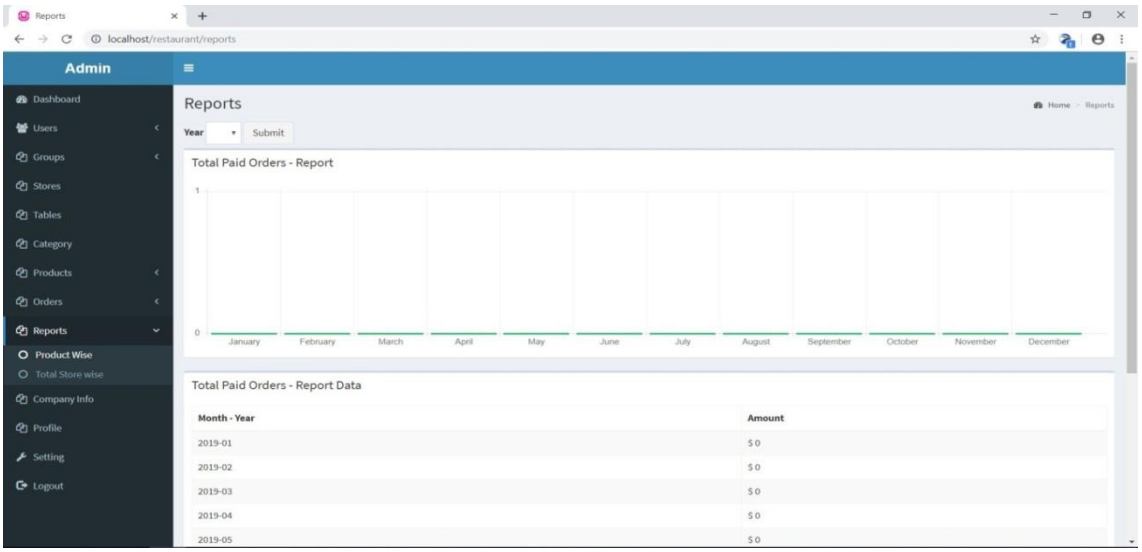

Figure (3-11). Reports Page

(3-10) Company info interface : Is a page where you can manage general restaurant information that contains the name, location, and description of the restaurant

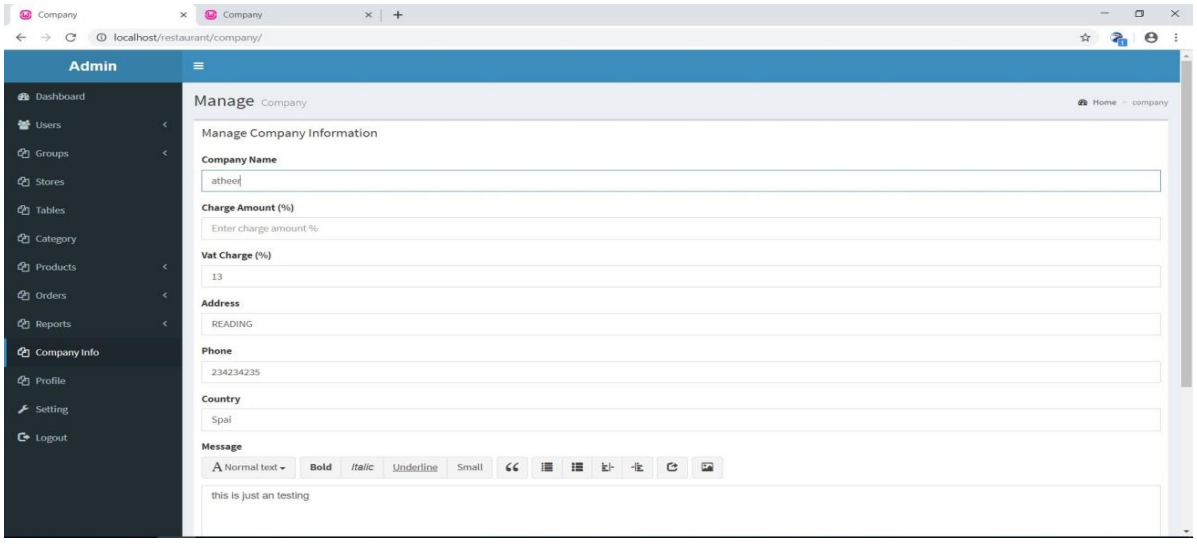

Figure (3-12). Company Info Page

(3-11) Setting page : This page contains user information, from which you can add and edit this information

