Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of…

Diploma Thesis

Local Restaurant
Reservation System

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DIPLOMA THESIS ASSIGNMENT

BcA. Harpinder Singh

Systems Engineering and Informatics
Informatics

Thesis title

Local restaurant reservation system

Objectives of thesis

The goal of this thesis is to analyse requirements, make software design and build a web-based reservation system for a network of small restaurants. The system will allow to order concrete meal at exact hour and a restaurant for registered persons. The system will be free for registered users. For unregistered users, it will provide only information service about menu, opening hours and free seats.

Methodology

In the first part of thesis, a literacy review of all used tools and techniques will be written. Second part of thesis will deal with and individual project in form od a standard software project domunentation, namely UML and WebML. The second part will also include a short user manual of the system. MySQL and PHP will be used for the implementation.

The proposed extent of the thesis

80 – 100 pages

Keywords

WWW; MySQL; PHP

Recommended information sources

DARIE, C. *AJAX a PHP : tvoříme interaktivní webové aplikace profesionálně.* Brno: Zoner Press, 2006. ISBN 80-86815-47-1.

DOROGOVTSEV, S N. – MENDES, J F F. *Evolution of networks : from biological nets to the Internet and WWW.* Oxford ; New York: Oxford University Press, 2003. ISBN 0198515901.

KOFLER, M. *Mistrovství v MySQL 5 : [kompletní průvodce webového vývojáře]..*

Expected date of thesis defence

2019/20 SS – FEM

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Electronic approval: 29. 11. 2020

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Declaration

I declare that I have worked on my diploma thesis titled "Name of the diploma thesis" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break any copyrights.

In Prague on date of submission: 31.03.2021

Signature: Harpinder Singh

Acknowledgement

This thesis would not have been possible without the contribution of the following:

Firstly, university has been a tremendous support system. The resource in term of knowledge, exposure as well the ambience gave me wonderful insight to develop into topic.

I would like to express my deepest gratitude and thanks to my Thesis supervisor doc. Ing, Vojtech Merunka(Ph.D.), Head of Department Ing. Martin Pelikan(Ph.D.) and Ing. Martin Pelikan. Their motivation, patience, immense knowledge and guidance have helped me during the entire research and writing of this thesis.

The most effective contributor came in terms of books available in library, which helped me in terms, strategies, issue and case studies which were most apt to the relevant topic discussed. The internet, google proved itself with my search engine to help me optimize research and study.

Lastly, I would like to thanks my family who have always believed in me and have always there for me.

Thank you all.

Local Restaurant Reservation System

Abstract

Restaurant is a kind of business serving ready-made meals to customers all around the world. This sector is currently undergoing some problems due to COVID 19. With a number of differences in food selection and intake in their busy lives, people are more relaxed with the online reservation system of the restaurants.

A consumer must make a phone call through the conventional reservation method to reserve his lunch. It takes 5-8 minutes to finish this phase. It will then cover up to 15-20 orders every hour. The online reservation system is much faster and accurate.

The main objective of the research is to analyse the crucial requirements of local restaurant reservation system and also design the software of web based reservation system for a network of small restaurants.

The main purpose of this approach is to equate potential estimated revenues with the price currently provided for the restaurant industries. Numerical testing using historical evidence indicates a substantial opportunity for improving sales from our proposed model.

Keywords: WWW, Php, MySql

Local Restaurant Reservation System

Abstrakt

Restaurace je druh podnikání, kde se podávají hotová jídla zákazníkům po celém světě. Tento sektor v současné době prochází určitými problémy kvůli COVID 19. S řadou rozdílů ve výběru a příjmu jídel v jejich rušném životě jsou lidé uvolněnější díky online rezervačnímu systému restaurací.

Spotřebitel musí za účelem rezervace oběda zavolat konvenčním způsobem rezervace. Dokončení této fáze trvá 5-8 minut. Poté pokryje až 15–20 objednávek každou hodinu. Online rezervační systém je mnohem rychlejší a přesnější.

Hlavním cílem výzkumu je analyzovat zásadní požadavky místního rezervačního systému restaurací a navrhnout software webového rezervačního systému pro síť malých restaurací.

Hlavním účelem tohoto přístupu je srovnat potenciální odhadované výnosy s cenou aktuálně poskytovanou pro restaurační průmysl. Numerické testování využívající historické důkazy naznačuje významnou příležitost ke zlepšení prodeje z našeho navrhovaného modelu.

Klíčová slova: WWW, Php, Mysql

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1. Introduction

The aim of thesis is examination the requirements, designing software and methods to build web-based reservation system in local restaurants. Structure will authorize to order meal without wasting time for registered person and unrecorded people will access the information about menus, opening hours and capacity.

Dinning in the restaurants has been one of the most affected businesses in the time of Pandemic. Many of the well-known restaurants have lost their business. The outbreak of COVID 19 have brought to us a complete new face about dinning out complicating the whole excitement with physical distancing and other mandatory limitations like limiting the number of customers visiting the restaurant. This have often led customers to rethink before moving out of their houses. The early days of the unlocking of the lock down there has been a number of customers who wanted to move and dine out hoping this would help them to relive their old live and get back to normalcy after a prolonged period and it is then that they have come across this problem of not being able to get into any of the restaurants as most of them remained full with the number of customer's intake being reduced and limited (Allegretto and Reich, 2018). The whole scenario has changed with the regulations becoming more and more rigid the ones who while walking on a side walk entered a restaurant randomly just because they felt like it has completely changed and now it's almost like planning a proper trip to the local restaurants. Seats have to be available for the person to actually get a chance moreover the restaurants authorities should also be informed about the customers' arrival as well as the time and other and other details like number of people coming and so on so that the restaurants can prepare accordingly without violating the regulations. They can no longer just go and enter an eatery any more. Here in comes the importance of the restaurant reservation software which has made this whole stress of uncertainty in finding a seat in the restaurant easier. This has been not only helping the customer but also the authorities in keeping track of the in and out flow of dinners along with that helps in keeping a track of the restaurants capacity in dealing with customers' demands. This concept of reservation has been so helpful that in places like Minnesota as well as Delaware reservation system have been made compulsory even in places where there is no need for reservation the National Restaurant Association have made recommended the use of reservation or call ahead method. However even when this

reservation software has become so important for the same there have been many places who are still not used to the technology. According to the reports of Touch Bistro's 2020 State of Restaurants Report there have been almost 57% of the total numbers of restaurants who are still finding the phone call and walk in bookings system more convenient than the app (Bertan, 2020). However, to take up the restaurant reservation app it is important to first know the whole software properly. Traditional methods of accepting the reservation through phone calls and walk-in reservation have been one of the low tech techniques which include the person to call up the restaurants to book a table which is recorded by the restaurants in a log book. This process has come up with a number of drawbacks which includes the person reserving a table can only reserve if the phone in the restaurant is received by some one that is someone is available. On the other hand, the log book used to maintain the list of reservation is also quite difficult leading to a number of mistakes and thus leaving a number of customers unhappy. It is for this reason that the restaurants reservation system has become as popular as it helps the restaurants to look into the matter of reservation easily as well as help the customer in booking a place. Since everything is done digitally so the bookings can be cancelled and changed according to the availability without any mistakes while confirmation emails are sent. Therefore, the customer can manage every step. There are also options to contact the restaurants for any customization or any query so the customer does not face much of a problem. Therefore, booking or reserving a table in the restaurant has been brought online through phone or SMS which guarantees the table booked for the particular customer till they arrive and in most cases this is completely free and even if there is a charge involved it is reimbursed from the bill after the dinner.

These have become a common phenomenon today however it was pretty different in the past as has been seen and referred to in history around 19th century reservation of private rooms was done as has been referred to by Rebecca Spang while her interview with the Atlantic on *Invention of the Restaurant*. These used to have both big communal dining rooms as well as the private dining rooms. In the case of reserving the private room the meal was ordered and paid in prior so that it was served with the arrival of the guest (Boomija et al. 2018). However, many a time it can be thought that with invention and popularity of the telephone did not affect the demand for reservation or

dining out, instead post world war era saw the change of the dining out from luxury to necessity. As has been recorded in the report of 2017 Touch Bistro its consumers were eating two to three times in a week which was due to reservation technology.

As the Pandemic had put an end to the dining out scenes however the reservation technology has become the reason of the revival of the practice after the reopening of the restaurants. And with the several regulations in the post pandemic phase reservation software have come to the rescue managing the whole including customer capacity control, their expectations, hospitality and so on. In other words, this reservation software is no longer just luxuries that were a part of the high brand restaurants instead they have become a necessity in the modern dining scenario.

To understand the importance of the software it is more important to understand the how the reservation app have been catering to the need and have benefitted everyone from the staffs to the customers. Firstly, considering the position of the managers he needs to know exact and every details of their restaurants so that they can keep an eye on and deal with every detail. Therefore, when he is made aware by the app as to the amount of customers the restaurant will be serving in a particular day it would be easy for him to arrange for the resources and his man power accordingly so that all the customers receive the proper services and are satisfied. Secondly the host has the job to seat the people and tell them how long they need to wait for the arrival of the food or to get a seat however with the app the host is made aware of the reservations and it becomes easy for him to predict the wait time (Brizek et al. 2021). This mostly important in the current day scenario when the restaurants are trying to maintain the regulations like physical distancing and are trying to keep away from overcrowding the app helps the host to inform the guest when their table is ready and thereby avoid unnecessary overcrowding. Thirdly the servers also benefit from the app. The customer while making the booking mentions their demands clearly for instance if they wanted to make a special arrangement for some celebration or some other kind of request they want to make to the servers regarding their food this app helps them to inform the server prior and therefore help them maintain and abide by the need of the customer and satisfy them. This help to keep them prepare and carry out the instruction of the customer without needing the customer to tell them anything. This way they have been winning over the customers and from occasional many have been

turning into regular ones because of the servers and the service provided by them. This has also given them a sense of security among this pandemic scenario. Lastly the customers have received immense benefit from, the reservation software. There have been several ways by which these customers have benefitted from the reservation they are aware that once booked they can be relieved that their table would not be taken away by any and that they do not have to wait in a cue to get a table. They can not only book through online, call or text they can also get in touch with the restaurant to book or cancel reservation. Moreover, they also get to make extra requests according to their needs and the restaurant is able to live up to the needs of the customers. Apart from that the customers are kept safe as the authorities do not allow overcrowding and calls the customer when his or her reserved table is ready to be served (Darie, 2006).

Discussing how the reservation system go about helping and benefitting the all the aspects of the restaurants with the outbreak of the pandemic it has been one of the most important aspect. With the reservation software it has become a powerful tool it has been helping and easing out the work as well as increasing the business at the same time protecting the health and maintains the rules and precautions. Looking into the benefits:

Accessing online: The stay at home has become of the greatest cause in the decline of the restaurant business as the pandemic situation have brought people to stay at home and maintain the physical distancing and thus the restaurants have been missing out on a chunk of their daily business and thus many of the businesses have lost a lot and have thus forced to give up. However, with the help of restaurant reservation software it has become easy for the restaurants to become visible again and reach out to their customer. Even If the customers are not walking by the restaurants they are Google it and looking for the places (Boomija et al. 2018). With the use of app and the reservation software booking and reserving the places in local restaurants gives information about the local restaurants without moving out of the house. Thus more and more people have come to know about these new eateries through the use of app and with the help of the search engines used to access these reservation applications.

Digital waitlist: The pandemic has shown how disease and germs can spread through air and even by coming to close proximity and therefore attacking one's respiratory system and thus waiting for one's turn in the restaurant would mean risking one's life.

it is obvious that the waiting areas of the restaurant's the bars therefore are the den of such diseases. With the help of the reservation software the people do not have to be physically present and can turn up only when their turn comes by following the digital waiting list as shown by the reservation app and thus help in maintain physical distance and prevents overcrowding the place which in turn reduced the health risk.

Booking management*:* With the reopening of the restaurants things have become very difficult. Most of the time, the restaurants are trying to cope with the details of the regulations. They need to manage and limit the customers give enough space for physical distancing. Therefore, the restaurants that have been used to having huge number of customers have been facing severe challenge trying to live up to the regulation set due to this COVID situation. In this scenario it has been seen that the reservation software has been has been taking care of this on itself helping in managing the number of customers. Further these applications have been place for the restaurant authorities to manage and limit the customers and therefore will automatically not take any booking after the limit has been reached (Allegretto and Reich, 2018). It is also that there is a particular reservation time that follows and therefore after that time no reservation is accepted by the app. It can therefore also control the maximum number of customers the restaurant owners can seat in the restaurants in a particular shift. At the same time with every guest leaving the software also updates the vacancy and this helps coming of the new set of customers. Using these tools, it becomes easier to maintain the government given guide lines and thus ensures that the restaurant is not exceeding the government given limits for the customers.

Floor Management: Another challenge that have arrived with the pandemic scenario is changes in the restaurant floor planning that is even in the places where there have been strict limits on the physical distance between the dinner tables or the times. For instance, a restaurant can permit around 10 dinners in a space of 500sq feet while some other place plans to keep a distance of 10 feet between the tables. After this the restaurant must look into how to utilize the few of the table that are left. A reservation system also looks into this and plans according to the floor plan giving the allowance to block tables as and when needed at the same time have an alternative lay out as per to adjust with the new guidelines (Bertan, 2020). It also helps in optimizing the restaurants settings according to the availability and since it is being done real time

therefore any vacant tables can be claimed by the customer as and when they want to a week prior or just a day before without the interference of the restaurant authority if it is not violating the given guidelines.

