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Digi-Restaurateur
“Digital Restaurant Ordering System”

by

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SHIVAJI UNIVERSITY

Abstract

Department of Computer Science and Engineering
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Nowadays web services technology is widely used to integrate heterogeneous systems and develop new applications. With the increase in the number of restaurants and population of restaurant-goers, a need to enhance the working of hospitality industry is felt. Today there are various applications based on wireless technologies already in use enabling partial automation of the food ordering process. Our system is a basic dynamic database utility system which fetches all information from a centralized database. The tablet at the customer table contains the android application with all the restaurant and menu details. The customer tablet, kitchen display and the cashier counter connects directly with each other through Wi-Fi. This wireless application is user-friendly, improves efficiency and accuracy for restaurants by saving time, reduces human errors and provides customer feedback. This system successfully overcomes the drawbacks in earlier automated food ordering systems and is less expensive as it requires a one-time investment for gadgets. This system increases quality and speed of service. This system also increases attraction of place for large range of customers. Implementing this system gives a cost efficient opportunity to give your customers a personalized service experience where they are in control choosing what they want, when they want it from dining to ordering to payment and feedback. We are implementing this system using android application for Tablet PC's. The front end will be developed using C# and the backend will work on MySQL database.

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Chapter 1

INTRODUCTION

1.1 Introduction of project

The advancement in information and communication technology (ITC) has greatly influenced the business transactions. The adoption of wireless technology and emergence of mobile devices has led to automation in the hospitality industry. Business in hospitality industry such as restaurants can be improved with the combination of wireless and mobile technologies[1]. The competitions in restaurant business have increased with the advancements in digital food ordering techniques.

The earlier food ordering system was entirely a manual process which involved waiters, pen and paper. The waiter had to note down orders from customers, take these orders to kitchen, update them in records and again make bill. Even though this system is simple it may involve human errors in noting down the orders. The time taken to get the orders to the different stations, traditional order taking process can also get the orders mixed up, missed or even lost altogether. These seemingly little problems add up to customer service inefficiency that requires more waiters than actually required at any one time. This need has created a demand for more cheap waiters, which has indirectly resulted in illegal Immigrant problems for the government. The customer service inefficiency that is caused by traditional order taking process can be improved by readily available affordable technology. The time taken by each waiter walking to the different stations to make sure the order is processed can actually be cut down by utilizing an ordering system that automatically sends each order to different stations as soon as the order is confirmed by the respective administrator or kitchen manager. Restaurants are one of the favorite premises. With no regard to the actual reasons for visiting restaurants, customer will make orders and wait for the ordered meals. However, it is common if customers complain for not feeling satisfied about the services offered. In accordance, we initiate

an integrated and networked system, with the focus is on its ability to solve the above described limitations in order taking. We names the system as “**Digi-Restaureur: Digital Restaurant Ordering System**” Using Android. It is an integrated system, developed to assist restaurant management groups by enabling customers to immediately make orders on their own selves. This will minimize the number of minutes to wait for the meal serving. This project deals with Digital ordering system for restaurant. Traditional restaurant service requires waiters to interact with customers directly before processing their orders. However, a high-quality recommendation service system would actively identify customers and their favorite meals and expenditure records.

This type of the tablets is especially for the use of normal users coming in the restaurant. These tablets will consist of the whole menu of the restaurant. They will be enabled with the Wi-Fi connectivity. The items in the menu are non-editable for these types of the tablets. So, the user cannot interfere in the menu and make changes in it. The tablets should be able to display all the items of the menu with sufficient visibility. Customer from any layer of the society should be able to handle and operate all the functions easily[1].

The following are some merits of a using such an application:

- Due to the tablets, the waiters need not leave the table to process the order.
- The waiters can spend more time in satisfying the customers and there will be no mixing of order.
- The waiter will know the availability of food, as messages can be sent from the kitchen to the waiter's tablet.
- Status of the ordered food can be checked at any time by the waiter as well as customer. To overcome the above problems in a normal restaurant a Wireless digital Ordering System could be designed and implemented effectively.

Chapter 2

LITERATURE REVIEW

2.1 Literature Review

In earlier days, food ordering was a completely manual process where a waiter used to note down orders from the customers using pen and paper, take the orders to the kitchen, bring the food and make the bill. Although this system is simple it requires extensive investment in purchase and storage of paper, large manpower and also is prone to human errors and greater time consumption.

In order to overcome these limitations in manual system, some systems were developed later like PDA based systems and multi-touchable restaurant management systems to automate food ordering process.

2.1.1 Traditional Paper Based System

One of the widely used food ordering schemes is the traditional paper based system. In this system all records are stored on paper. The main drawback of this system is papers can get easily lost or damaged. There is also wastage of money, time and paper. Paper-based systems do not provide any form of dynamicity. Even a small change requires the entire menu-card to be re-printed. Since large manpower is required, this system is error-prone and is time consuming from a customers point of view. Some of the existing systems are mentioned below.

2.1.2 QORDER

The next improvement in restaurant industry was 'QORDER'. The waiters now no longer took the orders on paper; instead all the orders were taken on a hand held device called

the “QORDER”. It was a portable android device where the waiter enters order information on the touch screen and then sends it to the kitchen in for processing. Simultaneously, the POS system receives the sales information for later billing. QORDER utilizes WIFI to easily reach to the most remote corner spot in your restaurant. Once the guests are done, the waiter prints the receipt out and processes payment with the handheld unit[2].

2.1.3 Pixel Point

PAR Pixel Point Company uses this software for managing the restaurant. The system consists of the company’s software and hardware. This network system is compatible to TCP/IP, enabling information sending through both wireless and conventional networks[2].

2.1.4 Personal Digital Assistants

When new technologies and approaches being introduced to automate the food ordering process a number of wireless systems like WOS, i-menu, FIWOS were developed. All these systems were PDA- based. The feature of PDA systems was that customers or waiters key in ordering process. There was easy communication between the PDAs and server due to wireless technology[2].

Limitations in PDA based Food Ordering Systems:

- A number of PDAs are to be prepared to serve the number of customers during peak hours. Thus increasing the restaurant expenditures.
- PDAs do not provide provision to order from workplace. Thus the customer has to be physically present in restaurant to place order.
- It lacks real time feedback between restaurant owner and customers.
- Pose health problems as the PDAs are to be shared with public customers. If any customer is suffering from infectious disease like flu, then the other customers using the same PDA are exposed to similar health hazards.
- The user interface consist only textual information. UI has become unattractive and uninformative due to lack of images.