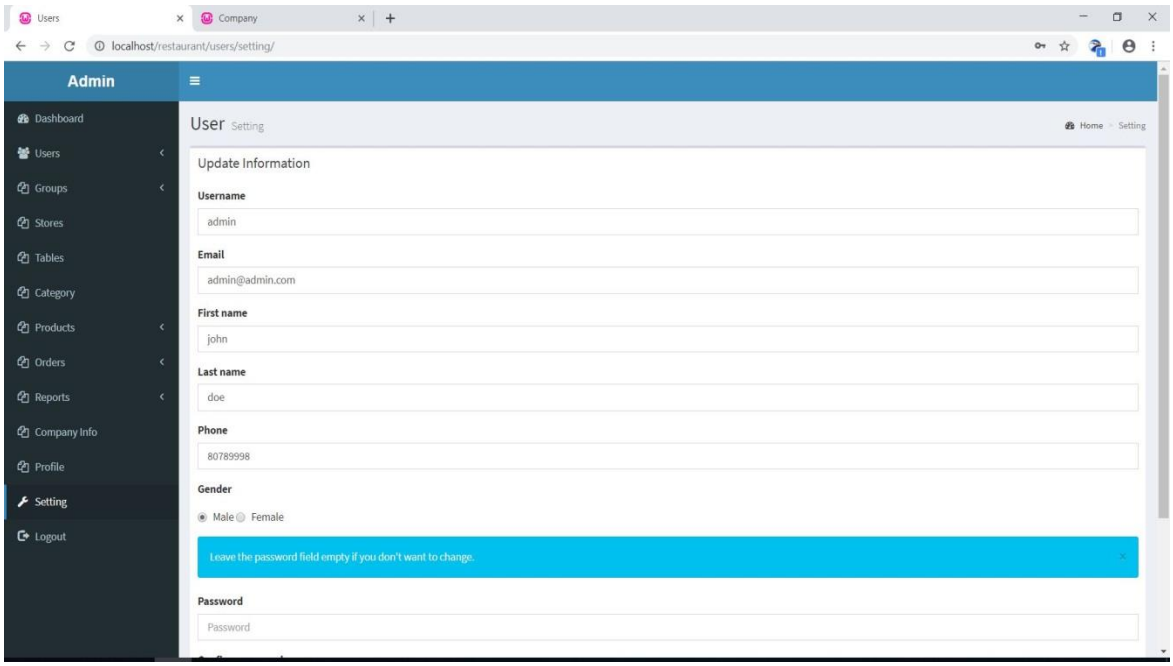

Figure (3-13). Setting page

Chapter Four

Conclusion

&

Suggestion

4-1 Conclusion

The Restaurant Management System is used to develop the restaurant's business to provide orders.

It facilitates us to deal with the customer and reduces the work effort and less time in use.

There are no delays for the customer. There is a main screen containing a table of foods that allows the customer to choose the food and show him the final cost of the order and connect with the main program,

Making it easy for the customer to see the types of foods and integrates with all kinds of images for the food. This program can be installed to add new users and personal profile to you working in the restaurant and dealing with them easily in the absence of salaries.

Each drum is fed by the order chosen by the customer in the main screen Each month we are provided with a report on the amount of sales, the quantity of the materials and the amount of profits.

The database can also be easily modified. The software was used in the design and database integration (PHP, HTML, JS, CSS, MYSQL).

4-2 Suggestion

One of the suggestions for the development of restaurant management system is to add in each drum screen head, which provides more easy for the customer to choose the request and know the final cost and pay the cost of the request.

A server can be installed to connect requests to each drum. This connection connects to the main screen and receives the command from the main program.

4.3 Refrences

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