Custom reservation notes: It is obvious that after the pandemic most of the people would love to return to the restaurant and bars to relive their normal life and it is at this point dining out anxiety seeps in where social distancing is one of the most important challenges to ease out the anxiety. This ensures that even when people wants to come out to relieve their normal life they still want to be assured of their security and safety in the case of pandemic time (Harshitha. 2019). Online reservation system can take care of these worries and therefore allows et al the customer to ask whatever concern they have regarding the restaurant and their working system to ensure that they are being completely protected and safe while they are dining at the place. In doing so the customer gets the opportunity to custom reservation that is to choose where they want to visit and the place they want to reserve for themselves including mentioning of the food allergies, use of mask and sanitizer when they visit which ensures them that the restaurants are aware of their safety measures and would take care of it accordingly relieving them of the pressure and worries about their health.

Communication between the authorities and the customer: It is obvious that the customer visiting a new place or an old place in the new reopening time period what exactly should they be facing or expecting. With the restaurants taking up new ways to spread awareness among the customers and using new guidelines the customers rarely can make an idea as to what is to be done or what is to be expected. However, with the reservation software it has become easy. The customer can call up the restaurants just like the previous point of custom notes there is an option of one to one interaction where the customer gets to communicate and inform the restaurants about their concern and get information about the restaurant before visiting the place. Hereby they learn about the floor plan the sitting arrangement and so on and other details to get a complete idea about the place and satisfy their demands.

Lessen the No-shows: With less of traffic in the restaurant the authorities have been facing severe issues with No-shows which was a concern already before the pandemic and with the pandemic things have gone worse (Allegretto and Reich, 2018). However,

it is obvious that the no shows cannot be eliminated but restaurant reservation software helps in keeping this low and thus SMS and emails are send directly to the customer confirming their acceptance along with that reminders are also sent to the customers to remind them of the booking and the visit. Moreover, if they are unable to turn up for the booking the app gives them option to cancel the booking making the reserved area available for new customers therefore saving the restaurants to some extent.

POS Reservation: Menu adjustments to accepting online orders every restaurant have come up to making amendments and that has been a process by which the restaurants abide by to help their business. The amendments are made according to the time and demands and to see what is working with their customers and what needs to be eliminated. Reservation software helps with this as well. With the introduction of new menu to certain changes brought in the restaurant the customers are given option to rate each of the item and accordingly their views regarding these changes are received based on which the restaurant authorities can make their further changes. It also means that the reservation details flows into the POS and therefore whatever is the decision is known by all and thus helps the restaurant function properly and make changes accordingly.

Advanced reporting: With the restaurants it is difficult to know how many customers to expect especially if it is a new place or if it has been reopened after corona. However, the reservation app helps in understanding and keeping a track of how many customers to expect and prepare accordingly (Boomija et al. 2018). The authorities also get a proper data about the upcoming customers what to expect and what not to and that to authentic data. Every report is therefore ready by the end of the month giving a complete idea about the whole scenario.

Record of dinners: Contact tracing is one of the best tools for managing the restaurants after COVID. This helps in tracking those that have been infected COVID and also helps in finding and tracking those that have come in contact with them and thus help them. In case of restaurants contact tracing means that everyone should be kept away from every person coming in the restaurants to maintain the safety. It also means that the restaurants are supposed to keep a track of this.

Reservation software have been dealing with a number of things and before the pandemic phase it was limited only to some of the restaurants but with pandemic scene even the local eateries in order to follow the guidelines are taking up the reservation software and have been benefitting immensely from the several tools that have been incorporated in the app. With the reservation only policy the software utility comes in and the one using it has been benefitting by the immense help the software provides both to the customers and the restaurants authorities making it more and more organized. It also helps in creating guest profiles instead of manual log and helps them to keep on interacting with the customers ensuring their satisfaction and safety. With the restaurants opening after pandemic it has not been an easy task and without the help of the reservation software it was impossible to take care of such details and in that case the business would have suffered. It is true that it did not reduce the worries of the restaurants completely easing out the work but have definitely share the burden. The restaurant industry is never static and has been prone to changes continuously including some restaurant technology coming in and the ever changing demands of the customers the most important out of them being the online reservation and the free Wi-Fi along with the mobile ordering system. With the development of the reservation of application all these demands have been met (Peng and Chen, 2021). The ever increasing innovative demands and the changes that are to be brought up by the authorities have become increasingly difficult to deal with and there in comes the reservation software bringing in solution to all these demands which have further proved to be beneficial for the management to increase the profits and betterment of the business.

Restaurants with the reservation software have gained more efficiency starting from the staffs. The authorities can determine how much staff is needed considering the amount of customers they are to deal with as determined and brought in by the reservation app, which in turn helps in preparing the kitchen before the beginning of the rush hour therefore it becomes easy to be prepared for the rush hour which helps in serving the customer better. The reservation too has a positive impact on the host who is able to deal with the customers focusing on their demands and needs as well as attending to the ones who have been booking online and are trying to contact the restaurants to deal with their concern. This host free from the burden of keeping attack

of every detail can reach out to help the customers and help them to feel at home and important which gives the customer a better satisfying feeling. The reservation software also helps in preventing over booking which is a serious concern in the time of COVID as well as prior to that as the customer booking and being confirmed were not getting the place when they arrived and had to wait for long hours. Moreover, in cases of cancellation of the same the app itself takes the initiative to repopulate it with further booking. This helps the business up to date regarding their availability among its customers (Pratiwi, 2017). Further the restaurant reservation system helps in keeping the restaurant more convenient for the people as a result it helps in increasing the trust of the customer as they are able to know more about the restaurant and thus it helps in increasing the business of the restaurant attracting more and more customers as the customer can visit the place at ease with their reservation and everything done they don't have to worry about getting a place. The app also allows the restaurant authorities with some of the tools provided by the app to reach out to the customer understand them better and therefore helps in satisfying them. These apps also keep a track of the customers' details and therefore inform them as and when their time arrives. A booking widget can be added to cover the bases. With the information of the customers the returning customers are given more ease in booking or reserving the table this helps in making a better relation between the restaurant and their customers. Moreover, wishing them on birthdays and anniversaries with some complimentary items along with arranging for a surprise if they are booking on the particular special occasion are some of the perks that helps in easing out the business and helps in maintaining a better relation with the people. Apart from all these there is an impact on restaurant reservation management and QSRQSR's Connect Smart® Host (Formerly Dine Time) solution offers a complete front of the house management tool with a powerful restaurant reservation system. In the case the customer is vegetarian or is vegan even then the reservation app can specify and accordingly the sitting arrangement is done. The reservation app mentions this detail of the customer including their demands the number of people and other details about certain changes they want to make in their food and other demands they want to ensure while in the restaurants which they mention while booking not only to the management but also to the staff and help them to work in tandem reducing the possibility of errors and

miscommunication (Bertan, 2020). This help in giving the guest a better experience and thus enhancing the business for the restaurant. In this it is important to note that it has been seen that the restaurants using the reservation software make a better business and a smooth work than the ones dealing with the first come first serve business. This is especially more starkly seen in the times of Corona where people refuse to wait in the long queues and only visits if they are assured that they would receive a place. Herein comes the benefit of the reservation app. Modern reservation systems optimize restaurant operations by enabling restaurateurs to provide guests with stellar experiences that turn first-time visitors into regulars.

If the restaurants already accept reservation there has to be a system to organize the whole and to reach them out to all the staffs to keep them aware of the amount of work pressure and therefore restaurants that come with their own POS can clear up the overcrowding issue, make business more accurate with more predictions in the amount of profit by keeping a record of the customers and the details they have orders. This helps the business in maximizing their profits along with creating a personalized relation with their customers (Dorogovtsev and Mendes, 2013). For instance, the reservation system helps in managing the whole system through a small iPad without much of things to be included like a log book paper pen and a person to keep a track. Instead everything is kept organized in a small machine with full accuracy. Moreover, if the customer is returning then the restaurant already is aware of the details of the person his likes and dislikes and therefore he receives everything that he wants as per his needs and likes. Since the whole is automated it lacks errors and therefore fewer chances of mistakes and more accuracy in dealing with the customers. The customer books over the phone so he or she is at liberty while putting the inputs and therefore the restaurants cannot take the blame of some mistake. Moreover, in case the customer wants to make changes they can do so in the app itself and they are also reminded of the date of their booking in case they forget to confirm that they will arrive for the date and the place they have booked. This has been looking and keeping an accurate record along with proper efficiency. While booking the customers have been mentioning their details and these are clearly mentioned for the authorities to look into by the staff who keep a note of it for future reference. It has also reduced the wait time as it mentions the date and time to the customer while booking so that he does not have to arrives

and wait for his turn for a long time. In case of cancellation the app informs and takes up new customers to fill up the vacancies. Now in case the wait time persists even with the app's prediction the staff is still informed about the arrival of the guest and can prepare for some snacks and beverage for compensation this helps in dealing with the customers in a better way. Keeping the customer profiles and using them to keep a track of their demand sin the next visit have been one of the most useful feature of this app that have been used in keeping a cordial relation between the restaurant and the customers as has been referred earlier this has been boosting the relation, may be complimentary desert or a small celebration if the person visit on a special day. Sometimes if the reservation is for some big occasion the restaurant being aware of the reason behind the reservation may arrange for something from the authority's side which would make the customer happy and feel special (Darie, 2006). These kinds of efforts have proved fruitful for the business and this has been one of the most important aspects possible due to the use of the reservation application. With the government rules the reservation system have been keeping a track of the social distancing and the maximum capacity of the customers to be allowed in a shift maintaining the guide lines of the government in the COVID scenario. Moreover, it also helps in keeping up to the sanitary rules and regulation and maintains the safety of the people's health which in turn ensures the people to enjoy their meal safely without any anxiety.

Now with these benefits that the reservation app provides it has been sent that the app has been providing extra revenue to the restaurant by pulling more crowds to the restaurants and organizing them properly at the same time maintaining the guidelines in a proper way. Reservation software has made restaurants more accessible and more predictable. With more and more numbers of people reserving and using the app the popularity of the restaurants increases as they are able to reach out to more number of people at the same time that is able to look into every details of the restaurants and even the menu and then decide on their visits. Thus there are decline in the number of vacant seats and the excess amount of food wasted. The analytics have made business more predictable in the past and with this app introduced in the field of restaurants have done the same in the present with the hope of doing the same in the past. With more and more people becoming tech savvy everything is brought within their limits

as a result of which people does not invest before knowing the cause of investment well enough and there in come the importance of the app whereby the people are ensured of the service they are about to receive and they are also given the forum to voice their own needs. Apart from that the customers also get an option to lodge their grievances and thus not only help the authorities to work on their loop holes. In the present integrated system shows the real time shift and changes that has been occurring in the business and revenue which would encourage the authorities to work harder which in turn will help the restaurant owners to work towards recovering their losses (Darie, 2006). It can predict the changes and helps in forecasting the changes that can be done to bring in more customers and more revenue. Thus in this world of technological development Reservation Software is one of the most useful and important invention that has benefitted and will continue to benefit the restaurant industry and thus all even the local restaurants should be taking up this technology to enhance their business and for a smooth working of the whole process.

Objectives of the research

The main objective of the research is

- To analyze the crucial requirements of local restaurant reservation system
- To design the software of web based reservation system for a network of small restaurants

2. Literature review

The valued-based pricing is perceived to be preferable by most marketing experts among the three major pricing methods in the commercial markets. This argument is especially valid in local restaurant reservation systems, as cost-based pricing is nearly 0 (without taking account of the cost of opportunity) and competitive pricing cannot be assessed due to the absence of a competing commodity. The challenges in making value-based pricing include the statistical model outlined in the following segment and the complexity in consumer communications is not a challenge because the restaurant simply approves or refuses the order for reservations. The control of revenues has

already been seen widely in the newspapers, hospitals, cruise lines and the management of car rental and bookings. The viability of an industry is deemed important.

The applications for the control of revenues in restaurants have been reduced in recent years compared with the widespread applications listed above. Bertan, (2020) used income distribution principles for the first time. The income per usable seat hour was introduced as a measure of results and as a way of comparing various parties. Peng, and Chen, (2021) proposed to handle the balance between anticipated sales, average waiting and justice between two classes of rigorous, dynamical seat designs. These studies have shown that for restaurant sales management, the customers' projection and the associated size of parties are significant. In that regard, multiple approaches and prediction accurateness were explored by Harshitha et al. (2019). The perceptions of consumers, including table distance to the food price are a key element of restaurant sales management. Furthermore, a framework to test consumers' waiting tolerance was suggested.

Restaurants are found to be able to mix tables in the prime time to accommodate big groups. Any research focuses on the table mix to save a restaurant's potential and attempts to create high-level techniques to identify the right table mix. Because small guests usually pay more per person than large guests and take less time to occupy the table, the restaurant might not be ready to service large groups, particularly for small local restaurants. Interestingly, Koubai and Bouyakoub, (2019) noticed that mixing tables cannot often be cost-effective in restaurants with more than 50 seats. The problem is that the tables to be merged don't generally unbundle together, requiring a table to be held before the next table is free. Latest studies explored a practice known as cherry-picking clients - servicing customers with high importance and refusing customers low value service.