2.1.5 Proposed Work

This system is a basic dynamic database utility system which fetches all information from a centralized database. The tablet at the customer table contains the android application with all the restaurant and menu details. The customer tablet, kitchen display and the cashier counter connects directly with each other through Wi-Fi. This wireless application is user-friendly, improves efficiency and accuracy for restaurants by saving time, reduces human errors and provides customer feedback. This system successfully overcomes the drawbacks in earlier automated food ordering systems and is less expensive as it requires a one-time investment for gadgets.

The customer will give order from tablet; it will go to Administrator as well as Kitchen. The information was then displayed at a screen in the kitchen. The kitchen staff would then prepare the dishes accordingly and on completion would notify the respective tables. The system was also capable of intimidating the waiter about the availability of a dish. After serving the food, the bills are generated at administrator and send to cash counter. All the details of the customer were fed into the system which the management had full access to.

With the advancement in the computer and communication technology, various systems were launched in market for the purpose of automation of the food ordering system

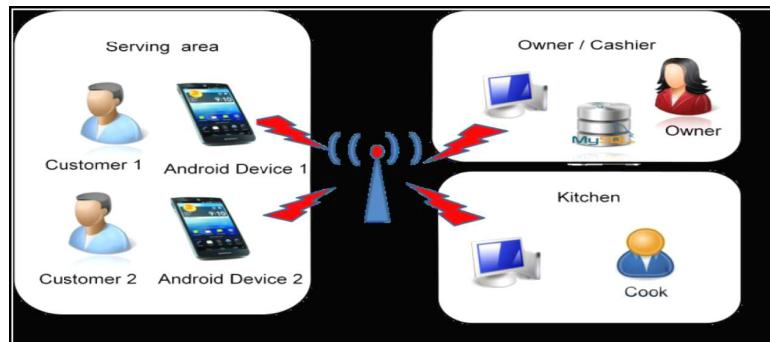


FIGURE 2.1: Proposed work Digi-Restaurateur: Digital Restaurant Ordering System

Chapter 3

OBJECTIVE AND SCOPE

3.1 Objective and Scope

3.1.1 Objectives

To overcome the limitations of above system, we proposed this digital dinning system based on android technology. It is a wireless food ordering system using android devices. Android devices have gained immense popularity and have revolutionized the use of mobile technology in the automation of routine task in wireless environment. Considering the promising future of Android market, it is beneficial and worth to write applications for android that target masses of people[1].

The Objectives of our proposed system are:

- To combine Wireless technology and Android OS to automate the food ordering process.
- To minimize the flaws in conventional system by atomizing the working of a restaurant.
- Restaurant customer will use a tablet on the table of the restaurant with preinstalled Digi-Restaurateur application.
- To modify the menus by the restaurant Manager or Administrator.
- The information and menu choices selected by the customer are sent to the system over wireless network which is accepted by the manager and subsequently sent to kitchen and cashier respectively.

- To make provisions for obtaining feed-back from the customers and provide the restaurant a means of review of their service.

3.1.2 Scope

- There will be a tablet on each table. This will allow the customers to browse the food items for the time they wish.
- Customer can enter the feedback about the service and the food served. This helps the Restaurant owner to analyze the service and make necessary changes if needed.
- Customer can search a particular food item according to name, price, and category etc. This saves a lot of time of customer to order an item.
- The Restaurant owner can post various offers on tablet. This will help the customer as well as the restaurant owners.
- The Menu is organized in an attractive way. There are images of every food item which will make the view of customers more clear about how the food will look like after delivery.
- The food items will be sorted according to price, season and user ratings. This helps the customer to find or select a food item which has a good rating and which is liked by many customers.
- This also helps the Restaurant owner to make changes in a particular food item if it has low ratings which improves the quality of food.

3.1.3 Out of Scope

- We are not providing the internet facility for customer. If we provide internet facility for customers then customer makes so many mis-behaviors with tablet and downloading so that is very harmful to tablet and for next customer.
- We are not providing the online payment facility.
- This is limited to only some restaurants, not for hotel which also provide lodging facility.

Chapter 4

REQUIREMENT ANALYSIS

4.1 Hardware Requirements

There are three external hardware devices used by the proposed system, each related to a user interface. These devices are the wireless tablets and the displays. All the devices must be physically robust and immune to liquid damage and stains. The devices(with the possible exception of displays) must also have good industrial design aesthetics, as they are to be used in place of normal restaurant tables and notepads and will be in direct contact with customers. The devices behave as 'terminals' in the sense that they never have a full system image, do not store data and are not used for the core logic of the system. However, they should be fully capable tablets that can use textual data from the server along with local UI/interpretation code to display UI elements and take input. All order and transaction records should be stored on the server, not these tablets. The performance of dumb terminals over an area the size of a restaurant is likely to be unacceptable. In all the cases, the hardware device takes information from the proposed system and processes the information to display. It also provides user input information to the proposed system[2].

Computer with following minimum configuration:

1. Processor:

Recommended: core i3 and above

2. RAM:

Recommended: minimum 2GB and above.

3. Tablet with android operating system.

Minimum required SDK- API8: Android 2.2(froyo).

Targeted SDK-API 16: Android 4.2(Jelly Bean) and above.

4. Display touch screen.

5. WiFi router.

6. Printer

4.2 Software Requirements

4.2.1 Operating System

Windows 7 (For a 32-bit and 64-bit operating system)

Recommended: Windows XP Professional x64, windows 7 and 8.

4.2.2 Platform

- Front End:

C#. NET for Administrator Software development using windows form application.

Java for client side development.

- Back End:

MySQL 5.5.27 MySQL Community Server for database storage.

- PHP:

Remote Database Connectivity.

4.2.3 Development Tools

- **Visual Studio 2010(including Crystal Reports for .NET Framework Version=13.0.13)**

Microsoft Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs for Microsoft Windows, as well as web sites, web applications and web services. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows Store and Microsoft Silver light. It can produce both native code and managed code.

