# Restaurant Table Reservation System Using Android Mobile Application (RTRSMA)

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**ABSTRACT**: The 'Quilim Restaurant' presently runs a manual reservation system and as customers are desirous to find a handy application for reservation of tables or any other services to avoid physical walking to the hotel or contacting by call or reserving through a middle man. Current research was aimed to design a client/server application for table reservation and online booking system. Restaurant table reservation system is an android application (RTRSMA) that can affectively improve their restaurant table reservation system in order to provide direct access of every user to the management. It has given the benefits of effective booking corridor or to hold their accessible table with holding up through an android application. RTRSMA involved the use of two applications associated with each other, and involved the use of five modules which are the reservation, the order take away your order, gallery and get in touch with us. The major goal of this task was to enable the administrative representative of organization of a restaurant to deal directly with the clients. In addition, it can place client's requests to discover free tables as indicated by their own need of particular required number of seats in his choice area. This application can assist to avoid holding up time spend at the restaurant. This system is enable for supporting 1,000 clients and have the capacity to retrieve 4 pages/sec". We utilized database to accomplish current task to deal with the historical backdrop of the Quilim reservation and client's records. Client can see the history and also like wise delete, share and copy data. The administrator can keep up the time-table of ordering items and foods. RTRSMA can enhance the popularity of restaurant among their intended customers coupled with speedy and direct service availabilities.

**KEYWORDS**: Android, Mobile Application, Table Reservation, Food Order, Table Order, Hall Booking Customer, Hotel Management

## I. INTRODUCTION

Restaurant Table Reservation System is an android Mobile Application (RTRSMA) that applies in a restaurant table reservations benefit. RTRSMA involved the use of five modules which are the reservation, the order take away your order, gallery and get in touch with us. Manual table reservation system are ending up progressively in well-known restaurants as now a days people are getting into digital era of reservation of restaurants, and supplier are  considering while to choose a digital system of booking. Usually the restaurant tables' reservation system ought to give instruments to plan and run your restaurant appointments adequately in speedy and efficient ways. An effective table administration implies that a restaurant can expand the potential utilization of their lounge area and thusly should build benefits and for suppliers. A table reservation system for any restaurant should have full perceivability and control of their seating plans with a full graphical view, that can accessed by the customers at a specific date and time by sitting at anyplace through use of mobile application. The administrator can be kept up the details of ordering tables and foods.

A. Objectives

The key objective of current project was to allow the management administration and employees of a restaurant to grip the customers to place their orders and to find free tables according to their required number of seats. RTRSMA app will enable the user to access and manage the arrangements of table and food. The general objective of RTRSMA was to build up a reservation system for table reservation to assist workers with solving basic issues with their manual reservation system for example utilization of time, cash and vulnerability.

B. Specific objective
   1)   In particular the proposed system aims:
   2)   Easy in a hurry calling.

3) User-friendly.
4) To lessen the measure of time to and exertion utilization by the client to save.
5) Great for a minute ago reservations.
6) To enhance the correspondence between the customer and the administrations and limit the season of requesting.
7) This application will be produced essentially to provide a proof for appropriate client versatile cooperation.

## II.EXISTING SYSTEM

In manual system, everything depends upon paper and there is no automated system for keeping the records in Quilim restaurant. The menus which are accessible on the restaurant is paper based. The request which has taken by the server is on paper based and the bill created finally is also on paper based. We realized that this paper based system is easily vulnerable to get harmed because of several reasons and it leads to different problem i.e. waiters couldn't have arranged records of clients. Moreover it prompts wastage of time and paper. On the other hand sometimes if there is a need of little changes in the menu then supervisor need to print the entire menu cards and it prompts papers and money wastage. Since it isn't conceivable to print the entire menu over and over because of little changes. On the off chances sometime supervisor need to review the records before the request. For this a handler needs to sit tight for taking order and recording request and follow up already reserved hall made the old system of booking tedious. What's more for each little request we need to call the waiter for a number of times and it prompts some misconception from waiter side. So we need to roll out some improvements in the current system to wipe out the above issues.