Li et al. (2021) described the gap in value and scale as a stronger metric for assessing a real value of every group in a restaurant receiving reservation requests from customers chooses cherry-picking among the target parties and proposes that average expenditure per individual per minute should be measured. In 2016, Thompson created the best combination of tables in the restaurant to assess strategic planning methods. Based on the feedback of your customer, the restaurant owners will return

the recommended table mix for the biggest income with the Solver add-on for Microsoft Excel. Customers have been able to look for restaurants and make bookings on the basis of the criteria such as time, rate, location and available food since the advent of the restaurant reservation platforms in the region. Restaurant owners subscribe for a premium, which helps supplement paper and telephone reservation systems, to these restaurant management facilities. The growth of these networks is continued with the advancement of technologies and the growing usage of cell devices and width band availability. However, the utility, efficiency and profitability of these networks vary (Kumar, B.N. and Varun, 2020). Any restaurant owners are pleased that these sites expense more subscriptions and upkeep than they receive. Other systems could provide greater access to a better relationship with customers than restaurants as their booking systems monitor and have links to a consumer database. Nevertheless, restaurant owners must maintain the mechanism because it makes restaurants more customer-friendly. This research aims at understanding the mind-set of customers towards the usage of reservation platforms and how their purpose and behaviour in managing/visiting restaurants is affected.

The typical customer to buy a meal or lunch at the restaurant is around 4.9 days a week, consuming half in the dollars of food eating out. Recently, the food expenses overtook food profits for the first time ever. Smart devices also accelerated the digital marketing and technology game by increasing the production of mobile equipment such as telephones, tablets and laptops. The usage of mobile devices in internet searches has also increased, with 80 percent of Internet users having a Smartphone. Consequently, more companies publish their details online, create optimizations on their search engines, develop websites and implement programs that improve their web presence. Digital technologies in industry changes client-to-business relationships by optimizing service processes and increasing customer service performance.

Over the last decade, the restaurant industry has seen enormous growth in digital advertisement and technological use for enterprise services. According to the NRA, the website contains 97% of fine dining operators, 82% of fast dining, 81% of quick-service and 76% of family dining operators. These pages provide consumers menu, bookings, exclusive deals and discounts, diet details and more. Searching for restaurants, menus and prices can be done with over 87% of adults in the United States using the Web and

quick access to mobile devices. For example, Google revealed that in 2012, more than 62% of US overall national chain restaurant searches took place on mobile devices and tablets on Valentine's Day (Wang and Wang, 2019).

Investments in the online booking industry have been enormously continuing, for example, firms such as Priceline (OpenTable), TripAdvisor (La Fourchette), Yelp (SeatMe), and Google (Appetas) have bought over $2.8 billion in restaurant booking. The Internet has changed the way consumers search and protect restaurants for ever as other industries. About 18% of the consumers purchased meals online in 2018 at least once. This gives consumers access to whole menus which allows them to order without hurry. About 36% of the customers viewed a Restaurant website from a survey conducted by the NRA, 11% put an order online and 10% reserved (Zhang, et al. 2019). Another Pew Research Centre report found that over half of them used the Internet to find reviews on restaurants, according to an experiment by more than 1000 adult respondents. This modern technology allows restaurants to minimize labour costs and the direct intervention of employee services, standardize and expand service delivery choices, reduce wait times, keep order consistency. They also provide quicker access to information; provide innovative ways to think about brands before buying.

The use of emerging technologies in companies also raises obstacles to integrate modern technology in the workforce, which requires the development of different skills to retrain workers. They can present barriers for consumers to introduce these innovations, which include changes in attitudes or behaviours at times. Digital technology has in several ways led to over-dependence on it and resulting in diminished jobs and reduced human-resource value. More automatic procedures and technological advances improve the vulnerability of harmful consequences, such as online theft and computer protection infringements.

Restaurants and service operators put huge emphasis on their menu as the base of their business in order to stay distinctive and attractive to consumers (Lester, 2020). However, besides a variety of menus, customers of restaurants often enjoy and establish preferences for technology representation in their relations with restaurants, so as to enhance their experience and discern between a restaurant and its rivals. As for other facets of their life, clients use technology to connect with a restaurant and make smooth shopping easier, eliminate waiting times and expect future trips to

restaurants based on details on their website and other interactive channels. Researchers have also shown that the use of technology to coordinate restaurant work is beneficial to maximize operating efficiency and quality, to standardize functions and to enhance customer service. Using online directory restaurants and other online marketing tools helps draw future buyers and improves restaurant reservations, thus offering price details and messages to rivals. Restaurants on handheld devices and telephones are according to Schwoebel, (2020) the most sought place in the sector. 65% of internet traffic, for instance, is linked to restaurants on locations like Foursquare and Yelp. Schwoebel also states that 63% of customers would display and make online reservations at restaurants, while 75% would decide on their satisfaction with the outcome of their online quest. Directories and booking platforms greatly add to the expectation and expectation of consumers to enter the restaurant. It's no surprise that there is increasing demand for online restaurants, as figures reveal that the majority uses our mobile devices for more than 24 hours a week.

Effects of COVID 19 on restaurant business

The pandemic of Corona virus infected all major sectors, but maybe none were more impacted than the food and catering industry. Although the short-term impact on the restaurant sector of this public health issue is evident, with the jobs rise and restaurants forced to close down, the long-term impact is less important.

Let us now discuss some of these consequences of Covid-19 are and how the restaurant business would be impacted.

The long-term transition from on-site catering to off-site eating, perhaps the greatest improvement brought by the corona virus pandemic. In the future, citizens will no longer dine, but they will be far more dependent on delivery and take-out than they were before. That is because, if the restaurant invests in this infrastructure, once the pandemic is finished, it cannot just end.

Often, people can get used to buying food digitally or collecting it from the restaurant for their families to eat at home. This requirement should be met specifically by restaurants. Most restaurants would understand, if not now, that they need an online ordering system in place to keep them and their clients alive.

Unfortunately, more than half of the company's restaurants would not withstand this situation today, analysts claim. Although this is a frightful figure in itself, it is far more

frightening that mother and pop restaurant owners don't have the same survival chance as the big restaurant chains do.

This is mostly because most franchises are quick casual, rather than full service, outlets, and that is just what thrives in this pandemic because customers can no longer only relax and eat. This is also that big stores are far more efficient and can last longer in operation.

As the restaurant business learns to adjust and grow in a variety of shifts with the ripening results that are being felt even after COVID-19 has passed away. For one thing, shareholders may be a thing of the past for many restaurants because people also hesitate to share their meals, particularly though the pandemic danger is over.

Second, family meal boxes are more common for take-off and distribution, since they are an economical way of eating with your family at home and tasting a little of all. Restaurants may even start to prefer smaller menus so they simplify the buying process to make the decision about whether they want to consume simpler for consumers. Small menus would often enable restaurant owners to cure the menu and use the same ingredients for a variety of recipes in order to reduce food waste and minimize inventories.

The health and safety regulations are a huge disadvantage for restaurants which depended on the maximization of use of room and seats to boost profit. People no longer feel comfortable sitting near others, especially indoors. Social distance has been and would continue to be the rule for a long time such that the minimum protection distance between the tables is retained by restaurants.

This could mean that the shared tables would be finished with those who choose to eat individually easily and who can't find a single seat. In future, restaurants would also need to build room for a live counter, so consumers are confident that their food is cooked before their eyes.

The current aim of restaurants is to reduce the interactions among customers and customers and workers from various groups. This will best be achieved by utilizing state-of-the-art technologies. It is doubtful that restaurants would return to the old ways until they start utilizing this technology. Contactless payments may be made electronically when consumers request a delivery, or via contactless cards or services such as Apple Pay, among the simplest technologies.

Whilst restaurants are also expected to incorporate this technology, one thing is certain: the introduction of technology in the food service sector would be an essential part of the future. These are just a handful of the long-term impacts of the pandemic of Corona virus on the restaurant sector, but are surely some of the most significant. Restaurants would embrace a huge shift from the minimization of interactions to the emphasis on deliveries and take-offs, reengineering menus, reorganization of seats and further technology.

How to reopen the restaurant with an online booking system

One thing is for sure, months in the COVID-19 pandemic: restaurant dining would be very different. Restaurants and customers need to reinvent the whole restaurant experience, especially during the early days of reopening, from physical distancing regulations to obligatory capacity limitations.

The spontaneity of all is maybe one of the greatest improvements about eating out. They would now prepare well in advance rather than step in the center of a night walk beyond the sidewalk. As an owner of a restaurant, you would know who is going and who is coming to dinner.

Fortunately, an online booking system will allow preparing for clients and visitors even simpler. In addition to providing a monitor of dinner flows inside and outside the restaurant, this Booking or Reservation Method often allows convenient access to the capability of the restaurants.

Restaurants in Germany are now strongly encouraged to use an online reservation system to monitor their employees' records. When Britain prepares to open its restaurants again, it is anticipated that several owners in Europe will follow the example of its neighbors.

Traditionally, it was a very technological procedure to approve and manage reservations for restaurants. Diners actually call a restaurant to check if a table is open at a certain time and then the reservation is entered in a logbook. Although convenient, it is not without its difficulties that the old phone and logbook system is. On the one side, restricting telephone reservations ensures you can only reserve tables while anyone is present to answer your phone. And even though a dinner is good it becomes ever more difficult to arrange seating times and tables by hand as more reservations are made, which can trigger mistakes and miserable dinners.

An online system of reservations (or restaurant booking system) is a system that offers outward guidance, which enables consumers to book tables online and includes a restaurant backend to handle these reservations. Everything is handled remotely, meaning that consumers can adjust their reservations or cancel their reservations from the same online platform. In other terms, any stage of the reservation process can be managed, all in one location.

Whilst a restaurant has always benefited from an online booking scheme, it has become a very strong instrument since the COVID-19. This device not only helps restaurants properly control the customers' flows but also contributes to public health protection. The restaurants can accept bookings through your website, Google, and smartphone exploration applications. Increasing online reservations not only encourages you to find your place in the location of your restaurant, but also allows you to explore more facilities without leaving.

Health practitioners believe that COVID-19 is mostly spread when a person has direct contact with a person who has breathing symptoms. This poses a big obstacle for the prevention of the transmission of the virus in busy restaurant settings, particularly waiting areas and bars.

By bringing the experience online, the reservation system will effectively address the problem of cramped waiting rooms for restaurants. Guests can remote add themselves to the waiting list of a restaurant via online scheduling services or dedicated waiting list applications, enabling guests to wait for an open table at home, car or anywhere.

It has been evident that no great reopening can take place in restaurants at this stage in the pandemic. While the UK rules on reopening remain unclear, the general point is that the opportunity to better enable physical distance is restricted. This poses a new problem for restaurants used for crowded dining rooms to track capacities to prevent hitting such thresholds.

One of the greatest advantages of an online reservation system is the fact that the facility is accurately monitored. Many programs, for example, provide tools such as flow control to handle the amount of coverage or groups that are eligible to book tables at a specified time.

Likewise, you can set maximum capacity limits by using software which captures the number of guests who are able to sit at your restaurant during the entire change. Guests

quit to display the latest usable capacities by upgrading the app. The restaurants should make sure that they do not surpass government-mandated restrictions on capability and that also endanger the welfare of their diners with these tools, along with their tables.

A successful booking system can synchronize directly with the EPOS interactive floor map, enabling you to block tables and to save alternative setups when adjusting to new directives. This device will also allow you to maximize the accessible restaurant seats. You can't manage vacant chairs and fewer tables are open. The possibility to book tables in real time through an online booking system enables diners to demand free tables – even days or weeks in advance.

Two-way contact with visitors will help to address concerns about the customers, similar to personalized reservation notices. You should, for example, submit email updates and SMD text to customers through Online Reservations so people are able to connect in real time. This clear contact helps the restaurants to clarify how their floor plan has changed or remind visitors of new reservation caps, ensuring that you have no surprises on the day of their reservation. There are also tools that allow the restaurants to gather input from visitors that will provide them a deeper understanding of the receipt of their latest services.

While the possibility of no-shows cannot be eliminated entirely, an online reservation system will help to keep this number down. This device automatically provides consumers with SMS and email recalls or confirmations. And diners should explicitly sync their reservations to their diaries to make sure they're not forgetting.

This is where restaurants can take advantage of the EPOS advanced booking framework. Integrated networks indicate all booking details flowing straight through the EPOS to guarantee you have an entire view of what is occurring both on the front and back of the building. This is particularly useful for restaurants operated on skeleton crews, recruiting new hires or focusing on updated service kinks.

Of course, COVID-19 is a case without precedence. And while specialists in business may guess how many visitors wish to return to their restaurants, there is no way to know it. To put it simply, during at least the first few months after restaurant reopening, most operators can run blind.

This problem is naturally resolved with an online booking method. In order to make a reservation, diners have to enter their name, telephone number or e-mail address. The restaurant staff will simply use the app to maintain a list of any dinner if you enforce a reservation policy in your restaurant. Many reservation systems allow you to build guest profiles on the spot, even though you also welcome walk-ins. Without automation, it might easily get out of control to maintain a manual diners log and errors might lead to a threat to public health.