- **MySQL 5.5.27**

1. MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed, and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons:
2. MySQL is released under an open-source license. So you have nothing to pay to use it.
3. MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.
4. MySQL uses a standard form of the well-known SQL data language.
5. MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.
6. MySQL works very quickly and works well even with large data sets.
7. MySQL is very friendly to PHP, the most appreciated language for web development.
8. MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).
9. MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments.

- **Eclipse studio : android IDE**

Version:-Android Developer Tools

Build: v22.0.5-757759

Android software development is the process by which new applications are created for the Android operating system. Applications are usually developed in the Java programming language using the Android Software Development Kit, but other development tools are available

- **SDK**

The Android software development kit (SDK) includes a comprehensive set of development tools. These include a debugger, libraries, a handset emulator based on QEMU, documentation, sample code, and tutorials. Currently supported development platforms include computers running Linux (any modern desktop Linux distribution), Mac OS X 10.5.8 or later, and Windows XP or later. For the moment one can also develop Android software on Android

itself by using the AIDE - Android IDE - Java, C++ app and the Java editor app. The officially supported integrated development environment (IDE) is Eclipse using the Android Development Tools (ADT) Plug-in, though IntelliJ IDEA IDE (all editions) fully supports Android development out of the box, and Net Beans IDE also supports Android development via a plug-in. Additionally, developers may use any text editor to edit Java and XML files, then use command line tools (Java Development Kit and Apache Ant are required) to create, build and debug Android applications as well as control attached Android devices (e.g., triggering a reboot, installing software package(s) remotely)[3].

Chapter 5

SYSTEM DESIGN

5.1 An Overview of The UML

The UML is a language for

- Visualizing
- Specifying
- Constructing
- Documenting

THE UML LANGUAGE

A language provides a vocabulary and the rules for combining words in that vocabulary for the purpose of the communication.^[4] A modeling language is a language whose vocabulary and rules focus on conceptual and physical representation of a system. A modeling language such as the UML is thus a standard language for software blueprints. In this context, specifying means building models that are precise, unambiguous, and complete. In particular, the UML addresses the specification of all the important analysis, design and implementation decisions that must be made in developing and deploying a software intensive system. The UML is not a visual programming language, but its model can be directly connected to a variety of programming languages. This means that it's possible to map from a model in the UML to a programming language such as java, cpp, or visual basic or even to tables in a relational database. Things that are best expressed graphically are done so graphically in the UML, whereas things that are best expressed textually are done so in the programming language. A healthy software organization produces

all sorts of artifacts in addition to raw executable code. These artifacts include requirements, architecture, design, source code, project plans, tests, prototypes, releases. The UML addresses the documentation of a systems architectures and all of its details. The UML also provides for expressing requirements and for tests. Finally, The UML provides a language for modeling the activities of project planning and release management.

5.2 Goals of UML

The primary goals in the design of the UML were:

- Provide users with a ready-to-use, expressive visual modeling language so they can develop and exchange meaningful models. Provide extensibility and specialization mechanisms to extend the core concepts.
- Be independent of particular programming languages and development processes. Provide a formal basis for understanding the modeling language
- Encourage the growth of the OO tools market.
- Support higher-level development concepts such as collaborations, frameworks, patterns and components.
- Integrate best practices

5.3 A Conceptual Model In UML

To understand the UML, you need to form a conceptual model of the language, and this requires learning three major elements: the UML basic building blocks, the rules that dictate how those building blocks may be put together, and some mechanisms that apply throughout the UML. Once you have grasped these ideas, you will be able to read UML models and create some basic ones. As you gain more experience in applying the UML, you can build on this conceptual model, using more advanced features of the language.

5.3.1 Building Blocks In UML

The vocabulary of the UML encompasses three kinds of building blocks:

- Things

- Relationships
- Diagrams

These are the abstractions that are first-class citizens in a model; relationships tie these things together; diagrams groups interesting collections of things.

5.4 Diagrams In UML

A diagram is the graphical presentation of a set of elements, most often rendered as a connected graph of vertices (things) and arcs (relationships). You draw diagrams to visualizing a system from different perspectives, so a diagram is a projection into a system. For all but the most trivial systems, a diagram represents an elided view of the elements that make up a system. The same element may appear in all diagrams. In theory, a diagram may contain any combination of things and relationships. The views that comprise the architecture of software intensive system. For this reason, the UML includes following diagrams:

- Use case diagram
- Class diagram
- Sequence diagram
- Deployment diagram

5.5 Use Case Diagram

A use case diagram is a diagram that shows a set of use cases and actors and their relationships. A use case diagram is a just special kind of diagram and shares the same common properties as do all other diagram-a name and graphical contents.

5.5.1 Contents

Use case diagrams commonly contain

- **Use Case**

Use case is a description of a set of sequence of actions that a system performs that yields an observable result of value to a particular actor. A use case is rendered as an ellipse with solid lines usually including its name.

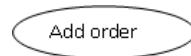


FIGURE 5.1: Use Cases

- **Actors**

An actor represents a role that an outsider takes on when interacting with the business system. For instance, an actor can be a customer, a business partner, a supplier, or another business system and every actor has a name.

- **Dependency, generalization, and association relationships.**

A dependency is a semantic relationship between two things in which a change to one thing may affect the semantics of the other thing.



FIGURE 5.2: Dependencies

A *generalization* is a relationship in which objects of specialized elements (the child) are substitutable for objects of the generalized element.

An *association* is a structural relationship that describes a set of links, a link being connection among objects

Like all other diagrams, use case diagram may contain notes and constraints.

5.5.2 Common uses

Use case diagram typically contain in one of two ways.

- To model the context of the system

Hear system involves drawing line around the whole system and actors outside of the system and interact with it.

- To model the requirement of a system

Hear specifies what the system should do, independent of how that system should do.