A. Disadvantages of Existing System
   1) The major drawbacks of the existing system were as follows
   2) It was a web based application and paper based.
   3) Wastage of time, cash, and paper.

## III. LITERATURE SURVEY

In the past ten years, email spam detection and filtering mechanisms have been widely implemented. The main work A digital table booking and ordering system for restaurant was developed using android mobile application [1]. They designed an ordering system to provide online booking of food items. Digital ordering system has enabled the customer to place the order even from remote places and get online bill. Three coordinated apps were designed to manage kitchen order, customers and billings system respectively. Implementation of ordering system proves effective for potential popularity and economical. Similar project was reported an earlier food ordering system to remove the errors of manual ordering system[2]. They designed AOSRTF (An automated ordering system with real time feedback. This ordering system make use of wireless technology and android mobile. This ordering system also enhanced the efficiency of output by shortening of cumbersome load of manual labor. Digital ordering system proves cost-effective than conventional paper based ordering and reservation system. A touch and dine app was developed for online booking of food order[3]. Implementation of e-ordering of food and website was also appreciated by the customers. WOS (Wireless operating system) was designed to develop a food ordering system [4]. Online ordering of food system provides a simple design to ensure high quality service for customers. They made use of emerging technologies and hand held devices (PDAs) for easier communication between service providers to their consumers. They also suggested these automated management system can also be adopted in hospital to manage their data recorder with slight modifications. Another effort has been made for enhancing the dining experience though the use of e-technologies [5]. They also suggested a relatively more effective way by the use of multi-touchable e-management for restaurant system. They provide a sequential control of food from preparation, packing and billing through an automated system. Another project was designed using the advancements of information and communication technology for business transactions[6]. They tested the efficacy of the use of mobile technology in determinants of business and its adoption. Fit viability model can be adopted to improves the use of e-technology and mobile applications for successful business. Hence recent trends are focusing on the use of android applications in their business to reduce input cost and maximizing the profit.

## IV. PROPOSED SYSTEM

In proposed ordering system we provide facility customers to reserve tables for dining, and can also get details of hall availability for reservation of party and celebrations. At the same time this online reservation system will provide the restaurant owner to manage their services including food. Currently proposed system will be fast and easy to use and involves the application of five modules which are the reservation, the order takeaway, your order gallery and contact us. This system will managed by two main android applications, first one would be available for general customers for viewing and booking of table and halls. Second would be used by the admin to update the manage the services with in the restaurant premises.

**Requirement Specifications:**

- **Functional Requirements**
- **Non-Functional Requirements**

**Functional Requirements**

The main function of this application is online table reservation.

**A. Table Reservation:**
The main function of this application is online table reservation user can reserve any table through this application any time and from anywhere.
**B. Hall Booking:** The second main function is user can book hall using this app also cancel booking when they need.
**C. Food Ordering:** User also can order their favorite food using this application by just filling the form.
**D. Contact Us:** User can contact with hotel admin any time using this application.
**D. Gallery:** User can see all hotel updated images from gallery. Images will be provided by admin application.

**Non-Functional Requirements**

**A. Performance Requirements:** In order to assess the performance of a system the following must be clearly specified.
**B. Response Time:** 10 seconds are about the limit for keeping the user's attention focused on the dialogue. For longer delays, users will want to perform other tasks while waiting for the computer to finish, so they should be given feedback indicating when the computer expects to be done.
**C. Workload:** The system should be capable of supporting 1,000 customers" or "the system should be able to support 4 pages/sec". These statements are often good metrics at a high level management level but do not define the work that the system must support.
**D. Scalability:** In one respect scalability is simply specified as the increase in the system's workload that the system should be able to process.
**E. Platform:** A platform is defined as the underlying hardware and software (operating system and software utilities) which will house the system. Our product support Android platform with and later lollipop version
**F. Safety Requirements**
 We are used safety techniques for the following error
1) Software logic errors
2) Software support errors
3) Hardware failures
**G. Security Requirements:** Before you can determine if a program is secure, you need to determine exactly what its security requirements are. So there is just one security requirement for our product
**H. Database Security:** For this security we are using firebase Database because without authentication Firebase is not allowing to anonymous to read and write data in database
**I. Software Quality Attributes**
1) **Adaptability:** This App can be installed on devices having android operating system.
2) **Economic feasible:** The developing app must be justified by cost and benefit
3) **Usability:** This app is very useful and friendly for user , easy to use