It is not a straightforward feat to reopen a restaurant following weeks of suspension or limited operation. Physical distance, tight city capacity limitations and obligatory guest logs all pose unparalleled obstacles except for the most experienced restaurants. While an online reservation system is not a magic bullet, it will help alleviate these current problems. A booking system may no longer just be a "nice-to-have" aspect of the difficult shift to a post-COVID environment.

The day the local restaurant is called to make a favorite restaurant table may therefore come to an end as online technology is simply uncomfortable. For example, more than half of the British are happier to book on-line or to use AI technology to support restaurant reservations, according to Mintel's most recent report. As the Pandemic had put an end to the dining out scenes however the reservation technology has become the reason of the revival of the practice after the reopening of the restaurants. And with the several regulations in the post pandemic phase reservation software have come to the rescue managing the whole including customer capacity control, their expectations, hospitality and so on. In other words, these reservation soft wares are no longer just luxuries that were a part of the high brand restaurants instead they have become a necessity in the modern dining scenario. However, online advantages may not be entirely apparent for some restaurateurs. This is why some of the main advantages of implementing an online reservation system are worth examining:

The online Reservation system makes customers more comfortable

The restaurant owners only want their customers to get a sitting at the table as easily as possible. Most of them don't have the time to continue to ring or wait, so they are likely to go elsewhere. Online booking – requiring only customers to provide some

details and tap books – helps to avoid potential business losses. Food and beverages have been one of the most important industry that have been facing critical challenges in the days of pandemic especially with the customer's loyalty and the acquisition and more importantly it has been highly difficult to help in maintaining customer loyalty along with attracting new customers and delight connoisseurs which have increased due to increase in the number of new brands in the market adding on to the competition every day. It is obvious that the kind of guests received by a restaurants have evolved over the years and they have become more and more sophisticated over the span of last twenty years. Accordingly, there has been a change in the demands. These sophisticated foodie customers now seek for more and more challenging dishes and similarly challenging dining experience. Moreover, with more and more rise in the expectations of the patrons there has been a serious challenge for the restaurants in making profits or improvement in the revenues. It is here that technology is working as a savior and helping in the business taking up certain responsibilities thus reducing the burden of the restaurants. Technologies have taken up ways to improve the customer services in case of the struggling businesses which in turn helps in improving the customer services and increase in the revenues for sustaining the business in the long run. Thus comes in the online reservation solutions which have helped a lot in improving revenues and delights the customers. In this online reservation technology there are certain perks that have added on to the benefits and added advantages which have helped the customers:

- Substantial improve in wait times with the convenience of the guest which increases satisfaction which in turn causes word of mouth publicity. Online reservation of both internal as well as the third party services have helped the restaurants to increase their reach manage the inflow of the guest and at the same time help the restaurants in providing the customers hassle free services with a click of the button. The online reservation tool is a one stop convenience for those looking for the table in restaurants along with some service supports as well. A restaurant will be able to interact better with a customer and also understand their preference thus will be able to provide services according which in turn will make the customer recommend the place to his friends and

family. Hence the restaurants will be ensuring regular flow of customers which hints at increasing their revenues in the long run.

- Increasing the traffic in the lower business hours: online portals that helps people in booking reserving via live chats and thus helps the restaurants in getting high traffic during odd hours like early evening when there is slow business. It is the online live chat assistance that have been helping the modern customers in find the solutions to their problems (de Albuquerque Meneguel et al. 2019). The online live chat helps the self-service reservations which helps in ridding the issue of the calling the restaurants for confirmation. The live online chat ask the customers of their details and their basic questions and therefore helps in knowing the personal choices of the people along with the number of people they want to dine with along with their special preferences that are to be kept in mind and the issues of allergies in some food or some other issues that the restaurants should take care of while keeping in mind how they need to work to please the customers and thus the customer does not have to take the headache of informing these details . The customer can also reply just by texting it in an online chat and be assured that the restaurant is taking care of the all the details and t5get the booking confirmed. At one end this helps in satisfying the connoisseurs and at the other end it is helping the restaurants to track and streamline their operations and fully concentrate in their customers and services as well as their operational capabilities in hosting guests at a time when the customers are slower for various reasons.

- Streamlining the management of the restaurants and the working and the functions of the company: online reservation systems helps restaurants to streamline their operations and therefore helps in better functioning and focusing on the needs and the demands of the customers. With the online system the restaurant is made aware of the amount of food they have to prepare as well as the number of customers they are to expect on a daily basis along with seating arrangements presentations and also about the customer's preferences in advance. This helps the restaurants to take care of the customers in a special way making small arrangements as and the way it is needed and at times the restaurants can also arrange for small surprises on special days (Dorogovtsev

and Mendes, 2013). More importantly the customer does not have to repeat the instruction so once a customer will give his or her details the restaurants will have it in the log and therefore will remind the workers about the preferences in his next visit. This helps the restaurants to satisfy the needs and the demands of the customer and thus the restaurants are able to provide the customers with excellent services which further satisfies the customer and pushes them to refer it to other as well as bring in their family and friends repeatedly to enjoy the same.

- This online procedure also helps in reducing the customer acquisition cost: the online reservation tools help in bringing in new customers as well other than the ones that have been referred by their other customers and this is because with the growth in technology the people are continuously looking for the digital solutions for everything. All of us want to be tension free so when it comes to reserving a table in the restaurant nothing can relieve the customer than knowing that his or her table has been confirmed and will remain so until he arrives. This assurance is much of a relief and this has been done through helping the customer with online reservation. Thus when the customer gets the online table reservation system the customers are more interested in this online process without taking up the hassle of going and booking or calling the restaurants and waiting for them to respond. Hence the customer acquisition rate is improved and the costs of the associated things are also reduced in the long run. This is obvious because manually keeping a track of the booking is more difficult and is more expensive than the online system and that is done by the machine and is cost effective for the people as well as for the restaurants and is easier also. The manual system involved maintaining a proper team for the same for receiving calls maintaining reservations records helping the restaurant with the information. However, this system helps one man to manage the whole and thus helps the restaurant from maintaining the same while helping with customer supports at all times throughout the day reaching out to the people and helping them to maintain healthy relation with the customers.

- This system thus leaves the customer happy and satisfied in many ways and therefore leads to improving of the customer loyalty quotient: the online reservation prevents the restaurants from wasting the time and effort in receiving calls and maintaining a record of the customers and their bookings manually. The machine at times take automatic advances and thus the restaurants need not worry about a lot of the details for instance the restaurants may not have to worry about wastage in case the guest does not turn up. The app keeps a track and with every cancellation that is made the app fills the place with new customer reservation that way saving the restaurant from wastage. It can also be configured to take the bookings for the next day and therefore the prior bookings are made by the customers and in case they want to change the date of the bookings that can also be done (Harshitha et al. 2019). At the same time confirmation as well as cancellation both process have become easy with just a simple email or an SMS that is generated automatically by the app itself. Thus there is a reduction in the customer hassle and an increase the customer satisfaction. This way the customer feels empowered and also there is not much of scope of mistakes and misunderstanding. The customers remain well informed and in control of the situation thus he feels relaxed and thus comes back to the place again and again. Thus the loyalty quotient of the customers is increased along with the referring of the customers to the others which leads to increasing number of customers and makes it more sustainable and profitable in the long run for the restaurants.
- Finally, online reservation solution is a boon and not only does it help the established eateries but also the struggling new one. The struggling brands of food and beverages chains and the restaurants of modern era have been benefitting highly from this system of online reservation. This system has been helping small players for offering expensive and helpful customer support on par with the standards of established chains at a miniscule cost. By empowering restaurants to cater to the dynamic needs of patron's online reservation systems are actually helping them to increase dine in clientele and therefore increasing their revenue as well as the brand name in the long run. The other benefit of these methods is the fact that with increasing technology there has

occurred a need to keep relevance with the modern style of working and this is the best way to keep one updated. These kinds of solutions help the restaurants to stay relevant to the world of race Also such solutions enable them to stay relevant in the fast growing digital landscape and make their mark online with minimal investment (Kofler, 2007). Thus the methods of online reservation have become one of the major breakthroughs in the business of the restaurants especially in this time of pandemic and have led to massive changes. It has completely changed the concept as a whole and have also led to increasing of revenues and demands.

Minimize human error risk.

It is reasonable that employees who are very active in attending current customers often foresee all the particulars of a telephone reservation they replied or recorded in the wrong library or the wrong day. These errors are no longer a concern for online orders, as consumer reservations can be posted directly to the restaurant booking system in real time. When reservations exist on the system, management can also be alerted and may be resolved quickly to avoid complications. Since the whole is automated it lacks errors and therefore fewer chances of mistakes and more accuracy in dealing with the customers. The customer books over the phone so he or she is at liberty while putting the inputs and therefore the restaurants cannot take the blame of some mistake. The log book used to maintain the list of reservation is also quite difficult leading to a number of mistakes and thus leaving a number of customers unhappy. It is for this reason that the restaurants reservation system has become as popular as it helps the restaurants to look into the matter of reservation easily as well as help the customer in booking a place. Since everything is done digitally so the bookings can be cancelled and changed according to the availability without any mistakes while confirmation emails are sent (Koubai and Bouyakoub, 2019). Therefore, the customer can manage every step. There are also options to contact the restaurants for any customization or any query so the customer does not face much of a problem. Therefore, booking or reserving a table in the restaurant has been brought online

through phone or SMS which guarantees the table booked for the particular customer till they arrive and in most cases this is completely free and even if there is a charge involved it is reimbursed from the bill after the dinner.

Keep staffs focused on the job

The whole scenario has changed with the regulations becoming more and more rigid due to pandemic the ones who while walking on a side walk entered a restaurant randomly just because they felt like it, have completely changed and now it's almost like planning a proper trip to the local restaurants. Seats have to be available for the person to actually get a chance moreover the restaurants authorities should also be informed about the customers' arrival as well as the time and other and other details like number of people coming and so on so that the restaurants can prepare accordingly without violating the regulations. The online table reservation system can not only deter human mistakes, but can also provide the optimal support for workers. It lets them focus only on the guests and does not concern themselves with the distraction of ringing phones (Kumar and Varun, 2020). This has been not only helping the customer but also the authorities in keeping track of the in and out flow of dinners along with that helps in keeping a track of the restaurants capacity in dealing with customers' demands without bothering the workers to keep a track of every details or receive the call or maintain the record. Many a time there can be waiting time for the customers even when the app mentions the time and in that case also if the wait time persists even with the app's prediction the staff is still informed about the arrival of the guest and can prepare for some snacks and beverage for compensation this helps in dealing with the customers in a better way.

Improve employee skills

It is simpler for management to plan and forecast rushes with a centrally stored and open reservation framework that has appropriate employees to provide outstanding service at all times. It is one of the best ways of keeping customers satisfied and efficient management of operating costs.

Enhance notifications for cancellation

Online reservations are available for cancellations. Since everything is done digitally so the bookings can be cancelled and changed according to the availability without any mistakes while confirmation emails are sent. Therefore, the customer can manage every step. There are also options to contact the restaurants for any customization or any query so the customer does not face much of a problem. Therefore, booking or reserving a table in the restaurant has been brought online through phone or SMS which guarantees the table booked for the particular customer till they arrive and in most cases this is completely free and even if there is a charge involved it is reimbursed from the bill after the dinner. No shows are one of the biggest issue and it is obvious that the no shows cannot be eliminated but restaurant reservation software helps in keeping this low and thus SMS and emails are send directly to the customer confirming their acceptance along with that reminders are also sent to the customers to remind them of the booking and the visit. Moreover, if they are unable to turn up for the booking the app gives them option to cancel the booking making the reserved area available for new customers therefore saving the restaurants to some extent. For some customers, it is uncomfortable to call a restaurant to cancel a reservation, leaving operators uninformed and unnecessarily turning guests away. The restaurant booking system is automatically updated, informing the personnel that the table for walk-ins and future bookings is now available.

Capture details about customers

It can be challenging, because the restaurant owners don't have any way to capture or save guest data, to reward loyalty or keep clients up to date with latest deals. Online reservations provide an effective way to obtain such information in a mutually beneficial and non-invasive manner. Return clients with a rewards restaurant service that effortlessly enhances the booking method. Online reservation system can take care of these worries and therefore allows the customer to ask whatever concern they have regarding the restaurant and their working system to ensure that they are being completely protected and safe while they are dining at the place. In doing so the customer gets the opportunity to custom reservation that is to choose where they want

to visit and the place they want to reserve for themselves including mentioning of the food allergies, use of mask and sanitizer when they visit which ensures them that the restaurants are aware of their safety measures and would take care of it accordingly relieving them of the pressure and worries about their health. Thus the workers are well informed about the demands and the needs of the customers and it becomes easy for them to serve their clients well (Lester, 2020). The reservation app mentions this detail of the customer including their demands the number of people and other details about certain changes they want to make in their food and other demands they want to ensure while in the restaurants which they mention while booking not only to the management but also to the staff and help them to work in tandem reducing the possibility of errors and miscommunication. This help in giving the guest a better experience and thus enhancing the business for the restaurant. In this it is important to note that it has been seen that the restaurants using the reservation software make a better business and a smooth work than the ones dealing with the first come first serve business.