5.5.3 Use-Case Diagram

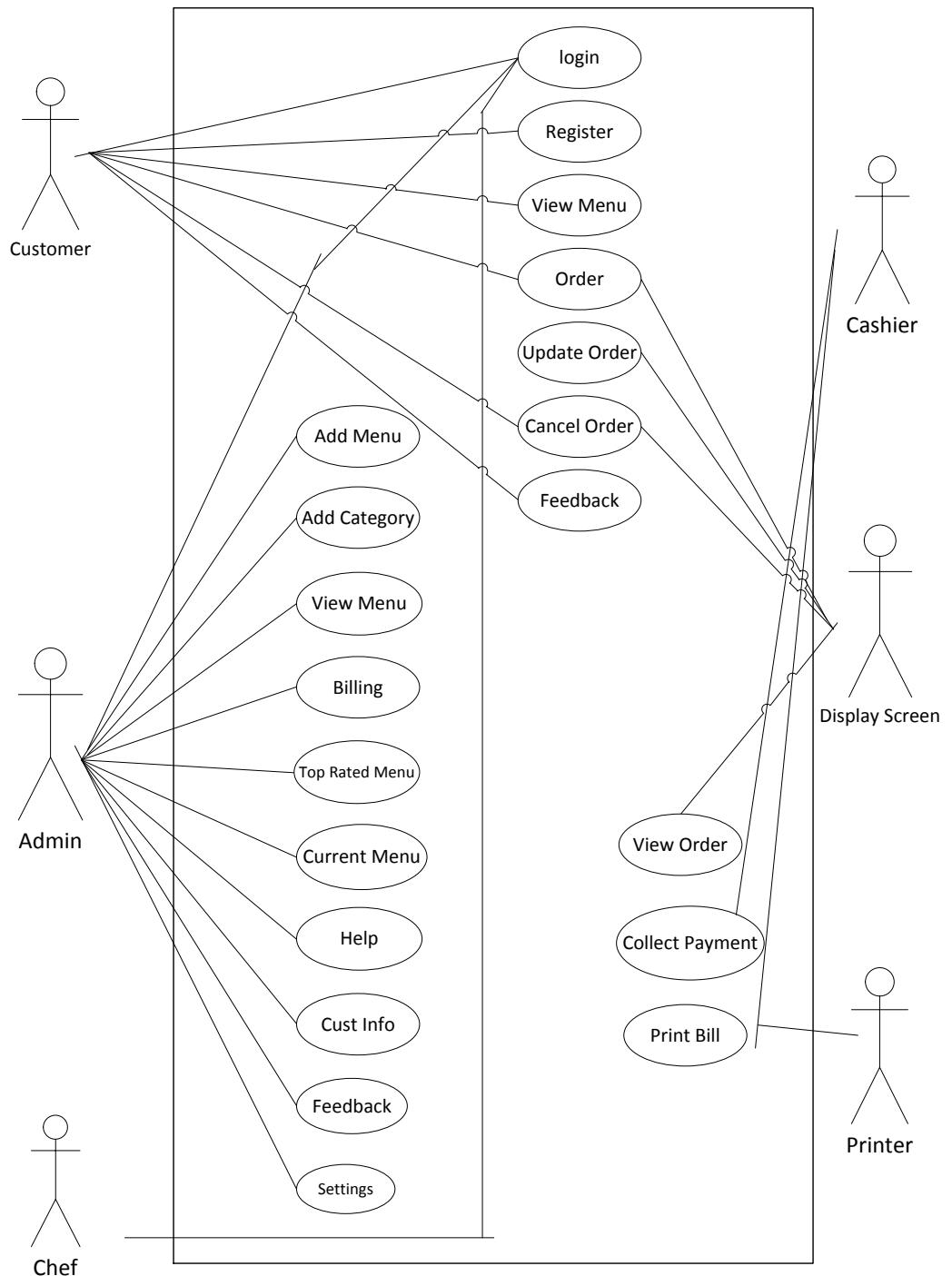


FIGURE 5.3: Use Case Diagram For Digi- Restaurateur.

5.5.4 Use-Case Scenarios

USE CASE	USE CASE SCENARIO
Login	<p>1) User welcome with login form.</p> <p>2) User enters user name in user name text field.</p> <p>3) User enters user password in user password text field.</p> <p>4) User click on login button.</p> <p>5) user can see the respective users form.</p>
	<p>Alternate flow</p> <p>1) User will click on exit button.</p>
Register	<p>1) User welcome with welcome form.</p> <p>2) User Clicks on skip button.</p> <p>3) Welcome form will redirect to main form.</p>
	<p>Alternate flow</p> <p>1) User is welcome with welcome form.</p> <p>2)User enters a user name.</p> <p>3) User enters a Contact number.</p> <p>4)User clicks on register button.</p> <p>5)Register form sends customer information to register.cs.</p> <p>6)Register.cs stores information to Database.</p> <p>7)Register sends registration complete successfully to the welcome form.</p> <p>8)Welcome form will be redirected to the main form.</p>
View Menu	<p>1) User will select click on respective button menu, top rated menu, calories.</p> <p>2) If user click on menu button.</p> <p>3) User will see the Current menu.</p> <p>4) After selecting menu user clicks on add to list button.</p> <p>5) User will see the my order form.</p> <p>6) If user click on confirm button Bill information will be displayed.</p> <p>7) User will click on submit button he/she will be logout from the session.</p> <p>8) User can give the real time feedback to the system.</p>
Order	<p>1) User will select menu form lidt and user clicks a add to list button.</p> <p>2)User will the my menu form.</p>
Update Order	<p>1) User clicks on Confirm button User will see the bill.</p> <p>2) Then User will click on submit button.</p>

Continued on next page

Table 5.1 – continued from previous page

USE CASE	USE CASE SCENARIO
	3)User can give the real time feedback to the system
Cancel Order	<p>1) User clicks on Cancel button User will see the cancel form.</p> <p>2) User clicks on yes button he/she will be logout from the session</p> <p>Alternate flow</p> <p>1) User click on no button he/she will be redirected to the my order form.</p>
Update Order	1) User clicks on Add / Delete button he/she will be send Menu form.
Add Menu	<p>1)Administrator will see the add menu form.</p> <p>2)Administrator will type item name in item name text field.</p> <p>3)Administrator will type item description in item description text field.</p> <p>4) Administrator will type item price in item price text field.</p> <p>5) Administrator will click on save button.</p>
Feedback	1) After confirm order user give real time feedback in feedback in text field.
Billing	<p>1)Administrator will open Billing form.</p> <p>2)Administrator will get the order from customer.</p> <p>3)Administrator will calculate bill as well as he can give discount to cust.</p> <p>4) Administrator will save bill in database and show to customer.</p>

TABLE 5.1: Use Case Scenarios

5.6 Sequence Diagram

5.6.1 Contents

Sequence Diagram Commonly Contains

- Objects
- Links
- Messages

5.6.2 Definition And Overview

A *sequence* diagram is an interaction diagram that emphasizes the time ordering of messages. A sequence diagram shows a set of objects and the messages sent and received by those objects. The objects are typically named or anonymous instances of classes, but may also represent instances of other things, such as collaborations, components, and nodes. You use sequence diagrams to illustrate the dynamic view of a system. An Actor models a type of role played by an entity that interacts with the subject (e.g., by exchanging signals and data), but which is external to the subject (i.e., in the sense that an instance of an actor is not a part of the instance of its corresponding subject). Actors may represent roles played by human users, external hardware, or other subjects. Note that an actor does not necessarily represent a specific physical entity but merely a particular facet (i.e., "role") of some entity that is relevant to the specification of its associated use cases.