**Advantages of Proposed System**

The gains of proposed system are followings

1) Provide client record and secret key to guarantee the security of put away documents.
2) Rights are reserved at customer's fingertips.
3) During festive seasons, tables get booked shortly, in such cases clients can make advance booking for utilization of ordering framework.
4) It saves client's time looking out for restaurants.
5) It saves business assets and costs.
6) It discourages the involvement of third party or a middle man by providing a direct interface of customers to their service providers. It avoids to customers to pay heavy commission.
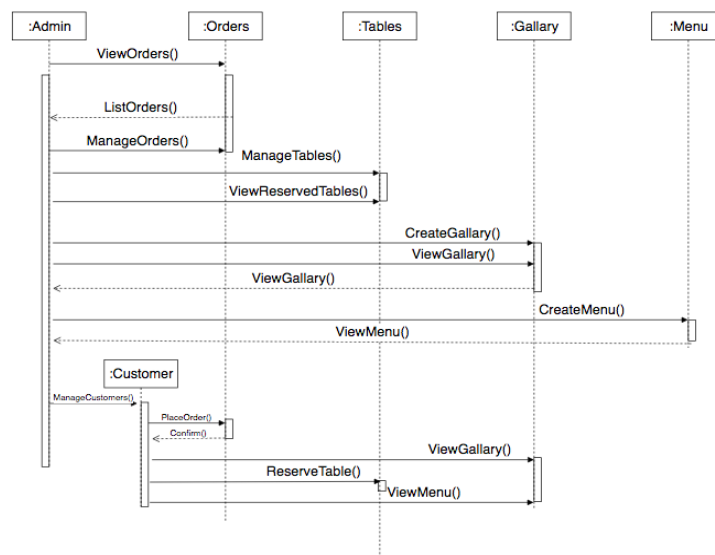
## V. METHODOLOGY

**A. Sequence Diagram**



Figure 1: Sequence diagram for overall system

Above figure showing the Sequence Diagram of the system and these states the input and output event of system. Mean what is going into the system and what is going out. SD is usually drawn from the one particular use case.

The user can log into the restaurant and check the availability of the table, as per the user requirements user will select the table and then confirm the seat. The confirmation message sent to the user. A notification will also send to the restaurant manager about the table booking and customer data.

**A. Use Case Diagram**



**Figure 2: Functional requirements of overall system**

A use case model is showing the functional requirements of a system. Functional Requirements are the system's core requirements, without this system cannot be completed and maybe it useless. Above use case showing two Primary actors that are directly interacting with the system.

**Actors:**

Actors with their essentials are mentioned in the Fig.1

- Admin

- Customer

      Functional requirement are one is online table reservation user can reserve any table through this application any time, second user can book hall using this app also cancel booking when they need, third user can order their favorite food using this application, fourth user can contact with hotel admin and last one is user can see all hotel updated images from gallery.
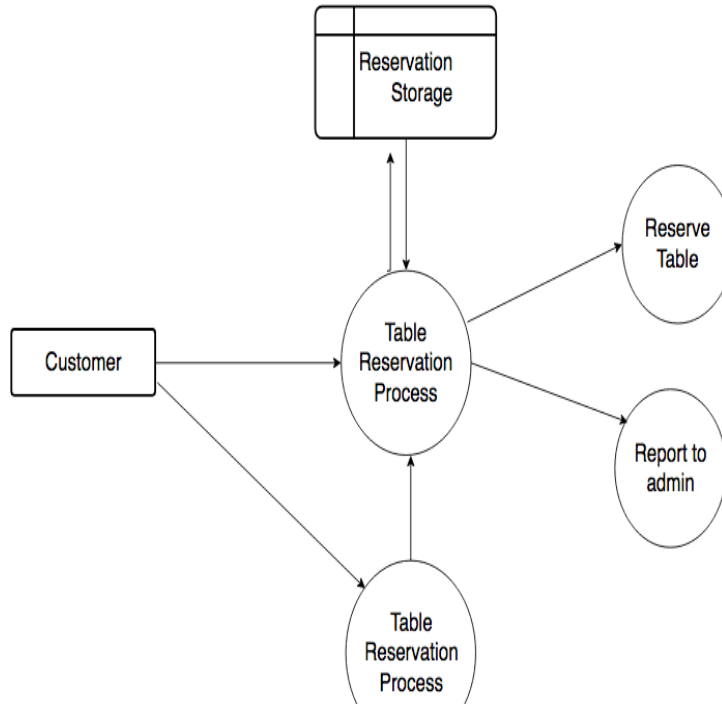
**B. Data Flow Diagram**