Reservations for restaurants allow front, back-of-house and management departments to collaborate together for anyone who is walking through your doorstep. Restaurants will tailor the service, menu recommendations and guest experience as they realize who they are feeding, what the festivity would be and when, in advance. Although some restaurants do without bookings in support of an initial reservation policy, the business benefits of a more predictable service are reaped in restaurants which make reservations. Particularly in the cases where restaurant booking software is opted for rather than only using a phone and a log book. Modern booking systems maximize restaurant operations by allowing restaurateurs for stellar encounters to make customers frequent for the first time. Following COVID-19 this program is particularly useful. Reservations tools will help the restaurant owners monitor and manage the amount of guests going to your restaurant with new obstacles including government-controlled ability limitations and stringent physical distance regulations.

Reservations will today be made by online or also via a text message in the restaurant. A booking ensures that the guests have a table at their restaurant upon arrival. Most of them may not have to deposit a table to make a reservation and after the meal has started, the check is over. While the standard today is these guidelines on restaurant

reservations, situations in the past have been very different (Li et al. 2021). Restaurants both had multiple tables in the communal dining rooms and small privately owned dining rooms. The meal was purchased and billed in advance for when a private dining room was booked, so that visitors could eat it.

Unlike common opinion, the increase in telephones did not impact restaurant reservations or restaurants' success. Dining became a necessity when more of the American people began to work after the 1st World War. In 2017, in part, a reservation technology which made it easier for them to make a dining part of their routine, that half consumers were eating between two and four days per week. Now, the COVID-19 pandemic marks a new reservation chapter. The pandemic briefly stops eating in several restaurants. But as restaurants start to reopen steadily, reservations take on a different significance.

Restaurant booking systems are now necessary in order to allow restaurants to maintain their capacity, monitor contacts and manage consumer needs and concerns during this modern period of hospitality. If the restaurant does not have a reserve policy, after seeing how reservations favour everyone in the restaurant, the restaurant owners can shift their mind from their employees to your clients.

Managers must be able to co-ordinate hiring, correspondence, and inventories at their restaurant. If managers know how many guests, they can expect to plan employees and resources better through reservations (Madotto et al. 2020). Furthermore, the flood of booking clues administrators to provide additional training for servers during busy evenings.

The task of the host is the sitting of hungry people and the expectations of the guests as long as they have to expect their food. When reservations are made at the restaurant, hosts can help predict the turnaround and provide more precise waiting times. For restaurants looking to keep distance to avoid overcrowding in waiting rooms, this is especially necessary. Hosts can easily call or text visitors when the table is ready if a reservation system is in operation.

The consumer service is based on servers. As consumers book, they exchange information regarding the dinner, because there is a celebration or whether there is somebody that has a food intolerance at the gathering or not. Customers may also raise questions such as the policies your restaurant adopts for health and security.

If these details are fitted to the database, they may do so without being requested by consumers. Servers may provide cake for a birthday ceremony, point to milk-free alternatives on the menu, or even provide a hand sanitizer with compliments. When the team can predict consumer requirements, it can from the outset move beyond customer requirements and transform restaurant users into regulars for the long life. This type of service is particularly important to alleviate customer anxieties regarding eating in a post-COVID environment.

Many reservations are available to guests. First, they know that their table is secured as clients make a booking. They will reserve in person or online via the telephone, instead of turning up at a restaurant just for an hour to wait for a free table.

Secondly, by making a reservation, consumers are entitled to recommend a particular lodging, ensuring that they have the expertise to gain. Bookings will help ensure the safety of visitors. Reservations provide operators with not only a means to manage diners' flow and monitor the capacity, but also comprehensive documents which can be used for touch tracking, both of which contribute to minimize the spread of dangerous germs (Peng and Chen, 2021). To Clear confusion, increase accuracy, make business more predictable, optimize revenues and support the creation of individual guest interactions, with modern restaurant reservation systems, especially those integrated with the POS Internet reservation systems, after COVID-19, will help to strengthen the efforts in the field of health and safety.

Modern booking systems can be handled from an iPad as tiny. This ensures that your hosts will dip the paper notebooks to leave the host open – which gives consumers a perfect first impression. Mistakes may be reduced by reservation details over the telephone through a reservation machine. When the restaurant owners book electronically, the restaurant owners are less likely to book a reservation at a group of seven rather than eleven, or fail to make a notice about an important food allergy.

As a client, nothing is worse than asking for a seat for just 30 minutes to stay longer than an hour. A booking system allows companies to refine the architecture of restaurants to attract more clients and giving them more exact times to wait. The host will change the standards and deliver a free snack or drink if the wait is longer than expected.

This time the restaurant owners can even help estimate because the real restaurant configuration incorporates input from an automated reservation framework. The method takes into account other tables and courses, meaning that the restaurant owners can provide the visitors with a more detailed assessment.

The restaurant owners can submit automatic records and list notifications via text and email via the modern reservation system. This tends to avoid no-shows by minimizing the risk that your customers forgot to book – this is of particular importance for restaurants who try to fill seats during COVID closures. In order to inform visitors if they're late or need to cancel the booking, the reservation app has even two-way text alerts or an e-mail message. Instead of calling incoming visitors to inquire their place, the host frees them up to serve those who are already there. Guest impression is more about hospitality (Pengand Chen, 2021). Customer information such as contact numbers, how much the customer met them, diet limits, special days and anniversaries and even how often he has invested can be saved by the booking technology. This consumer data will be used in marketing strategies to attract guests with custom deals more precisely.

When the restaurant owners realize that they have a major celebration often, the restaurant owners should make the extra effort to tend to them – the restaurant owners can perhaps allocate them to top-level personnel or offer them a free cake for a celebration. The restaurant owners will need a reservation system and it is really needed by the government. Many city authorities and state governments continue to keep an eye on the amount of visitors to restaurants when restaurants reopen following COVID closures. Another criterion for reopening is for restaurants to comply with stringent capacity restrictions in most states and cities – limits that differ greatly from location to place. For example, Tennessee restaurants can be operated at a capacity of 75%, whereas indoor restaurants can run at only 25%.

Reservations enable restaurants to track the ability of their venues. The restaurant owners will guarantee that the restaurant owners never reach the ability limit if the number of customers going into/out of the restaurant. It is also tougher to maintain tabs on the steady influx of diners without any reservations. Another challenge that have arrived with the pandemic scenario is changes in the restaurant floor planning that is even in the places where there been strict limits on the physical distance

between the dinner tables or the times. For instance, a restaurant can permit around 10 dinners in a space of 500sq feet while some other place plans to keep a distance of 10 feet between the tables. After this the restaurant must look into how to utilize the few of the table that are left. A reservation system also looks into this and plans according to the floor plan giving the allowance to block tables as and when needed at the same time have an alternative lay out as per to adjust with the new guidelines (Pratiwi, 2017). It also helps in optimizing the restaurants settings according to the availability and since it is being done real time therefore any vacant tables can be claimed by the customer as and when they want to a week prior or just a day before without the interference of the restaurant authority if it is not violating the given guidelines.

COVID-19 also increased public concerns for food protection, sanitation, and hygiene. Bookings may help solve any of these problems by allowing diners to control their dining experience. They can improve. Guests will pick the precise time and where they wish to dine while making a reservation. Bookings often enable visitors to pose questions so that they know precisely what to expect prior to arrival. All these will allow visitors to feel better when they start to eat again. Booking technologies will boost the income of your restaurant by synchronizing the restaurant with POSs to maximize the amount of bookings that the restaurant owners will make each day. From menu adjustments to accepting online orders every restaurant has come up to making amendments and that has been a process by which the restaurants abide by to help their business. The amendments are made according to the time and demands and to see what is working with their customers and what needs to be eliminated. Reservation software helps with this as well. With the introduction of new menu to certain changes brought in the restaurant the customers are given option to rate each of the item and accordingly their views regarding these changes are received based on which the restaurant authorities can make their further changes. It also means that the reservation details flows into the POS and therefore whatever is the decision is known by all and thus helps the restaurant function properly and make changes accordingly Booking apps will help the restaurant owners to refine and fill up the amount of free tables by providing visitors with the option of booking. This function prevents the host from checking the POS for which tables are accessible and from manually updating the

booking system. The willingness to have powerful business perspective into the history, current and potential is also an advantage of providing a POS and a reservation mechanism that communicates with one another. By building on historical records, the team will establish concrete business priorities (Schwoebel, 2020). If your restaurant had 30 Father's Day bookings last year, expect a comparable amount of bookings this year and employees accordingly. The restaurant owners should target the marketing activities to increase reservations when they feel that their numbers are poor.

An embedded framework will display real-time change and average customer spending, so that servers can be sold if they need to fulfil their regular sales objectives. For restaurants seeking to regain lost income after COVID-related closures, this is especially significant. An automated booking system may also monitor the status of each guest in order to turn further tables and quote waiting times accurately. And the more tables the restaurant owners twist, the more income their restaurant can make.

The restaurant owners will optimize sales because the team is aware of how many customers are expected by maximizing restaurant sitting, planning more (or fewer) personnel and preparing to maintain the greatest possible customer experience. This sort of outlook will also contribute to better predict food and labour prices for restaurants reopening on a strict budget. A study in 2017 showed a favourable reception that 68% of restaurant guests visited a new restaurant. However, while customers might have had an excellent restaurant experience, they certainly won't write about it unless questioned. A successful booking system allows travellers to automatically compose a summary of their trip, so that the restaurant owners get more feedback and hence more clients. In view of the heightened scrutiny of health and hygiene, such reviews are much more relevant following the COVID-19. If visitors see favourable feedback of the attempts that the restaurant owners make to safeguard their guests, others will be more relaxed dining with you.

Post-COVID, reservations for restaurants have become more useful. Reservations, on the one side, allow restaurants to encourage physical distance and comply with strict ability limits that help minimize the virus propagation. However, reservations often offer diners a sense of control, so that they can dine comfortably again. In other terms, reservations – and the software used to deal with these reservations would contribute significantly to the survival of the COVID-19 pandemic by restaurants (Wang and

Wang, 2019). With the restaurants it is difficult to know how many customers to expect especially if it is a new place or if it has been reopened after corona. However, the reservation app helps in understanding and keeping a track of how many customers to expect and prepare accordingly. The authorities also get a proper data about the upcoming customers what to expect and what not to and that to authentic data. Every report is therefore ready by the end of the month giving a complete idea about the whole scenario.

Record of dinners: Contact tracing is one of the best tools for managing the restaurants after Covid-19. This helps in tracking those that have been infected COVID and also helps in finding and tracking those that have come in contact with them and thus help them. In case of restaurants contact tracing means that everyone should be kept away from every person coming in the restaurants to maintain the safety. It also means that the restaurants are supposed to keep a track of this.

Now with these benefits that the reservation app provides it has been sent hat the app has been providing extra revenue to the restaurant by pulling more crowds to the restaurants and organizing them properly at the same time maintaining the guidelines in a proper way. Reservation software have made restaurants more accessible and more predictable. With more and more numbers of people reserving and using the app the popularity of the restaurants increases as they are able to reach out to more number of people at the same time that is able to look into every details of the restaurants and even the menu and then decide on their visits. Thus there are decline in the number of vacant seats and the excess amount of food wasted. The analytics have made business more predictable in the past and with this app introduced in the field of restaurants have done the same in the present with the hope of doing the same in the past. With more and more people becoming tech savvy everything is brought within their limits as a result of which people does not invest before knowing the cause of investment well enough and there in come the importance of the app whereby the people are ensured of the service they are about to receive and they are also given the forum to voice their own needs. Apart from that the customers also get an option to lodge their grievances and thus not only help the authorities to work on their loop holes. In the present integrated system shows the real time shift and changes that has been occurring in the business and revenue which would encourage the authorities to
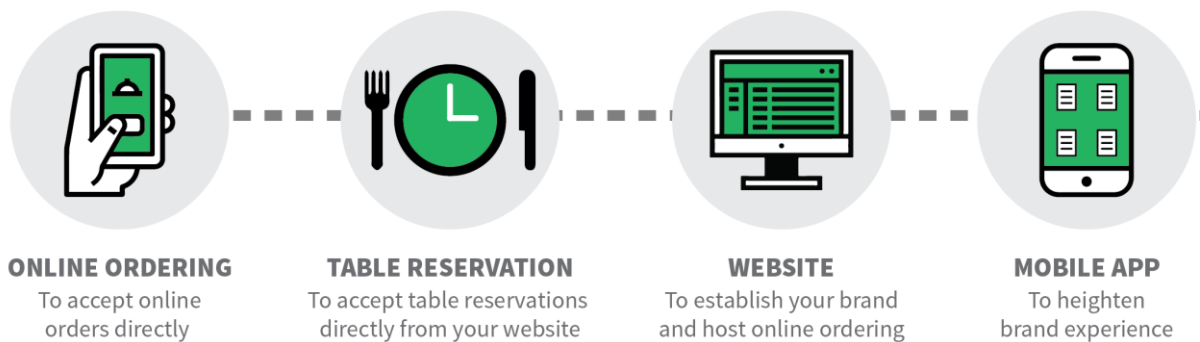
work harder which in turn will help the restaurant owners to work towards recovering their losses. It can predict the changes and helps in forecasting the changes that can be done to bring in more customers and more revenue (Zhang et al. 2019). Thus in this world of technological development Reservation Software is one of the most useful and important invention that has benefitted and will continue to benefit the restaurant industry and thus all even the local restaurants should be taking up this technology to enhance their business and for a smooth working of the whole process.