Sequence diagram have two features that distinguish them from collaboration diagrams.

- First, there is the object lifeline. An object lifeline is the vertical dashed line that represents the existence of an object over a period of time. So these objects are at the top of the diagram. With their lifelines drawn from the top of the diagram to the bottom
- Second, there is the focus of control. The focus of control is a tall, thin rectangle that shows the period of time during which an object is performing an action, either directly or through a subordinating procedure. The top of the rectangle is aligned with the start of the action; the bottom is aligned with its completion and also it can be marked by replay message.

5.6.3 Sequence Diagrams

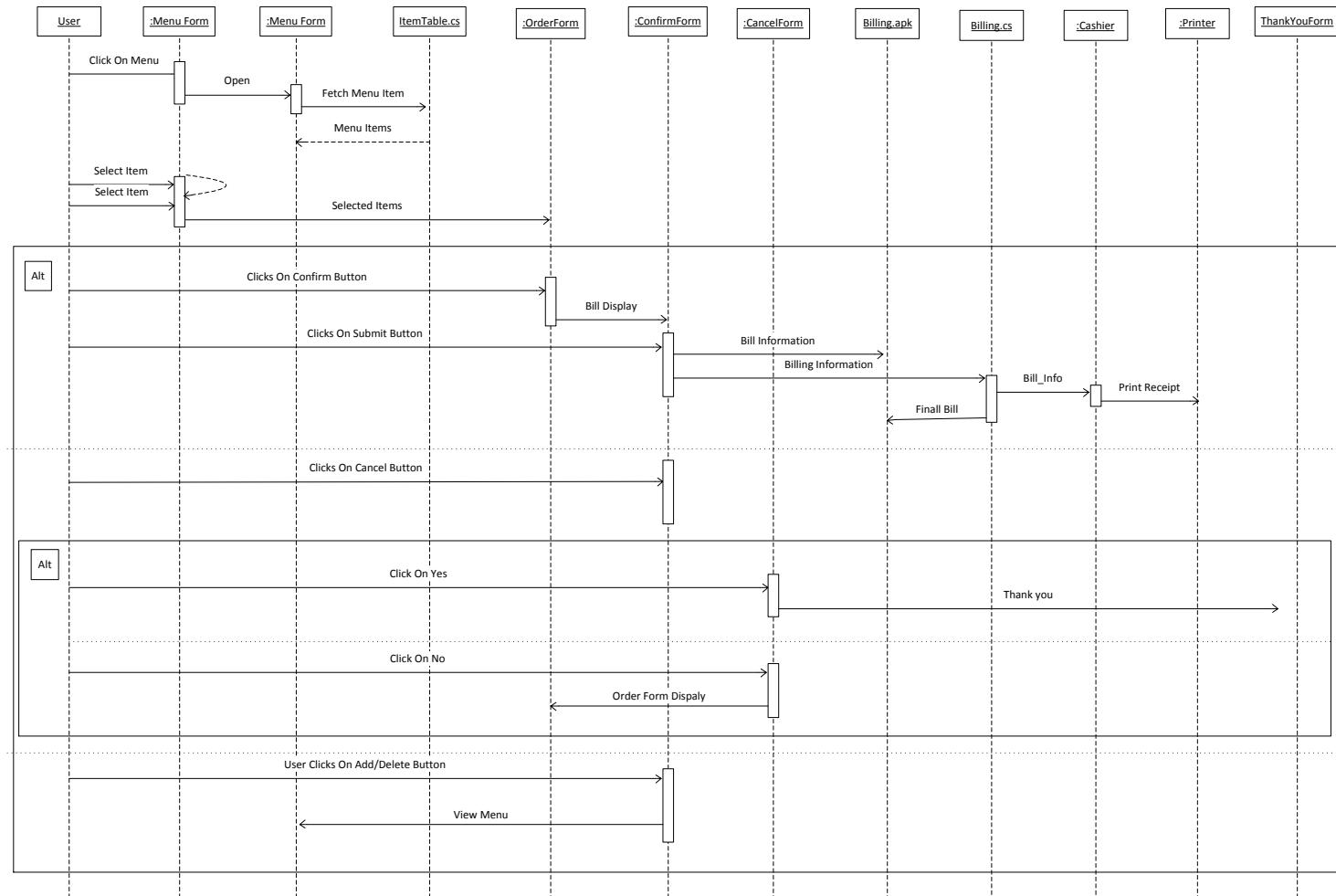


FIGURE 5.4: Sequence Diagram For Order of Digi-Restaurateur..