Figure 3**:** Customer reservation process

Figure show the processing of system on to Level 0.This is the abstract view of the system that show the customer process to reserve the table and then it will be reported to the admin

## VI. RESULT

The project user enters the individual points of interest to get a record which is should have been utilized in the Android App. The client can see the sustenance. This will enable the client to save a table and the reservation subtle elements are sent to the email ID of the client. The results and output screens are shown in the following Figures:

**Figure 6.1:Home Tabed ActivityFigure 6.2: Marquees**





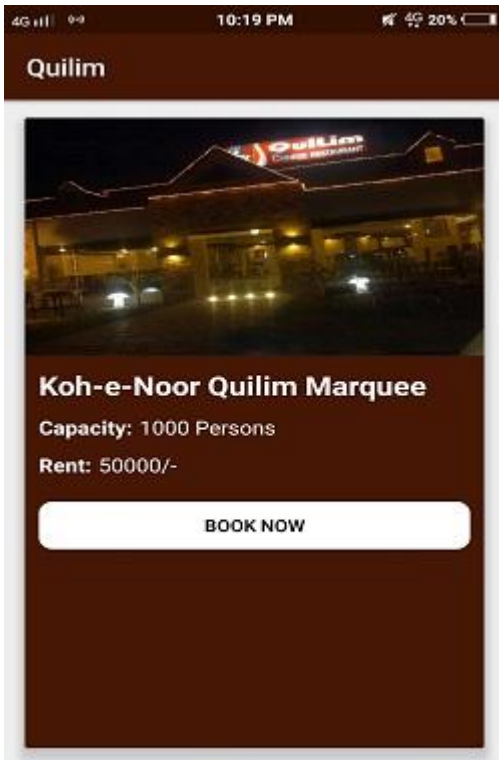**6.3:Food Detail Activity**                    **Figure 6.4:Table Detail Activity**

**Figure 6.5:Koh-e-Noor Marquee**



**Figure 6.6:D-Ground Marquee**



**Figure 6.7: Home page**



**Figure 6.8:Table Registration**

**Figure 6.9: Image Activity**



**Figure      6.10:Marquee Order Activity**



**Figure 6.11:All order Activity**



**Figure 6.12:Food Order Detail**

## VII. CONCLUSION

The project has concluded that if a customer is willing to visit the restaurant and he finds no table is available for the dinner/lunch then he/she has to wait long for the table availability. With the help of this app user can choice the table's location according to their need and willing e.g. Table can be reserved as according to number of visitors. Moreover, you can easily book the hall for a celebration party or any mega event and can see pictures of interior from the App.

Keeping in view the demand of proposed project that gives a series of services and provides the customer to easily book hall or to reserve their available table without waiting through an android app. In this particular project we have resolved issues being faced by Quilim restaurant located in Faisalabad by developing app named as 'Quilim APP' that can be downloaded and then just update his/her self-data and can have access to latest news and menu with the restaurant. This app will get its importance as now days more and more people are getting into android and fast life.

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HafizaMahrukhShahzadi has completed Bachelors in Computer Science (4 years Program) in session 2014-2018 from Department of Computer Sciences, Government Collage Women University Faisalabad, Pakistan. She is currently doing internship under prime minister e-rozgaar's program.