3.Research methodology

COVID-19 pandemic was a threat to human and various related activities as no one is going out for anything. Almost in every country had a lock down period to control the outbreak of this virus. Undoubtedly this pandemic also effected dinning in restaurants all around the globe and after the post COVID scenario, there is a massive change in this restaurant dining and services all around the world. A physical distancing and maintaining limited capacity human being mostly the restaurant owners and the customers are looking for a change and having a new experience in dining in restaurants in post COVID conditions. Now a day most of the restaurants are reopened and rest are about to reopen like normal times. But they will keep in mind about the safety and precautionary measures to be followed as customers as well as restaurants stuffs are safe from this viral effect. For this new beginning and opening of restaurants, they all thing about some advance booking as well as reservation system so the customer can plan for dining in a restaurant in advance and it also make them free from hectic queue system. Not only that, for the restaurant authorities they also get to know about the customer and when they have their reservation in their restaurant. Apart from the booking facilities this online mode of operations helps to track and make their activities for both of the customers and guest visitors of a restaurant. They can get informed about the capacity so that they can have dining with a reliable and pre planned way. Based on a popular report it has been shown that, it is more than half of cent percent of phone calls and walk-in for pre bookings are reduced.
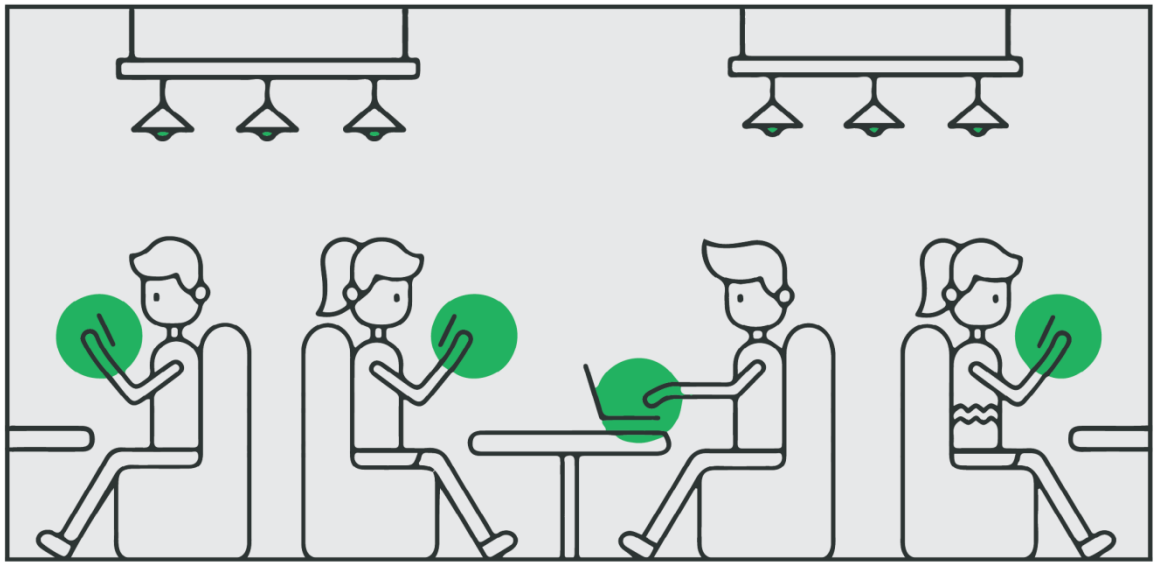
In this proposed reservation system of dining in restaurants all the customers including the random visitors of a restaurant can reserve their table booking by checking available dates, time slots and can even check if there is any discount or offers or special thing is available in their desired restaurants where they want to book their dining. The customers can also pre-book restaurant halls for any event such as parties or celebrations. In this proposed system the restaurant can offer various services to their customers as well as the guest visitors like table and hall reservations, take-way of food orders, contact options, order history, menu, exciting offers and discounts and many more.

ONLINE ORDERING
To accept online orders directly

TABLE RESERVATION
To accept table reservations directly from your website

WEBSITE
To establish your brand and host online ordering

MOBILE APP
To heighten brand experience

The proposed restaurant reservation system mainly has two interfaces where one is for customers and visitor and other one is for the restaurant owner or stuff. The first part can be also denoted as user panel and the second part is termed as administrative

panel. In the user panel a user can visit or browse all the services and information provided by the restaurant and in the administrative panel, restaurant owner or stuff can manage or add or delete or modify services as per availability and requirements concerned. If we analyse the requirements, then we have two types of requirements which are – functional requirements and non-functional requirements.

Functional requirements: Basically functional requirements are a description that shows us, what the software must be offer. The main task of this system is to reserve a table of a restaurant in online method. There are few important functional requirements, such as-

A. Table reservation: This is the main function of this application system. Using this application user can reserve a table any time in online method from anywhere. It saves customers time and also they don't have to face any gathering.

B. Hall booking: Using this application user can book a hall for function in anytime from anywhere. This is the second main function of this application.

C. Cancel booking: This application also provide customer a special feature that if they want then they can cancel their booking in any time.

D. Food Ordering: Through this online application user can order their favorite food from anywhere. They just need to do fill up the given form step by step.

E. Contact Us: Admin provide a help line number in this application so that the user can contact with them any time according to their needs.

F. Gallery: This portion attracts the user towards the hotel. Images are uploaded by admin panel so that user can check the updated images of hotel from gallery.

G. Change room: User can change their room any time if they have any problem with it.

H. Confirmation massage: after completion of the all process of booking user will get a confirmation massage from the admin panel

Non-Functional Requirements:

A. Performance Requirements: Performance requirements help to access the performance of the system. For that following must be clearly specified.

B. Response Time: Response time limit should be 10 second. It is enough to grab user's attention focused on the dialogue.

C. Workload: The system must be capable to take a high workload so that it could be a high-level management system. The system should be able to support 1000 customer in same time or the system should be capable of supporting 4 pages per second. This kind of systems is often good metrics at good management system, but it did not mention the work that the application must support.

D. Scalability: The higher the scalability, the better the system. Which means when the workload will increase respectively the system have to able to process the function.

E. Platform: Underline hardware and software is known as platform, such as operating system and software utilities. This will house the system. Web platform with and later latest version of PHP is supported by our product. So for the coding we have used PHP language to build our product.

F. Safety Requirements: Various safety technologies are used for following errors.

   1. Software logic errors: it is a bug in computer program. For which program run incorrectly. Compilation and interpreted language in both cases the logical error can occur.

   2. Hardware failures: Hardware failure can be recovered by just replaces or repairs of the offending part.

   3. Software support error: Software support error means a combination thereof or reproducible defect those results as the failure of that software.

G. Security Requirements: Before determining the program is secure or not, 1st we have to know the security requirements of the program then we can provide an opinion about its security. And here we have only one security requirements of our application.

H. Database security: We use MySQL data base system for this application. For this security purpose we use MySQL database. MySQL database have a unique feature that it do not allow anonymous to read or write data in data base without authentication factor.

I. Payment method: The system should be accepting payment in various methods such as debit card, credit card, Google Pay or GPay, PhonePe and various other payment options.

J. Software Quality Attributes:

1. Adaptability: All of the digital products or more specifically IoT products can access the web based application and for a web browser is needed for the operation.

2. Economic feasible: The developing app should be in affordable cost.

3. Usability: This app should be easy to use for user. It should be very useful and friendly for user.

Apart from the above mentioned non-functional requirements there are some other requirements are there which we cannot neglect and these are following –

- Availability: It should be available 24 hours a day and 7 days a week because the server is access across the world by the customer.

- Reliability: Backup plans and procedures and automated disaster recovery must be introduced because of its 24*7 availability.

- Setup/installation: For easy development and testing by the developers the installation and setup must be complete and automated.

General Process Flow of the system:

WAP enabled web-based restaurant reservation system has some main functions. These are -

- Subscriber validate: When someone tries to logging the system 1st he or she have to register the system by him or herself then it will valid to the subscriber. If an authenticated person tries to logging the system, it will be providing a negative signal. When the subscriber is a guest then he or she can request to the system for a new registration.

- Selected meal: For visiting the restaurant and the menu, the subscriber and the guest have to check the web site. Menu is nothing but the meal items. There are various types of food items. The prices can be varying according to the food quality and quantity. According to the number person customer can order the food.

- Table reservation: Only the register customer can reserve a table according to the number of persons, it is an additional facility for them. System will not allow to the guest customer to reserve any table. Guest customer can only get the food and then take a way. But the register customer can do both, get a meal at there or take a way according to their needs.

- Payment through credit card: The payment can be accepted via credit card. The system will automatically cancel the payment if the order is rejected by the admin or staff.

- Check state of the order: There are six states in the system pending, processing, delaying, reject, close and ready which are set by admin or staff. The state of the order can be checked by the customer.

- Administrator's function: There are also some administration functions are there and these are following -
    - Registration of the subscribers
    - Order monitoring.
    - Track customer's details.
    - Add and update menus to the system.

Apart from the above mentioned administrative feature this system also contains the following features for staff or admin and there are -
    - Accept order
    - Set and customize order
    - Monitor order

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Product Perspective:

A user friendly and simple graphical user interface is used in this project that's why it is to access all the information. The proposed project can be provide customer care services and expanded easily to a large system which will be hold a huge amount of information through the Web technology.

Product functionalities:

The system provides various facilities to the customer such as reservation, credit card payment, and status check. The system accepts the user request through GRPS enable connection.

User characteristics:

The user should be familiar with modern technology and not an expert of navigating WAP sites. The user can use the link which works easily.

Constraints:

The following constrains are identified while developing the proposed project-

- The text should be less scrolling and easy to understand.
- The quality of the user interface of the proposed project is being low with related to the other web base application.