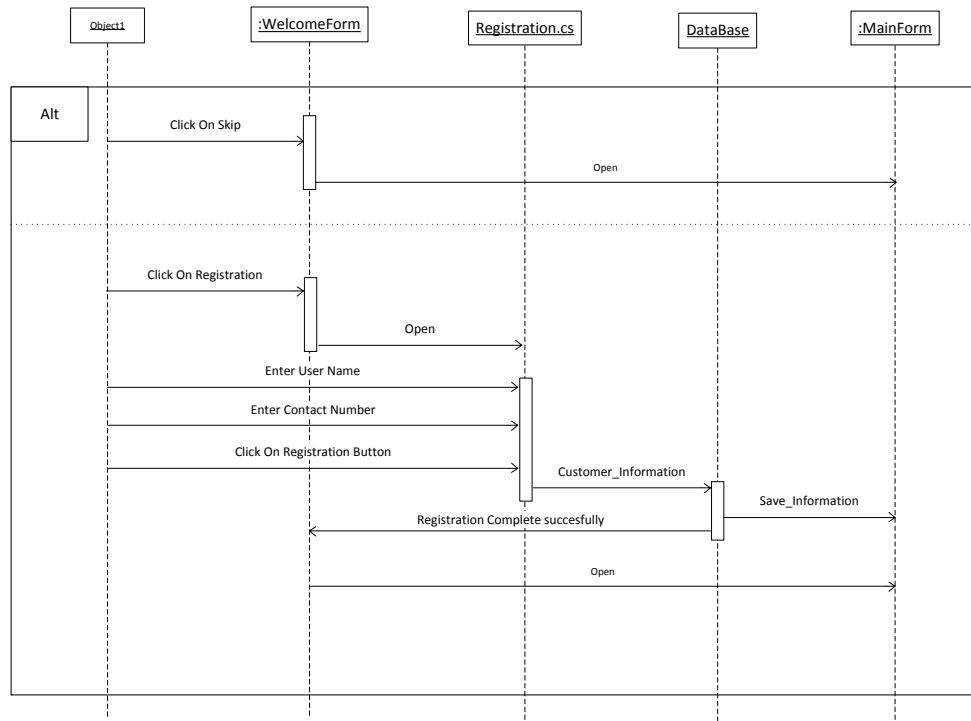


FIGURE 5.5: Sequence Diagram For Login Into The Tablet of Digi-Restaureur

5.7 Class Diagram

5.7.1 Contents

Class diagram commonly contain the following things:

- Classes
- Interfaces
- Collaborations
- Dependency, generalization, and association relationships.

5.7.2 Definition and Common Uses

A class diagram is a diagram that shows a set of classes, interfaces and their relationships. Graphically, a class diagram is a collection of vertices and arcs. A class diagram will share the same common properties as do all other diagrams. A class diagram is an

illustration of the relationships and source code dependencies among classes in the Unified Modeling Language (UML). In this context, a class defines the methods and variables in an object, which is a specific entity in a program or the unit of code representing that entity. Class diagrams are useful in all forms of object-oriented programming (OOP). The concept is several years old but has been refined as OOP modeling paradigms have evolved. In a class diagram, the classes are arranged in groups that share common characteristics. A class diagram resembles a flowchart in which classes are portrayed as boxes, each box having three rectangles inside. The top rectangle contains the name of the class; the middle rectangle contains the attributes of the class; the lower rectangle contains the methods, also called operations, of the class. Lines, which may have arrows at one or both ends, connect the boxes. These lines define the relationships, also called associations, between the classes.

- Class: A definition of objects that share given structural or behavioral characteristics.
- Attribute: A typed value attached to each instance of a classifier.
- Operation: A method or function that can be performed by instances of a classifier

5.7.3 Class Diagram

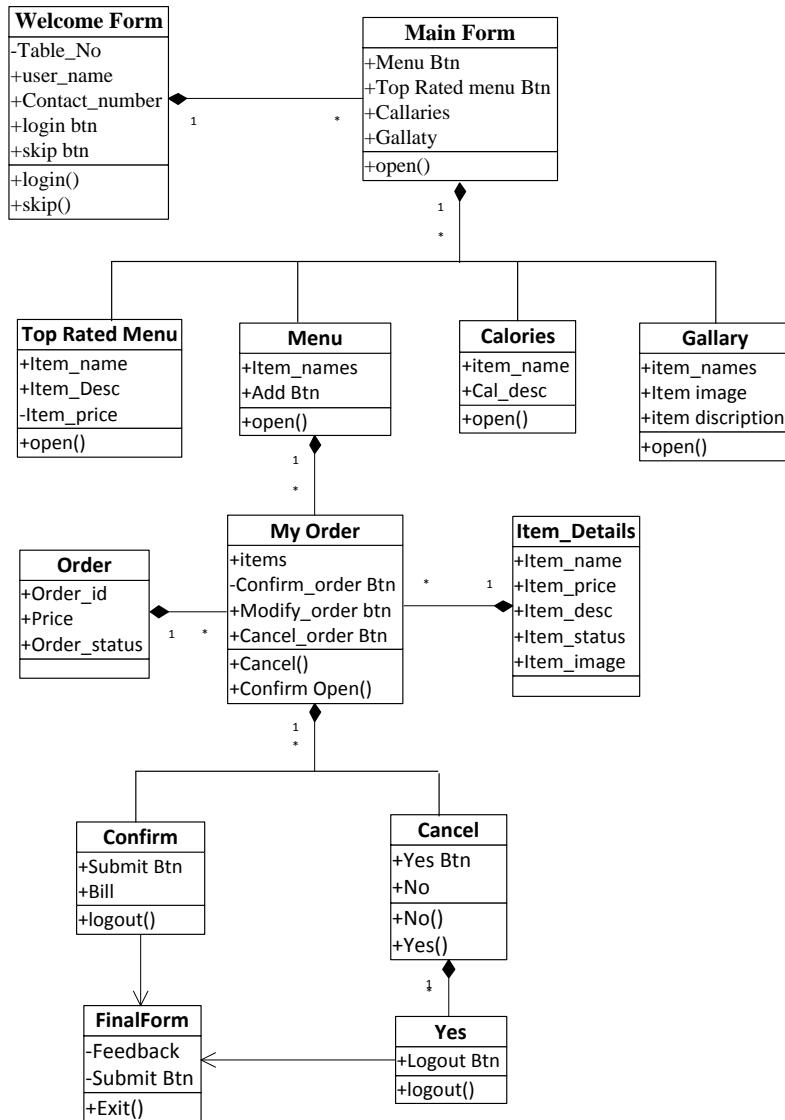


FIGURE 5.6: Class Diagram of Digi-Restaureur

5.8 Deployment Diagram

5.8.1 Definition

A deployment diagram shows the configuration of run time processing nodes and the components that live on them. Deployment diagram address the static deployment view of architecture. They are related to component diagrams in that a node typically encloses one or more components .

5.8.2 Nodes and Components

The UML provides a graphical representation of node. This canonical notation permits you to visualize a node apart from any specific hardware. Using stereotype this notation to represents specific kinds of processors and devices.