Customer User Case
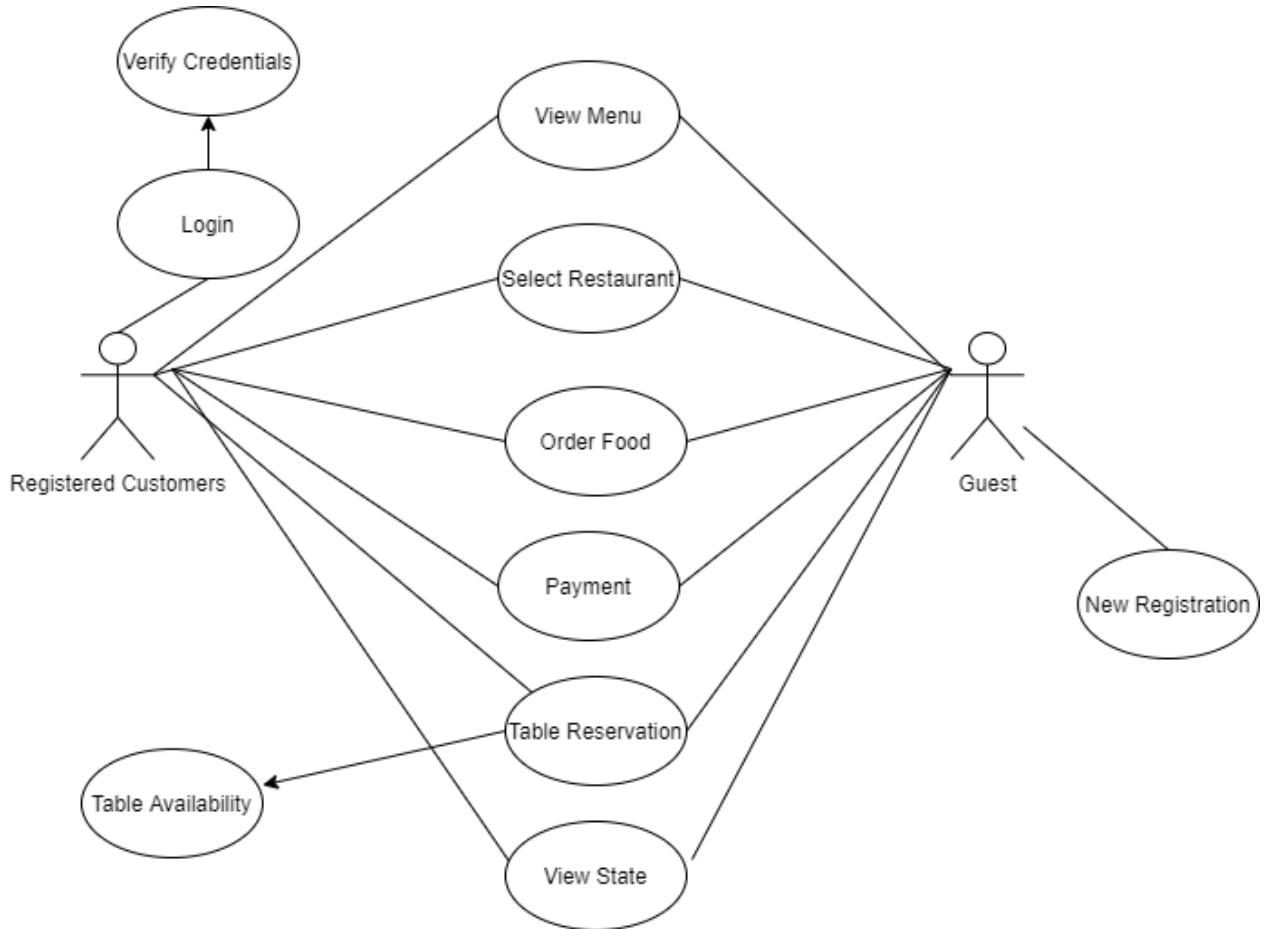
In this figure describes customer's user case where a customer must be logged in after validation of their credentials. Guests need to register them to access the features of the restaurant. Customers can view menu, select their favourite restaurant, order food, online payment option, reservation of table for one or many person etc.
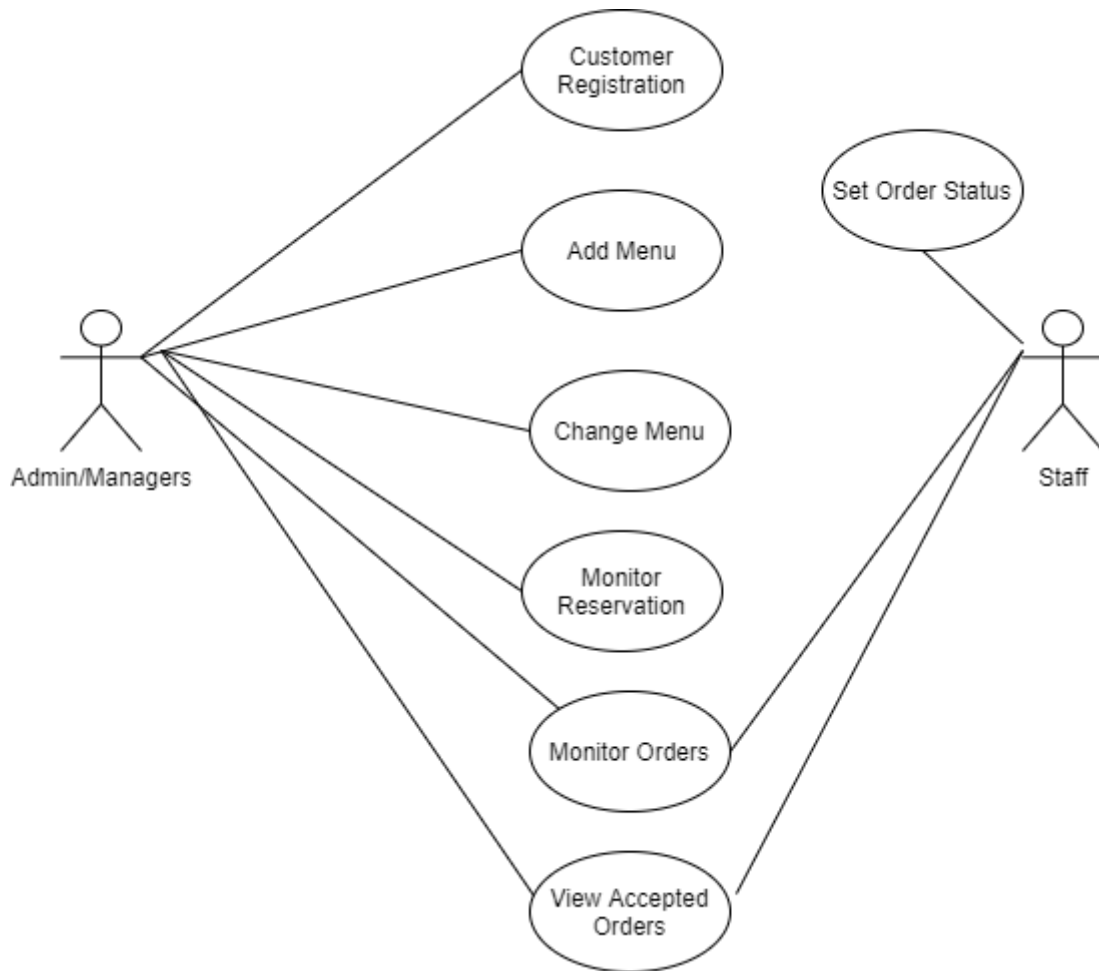
This figure describes the user case for administrators where they can able to handle customer registration, add or change menu, monitor reservation, view orders and accepted orders, setting up order status where customers can easily track and get an estimated time of food delivery.

4.Result and Discussion
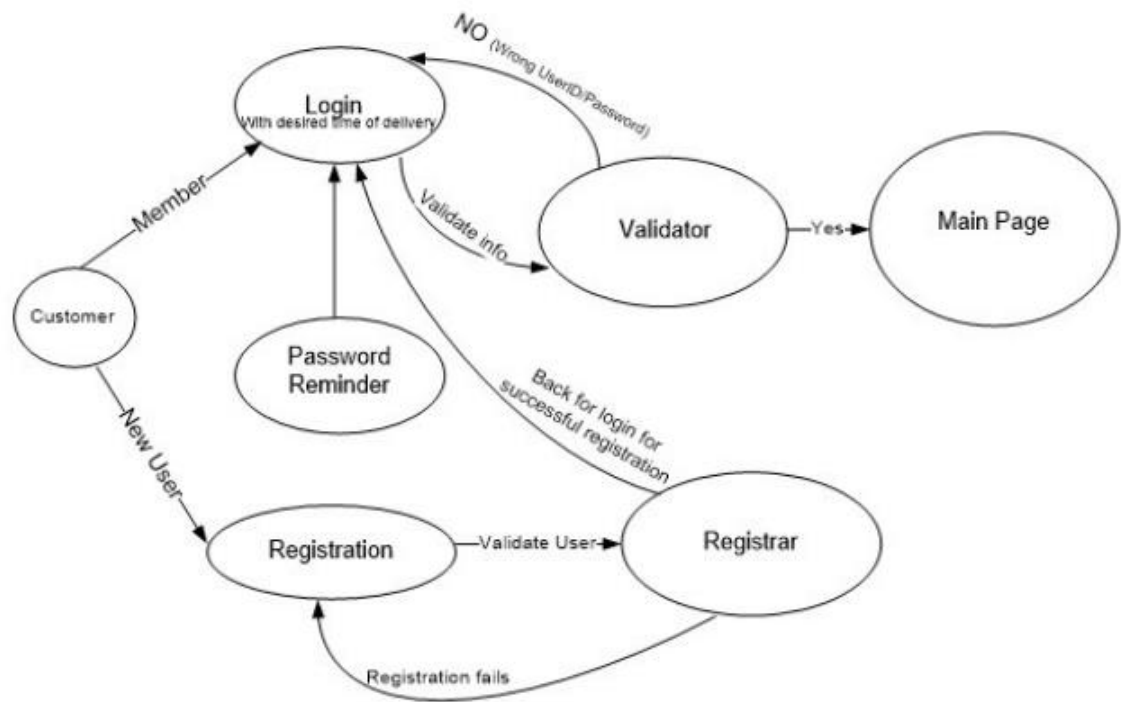
Figure 1: Work flow diagram for Customer

This is the diagram of customer workflow for the restaurant reservation system. Customer has to register for the restaurant reservation system for accessing the system. The customer has to put his or her contact details and other information in the reservation system in a prescribed format. The information of the customer has been stored in the system database. The restaurant reservation system generates an ID for each customer and customer can create his or her own password. The customers have to use the system generated ID and password to log in to the system. After a successful log in, customers are able to check availability of seat in the restaurant according to their choices. Then customers can reserve seat if there are availability of the seat in the restaurant.
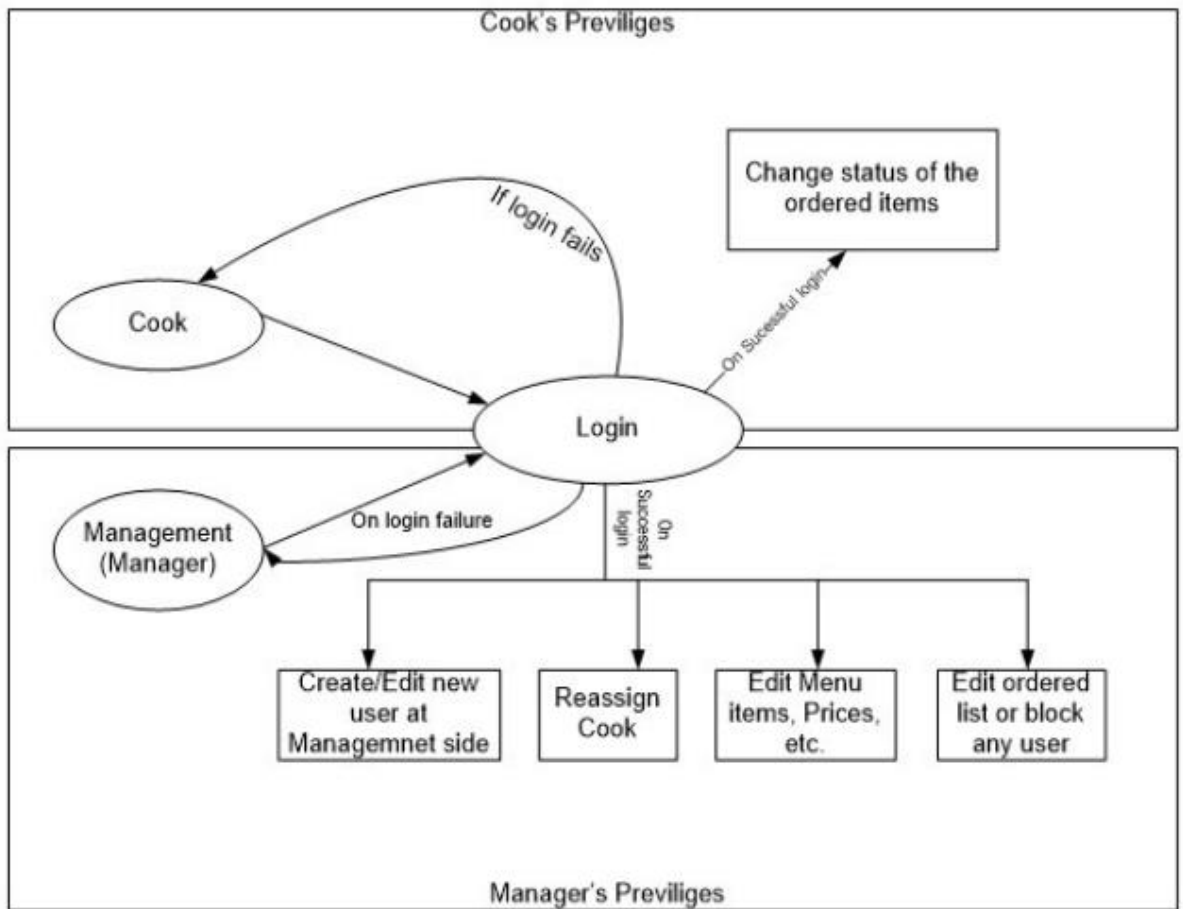
Figure 2: Work flow diagram for Restaurant management

The restaurant management has two parts – restaurant manager and restaurant Cook. There must be a strong understanding between the two entities of the restaurant management. Therefore, in the restaurant reservation system, restaurant manager's workflow with cook's work flow is very important. The restaurant manager can create or select or edit menu name, menu description, menu price etc. Restaurant manager can create new user and the manager can manage the order of the customers. Restaurant manager can add or remove cooks from the system. The manager is the most important person of the online restaurant reservation system.

Figure 3: Log in page for the Customer

Some of the screen shots of the developed system have been provided here. Figure 3 shows the log in page of the restaurant reservation system. Customer can put customer ID and password into the desired location for log in. After log in process is successful then only a customer can access the restaurant reservation system. The customer who has not been registered cannot log in from the log in page. He or she has to register him or herself into the restaurant reservation system. If a customer forgets his or her password, then he or she can use 'Forgot password' option.

Figure 4: Sign up page for the Customer

Customers who have not been registered they have to sign up from here. Customers have to put restaurant name, contact person, phone number, e mail id into the restaurant reservation system. Customer has to create password by themselves. Then they have to repeat the password for confirmation.

Figure 5: Availability check for seat reservation by the customer

After log in using the Id and password customer comes to the page shown in figure 5. Customer has to put their desired date, time, and number of persons into the online restaurant reservation system. Then customer has to press check availability button.

Figure 6: Confirmation from the restaurant seat reservation system

For the successful registration of a customer or after logged into their own portal then there need some information so that seat or table can be reserved by their choice. A customer needs to enter the desired date, time and number of persons for the reservation. If there are vacant place is found by the system on that preferred date time and there is enough place to accommodate the number of person then the system wants to accept or confirm customer's willingness for the booking. When reservation is confirmed then the confirmation massage will be displayed.
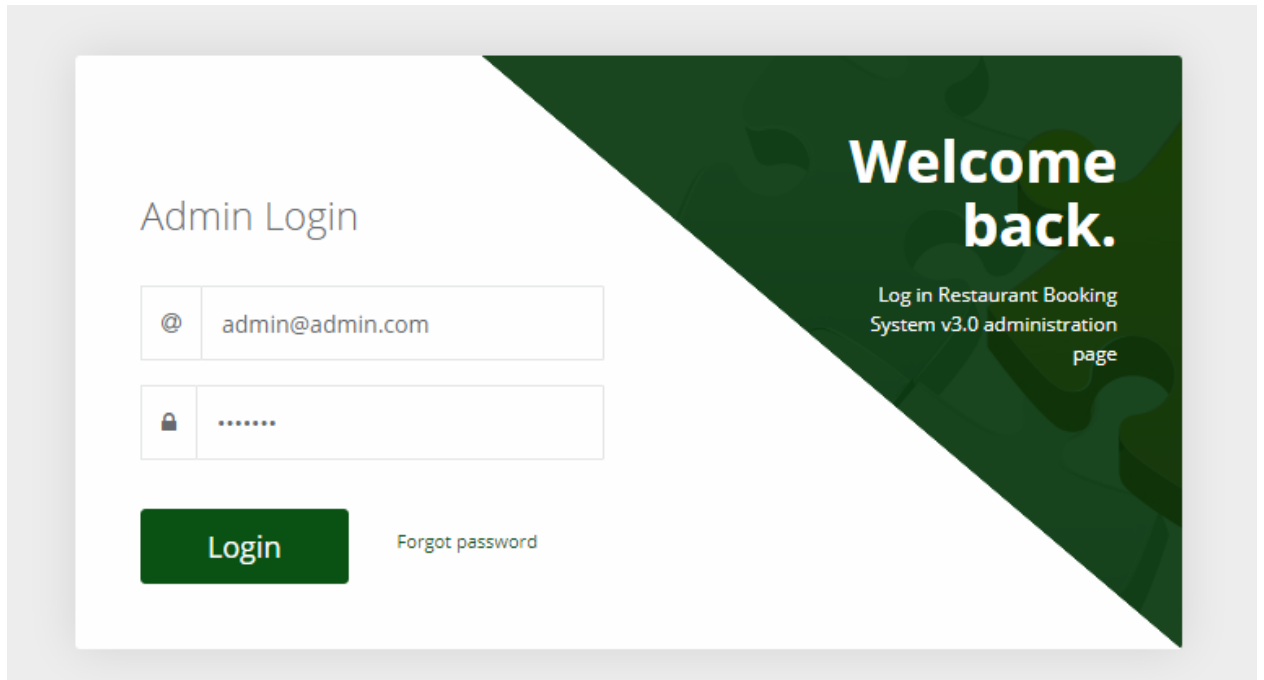
Figure 7: Log in page for Administrator of the restaurant reservation system

Then figure 7 shows the log in page for administrator of the restaurant reservation system. This is completely accessed the system administrator of the restaurant. So they obviously have some login credentials predefined. This section has always a special security as the managerial part is done here. That means if there is any discrepancy occurred then may be the system will not be error free. Once an administrator successfully login to their portal then only the system redirected them to the dashboard screen where they can manage all the facilities and activities of the restaurant very easily.
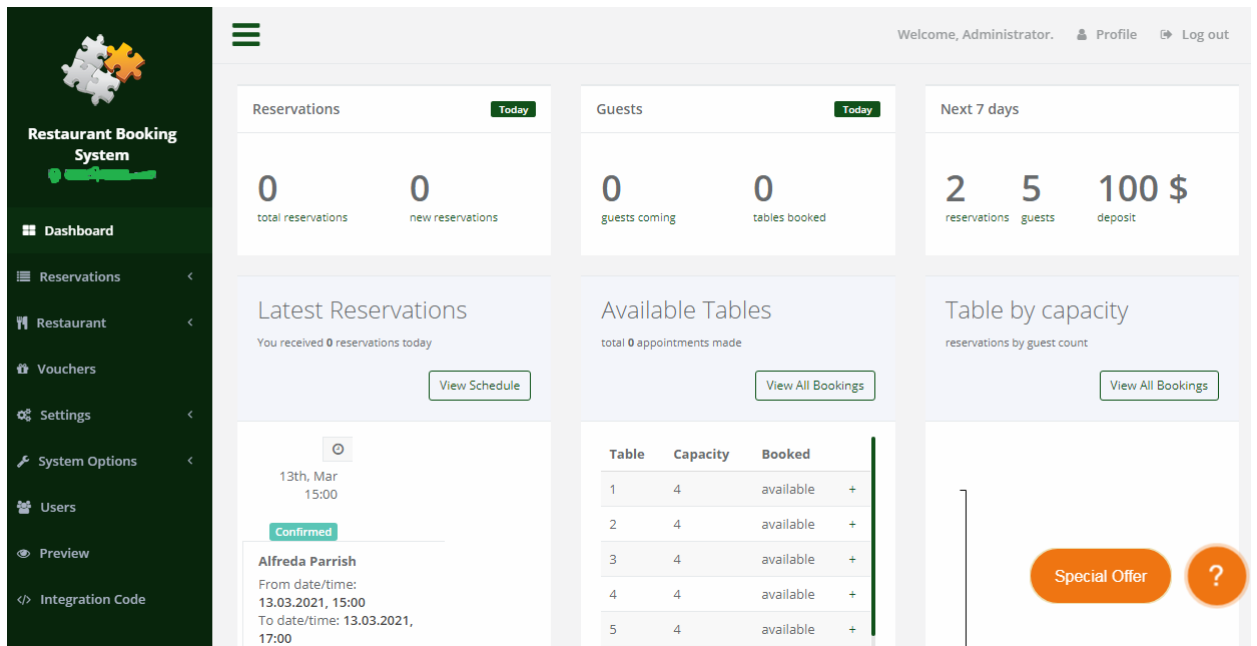
Figure 8: Dashboard of the Admin panel of the online restaurant reservation system

This is the dashboard view of administrator module. From here manager of the restaurant can control the overall restaurant reservation system. Manager can see all over restaurant status from the dashboard. In this dashboard of an administrator, they can able to check reservations, restaurants facilities, discounts and apart from that they have the power to choose system set up along with customer management through their portal.
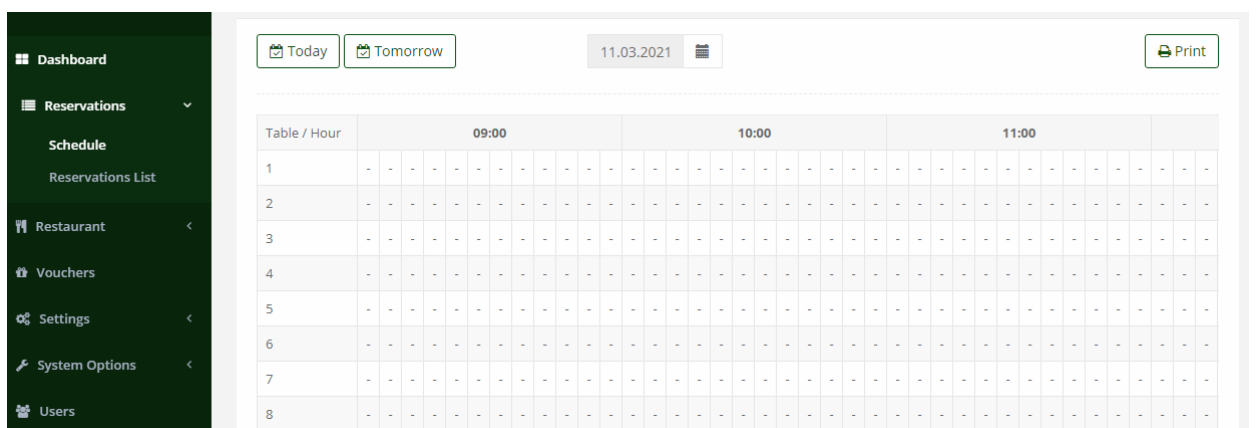

Figure 9: Restaurant table booking status viewer from admin panel of the restaurant reservation system

Figure 9 shows the table reservation status of the restaurant from the admin panel. In this panel an administrator can able to check the reservation scheduled done by the customer that means they can have the customer details along with their preferred

time and date of their visit along with the number of heads. This information is helpful for the administrator to easily arrange seats and requirements of a customer so that when customers visit in the restaurant then they have a hassle-free experience.

Limitation of restaurant reservation system:
Now a day everyone has a smart phone in their hand. That's why automatically this restaurant reservation system evolved to online web applications. But this web based applications also have some limitations and those are-

- This online restaurant reservation system, it cost the owner money. Sometimes the owners have to pay some additional charge for installing those online web applications. Most of those web applications are free just for one time and then need to pay extra charge per reservation or sometimes per month.
- In online restaurant reservation system, the administrator always needs to update the number of empty tables open for walk in seating.
- In case of this online restaurant reservation system, at the last minute it becomes inconvenient to cancel or change the plan. Even if the plan is cancelled, the money deposited in advance cannot be refunded.
- Mostly the people want to dine between 8 and 9 and that is why the seats fill up quickly. Few people know that they also hold some empty tables for walk in customers. When the restaurateur talks to the customers they provide them some another option. But in this online system before the customer even try, they easily give up. Managers have to update the reservation sheets regularly it is really crucial.
- Many times customers have to face many difficulties in case table cannot be reserved due to system error.
- Online reservations are always made ahead of time. But this is not possible for those customers who suddenly decide for dining.
- Internet access is the most needed for online reservation. But if someone from remote areas where he or she is not able to get internet access then he or she will not be able to reserve any table. There are several web applications mostly mobile based systems can work in offline mode so it doesn't even need

your internet. You can easily reserve your table using those web applications and later they synced the data as soon as they connected through internet.

Recommendation

This thesis belongs to a restaurant reservation system. This system makes a computerized automated system for restaurant reservation. In the post Covid-19 situation, which is called new normal situation, every business domain tries to shorten the expenses and consequently increase the profit. Therefore, automation of management and handling of business system through computers and Smartphone is very much profitable. There is a onetime expense however and the effectiveness of the system automation is profitable for the long run. Restaurant business is one of the profitable business and people are eager to go out for restaurant not only for good food but also for outing and passing quality times with their beloved ones. However, in the pandemic times, restaurants remained closed for a long time. In the new normal era restaurant business restarted and people started to go to the restaurants like old days. However, the restaurant owners have to make over their losses in the pandemic time. Therefore, they go for automation of system because automation of management system can allow reducing the number of workers of the restaurant.

A restaurant reservation system has been developed as prototype and detail of the development of the restaurant reservation system is the content of the thesis. The restaurant reservation prototype has been developed in PHP. The database management system used for the development is MySQL. In this the thesis content, detail development procedures of the restaurant reservation system have been discussed. The way of using the reservation system has been elaborated with some screen shot of sequential steps of the restaurant reservation system. Two work flow diagrams also been stated in the thesis body. The reservation system can only handle small scale restaurant. The prototype can easily be implemented in the real life situation. However, there is lot of scope of development in future to make the prototype available for bigger restaurants.

5. Conclusion

COVID 19 makes the whole world stuck into rooms. After that, in the new normal era restaurant business changed a lot. This thesis belongs to the restaurant reservation system. In this thesis, we provide a restaurant reservation system using MySQL and PHP. This system can be used as real system efficiently.

Corona virus and social-removing measures have avoided some of buyers' number one exercises with regard to reach, for example, a night at the films or significant class games. In any case, maybe most recognizable is the vanishing of indoor eating in numerous countries.

The café business has adjusted, increase outside eating, curbside pickup and more noteworthy appropriation of food conveyance applications. However, even after a reasonable antibody is found, has the pandemic changed shopper conduct enough to present another typical for eateries?

Advanced and conveyance infiltration was at that point acquiring force before the pandemic. Presently, a change that was projected to require years is going on in only months. "We see all out online food conveyance—through online conveyance stages and café self-conveyance—of $45 billion of every 2020, versus our earlier gauge of $41 billion of every 2021, arriving at 13% of the addressable market this year and 16% by 2022, versus 2025 in our earlier gauge. That implies almost three years of shopper spend is being pulled forward, drove by sped up development from conveyance stages," stated by Glass.

Eatery networks' piece of the overall industry could combine. The destiny of free movers and more modest chains has been quite possibly the most firmly watched and discussed subjects during the COVID-19 period. Pre-emergency, the U.S. bragged around 370,000 autonomous cafés, addressing 57% of complete eateries, generally amassed in the full-administration class. Evaluations on the number of these eateries could close for all time because of COVID-19 territory from 5% to 30%, or around 20,000 to 110,000 scenes.

Discoveries from the examination recommend that shoppers place as much accentuation on the viability and accommodation of utilizing the framework as the simplicity of their connection with the framework. These variables were discovered to be critical in deciding how they feel towards the framework and by implication their expectation to utilize the framework. Considering the ventures that café administrators and other financial backers are placing into building these booking frameworks, it is significant that purchasers really use and thus, gives anticipated profits from these speculations. To accomplish these, product designers should guarantee that they construct instruments, which are not difficult to use as well as, demonstrate valuable what's more, receptive to the requirements of buyers per time. This is significant in light of the fact that it emphatically decides how shoppers feel towards the frameworks, which thusly influences their expectation to utilize the framework. It is additionally significant that devices that give audits dependent on buyers' past experience with the utilization of the framework are installed into applications since this additionally influences buyers' demeanour and expectation.

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