FIGURE 5.7: Node

A *node* is a physical element that exists at run time and represents a computational resource, generally having at least some memory, and often processing capability. Graphically, a node is rendered as a cube. Every node must have a name that distinguishes it from other nodes. A name is a textual string. Components are things that participate in the execution of a system; nodes are things that execute components. Components represent the physical packaging of otherwise logical elements; nodes represent the physical development of components and components that things are executed by nodes. The UML can often use stereotypes to specify new kinds of nodes that you can use to represent specific kinds of processors and devices. A *Processor* is a node that has processing capability, meaning that it can be executed by component. A *device* is a node that has no processing capability and general, represents something that interfaces to real world.

5.8.3 Deployment Diagram

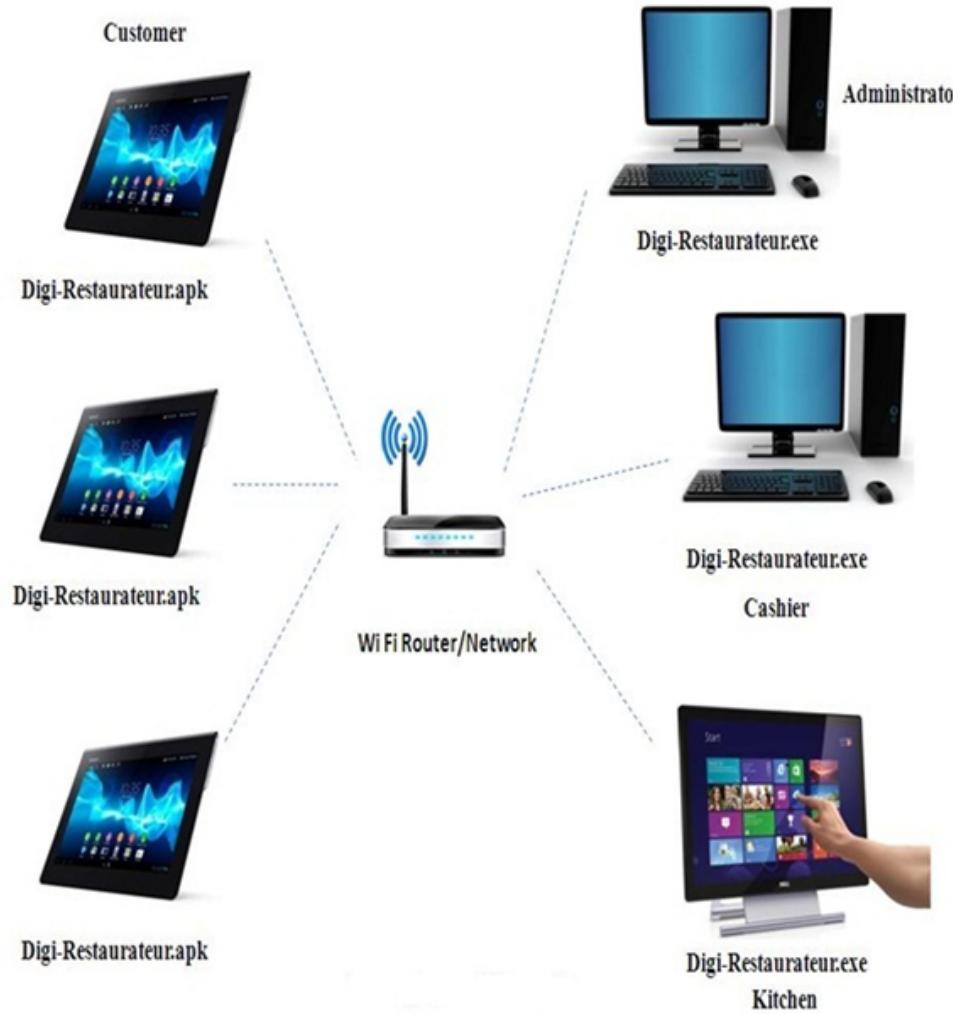


FIGURE 5.8: Deployment Diagram For Digi-Restaureur Using Processors and Devices.

Chapter 6

Coding

6.1 Introduction of Tools And Installation

6.1.1 Android

There's no other software quite like Android. Google engineered Android, and Google own apps run better on it. And with millions of apps, games, songs, and videos on Google Play, Android is great for fun, and for getting things done.

Android devices come in all kinds of sizes, with all sorts of features, and in all sorts of prices. Each version of Android is named after a dessert, and the most recent version of Android is lolipop. With Android, you are in control of your mobile experience.

The world is contracting with the growth of mobile phone technology. As the number of users is increasing day by day, facilities are also increasing. Starting with simple regular handsets which were used just for making phone calls, mobiles have changed our lives and have become part of it. Now they are not used just for making calls but they have innumerable uses and can be used as a Camera , Music player, Tablet PC, T.V. , Web browser etc. And with the new technologies, new software and operating systems are required.

- What is android

Operating Systems have developed a lot in last 15 years. Starting from black and white phones to recent smart phones or mini computers, mobile OS has come far away. Especially for smart phones, Mobile OS has greatly evolved from Palm OS in 1996 to Windows pocket PC in 2000 then to Blackberry OS and Android[?] .

- ADT Bundle

The Android SDK is a software development kit which provides API libraries and necessary developer tools necessary for building Android application's. Android SDK is officially provided by android developers.

Steps for the installation and set-up of Android development environment:

1. Download Eclipse
2. Download JDK and install it, set the environment path.
3. Download ADT plugin inside Eclipse.
4. Set the Preference with Android-SDK path.
5. Download the latest platform-tools and everything.

The ADT Bundle includes everything you need to begin developing apps:

1. Eclipse + ADT plugin
2. Android SDK Tools
3. Android Platform-tools
4. The latest Android platform
5. The latest Android system image for the emulator

Yes there are also possible ways if you want to use existing version of Eclipse or any other IDE.

- **Setting Up the ADT Bundle:**

As you have downloaded ADT bundle, follow below steps to setup it:

1. Unpack the ZIP file named “adt bundle osplatform.zip ” and save it to an appropriate location such as a “Development” directory in your home directory.
2. Open the adt bundle osplatform goto eclipse and next directory and launch eclipse.

6.1.2 XAMPP Installation Steps

1. Download the software from apachefriend website.

Select the Installer option under the Basic Package. You may be taken to a page that presents you with a bunch of different download locations. Just click one of the download buttons, and then save the file to your desktop. Once downloaded, the installer works like most Windows installers.

2. In Internet Explorer, you may get a warning about downloading the file. Click the yellow information bar that appears above the Web page in IE, and choose Download File

3. Double-click the .exe file you downloaded.

A window opens, asking you to select the language you would like to use.

If a warning dialog appears click the "Allow" option to install XAMPP.

4. Choose a language from the menu, and then click OK.

A Setup Wizard window appears, ready to step you through the setup process.

5. Click the Next button.

The installer suggests putting the application on your main drive at C, You can pretty much install it anywhere.

6. Click the Next button once again.

The XAMPP Options window appears. In most cases, its fine to leave all the windows checkboxes just as you see.

7. Click Install.

The installer places all the files onto your system. This process takes a while, since a lot of programs and files are being installed.

8. Finally, click the Finish button.

A window appears “congratulating” you way to double-click the installer program and asking whether you wish to start the XAMPP Control panel.

9. Click Yes, to open the XAMPP Control Panel .

The XAMPP Control Panel lets you start and stop the Apache Web server and MySQL database server.

10. If the buttons to the right of Apache and MySQL say Start, click them to start the Web server and the MySQL database server.

11. To do so, launch a Web browser, and, in the Location bar and type localhost.

6.1.3 PHP

PHP (recursive acronym for **PHP**: *Hypertext Preprocessor*) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

PHP is probably the most popular scripting language on the web. It is used to enhance web pages. With PHP, you can do things like create a username and password login pages, check details from a form, create forums, picture galleries, surveys, and a whole lot more.

PHP is known as a server-sided language. That's because the PHP doesn't get executed on your computer, but on the computer you requested the page from. The results are then handed over to you.

The most popular explanation of just what PHP stands for is "Hypertext Pre-processor". But that would make it HPP, surely? An alternative explanation is that the initials come from the earliest version of the program, which was called Personal Home Page Tools. At least you get the letters "PHP" in the right order!

- **What is a PHP File**

- PHP files can contain text, HTML, CSS, JavaScript, and PHP code
- PHP code is executed on the server, and the result is returned to the browser as plain HTML
- PHP files have extension "PHP".

- **What Can PHP Do**

- PHP can generate dynamic page content
- PHP can create, open, read, write, and close files on the server
- PHP can send and receive cookies
- PHP can add, delete, modify data in your database.
- With PHP you are not limited to output HTML. You can output images, PDF files, and even flash movies. You can also output any text, such as XHTML and XML.

- **Why PHP**

- PHP runs on various platforms like Windows, Linux, Unix, Mac OS X, etc.
- PHP is compatible with almost all servers used today Apache, Apache Tomcat, IIS, etc.

- PHP supports a wide range of databases
- PHP is free. Download it from the official PHP resource website.

6.1.4 MySQL

MySQL, the most popular Open Source SQL database management system, is developed, distributed, and supported by Oracle Corporation. The MySQL official web site www.mysql.com provides the latest information about MySQL software.

- MySQL is a database management system.

A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or the vast amounts of information in a corporate network. To add, access, and process data stored in a computer database, you need a database management system such as MySQL Server. Since computers are very good at handling large amounts of data, database management systems play a central role in computing, as standalone utilities, or as parts of other applications.

- MySQL databases are relational.

A relational database stores data in separate tables rather than putting all the data in one big storeroom. The database structures are organized into physical files optimized for speed. The logical model, with objects such as databases, tables, views, rows, and columns, offers a flexible programming environment. You set up rules governing the relationships between different data fields, such as one-to-one, one-to-many, unique, required or optional, and “pointers” between different tables. The database enforces these rules, so that with a well-designed database, your application never sees inconsistent, duplicate, orphan, out-of-date, or missing data. The SQL part of “MySQL” stands for “Structured Query Language”. SQL is the most common standardized language used to access databases. Depending on your programming environment, you might enter SQL directly for example, to generate reports, embed SQL statements into code written in another language, or use a language-specific API that hides the SQL syntax.

- MySQL software is Open Source.

Open Source means that it is possible for anyone to use and modify the software. Anybody can download the MySQL software from the Internet and use it without paying anything. If you wish, you may study the source code and change it to suit your needs. The MySQL software uses the GPL for GNU General Public License, to define what you may and may not do with the software in different situations.

- The MySQL Database Server is fast, reliable, scalable and easy to use.

MySQL Server can run comfortably on a desktop or laptop, alongside your other applications, web servers, and so on, requiring little or no attention. If you dedicate an entire machine to MySQL, you can adjust the settings to take advantage of all the memory, CPU power, and IO capacity available. MySQL can also scale up to clusters of machines, networked together. MySQL Server was originally developed to handle large databases much faster than existing solutions and has been successfully used in highly demanding production environments for several years. Although under constant development, MySQL Server today offers a rich and useful set of functions. Its connectivity, speed, and security make MySQL Server highly suited for accessing databases on the Internet.

Steps to Install MySQL

1. MySQL Workbench for Windows can be installed using the MySQL Installer that installs and updates all MySQL products on Windows, the standalone .msi installation package, or manually from a Zip file.
Important installing MySQL Workbench using an Installer package requires either Administrator or Power User privileges.
2. MySQL Workbench can be installed using the Windows Installer (.msi) installation package.
3. To install MySQL Workbench, rightclick the MSI file and select the Install item from the pop-up menu, or double-click the file.
4. In the Setup Type window you may choose a Complete or Custom installation. To use all features of MySQL Workbench choose the Complete option.
5. Unless you choose otherwise, MySQL Workbench is installed default location on c drive.

6.1.5 Visual Studio 10

Prerequisite to install visual studio 2010:

- Disable anti-virus or anti-spyware software
- Close all of your running software
- If you are using windows xp make sure it is service pack 3

- If you install other than windows xp make sure it is service pack 2 or more
- 1 GB RAM
- 3 GB of Hard disk space

Step by Step installation:

Lets start to install visual studio 2010. Here I will install visual studio 2010 Ultimate Edition. You can install it from hard disk or DVD ROM. If you install it from DVD ROM, visual studio 2010 will run automatically. I am installing it from my hard disk.

1. Double click on setup.exe
2. After clicking setup.exe file, Click Install Microsoft Visual Studio 2010.
3. Click next to start installation.
4. button I accept the license term.
5. Select the features that you want to install and the path you want to install visual studio 2010. If you don't select path it will install in default location. You can select either Full or Custom features. If you select custom you have to select features which you want to install.
6. Then the setup will start to install its components.
7. Reboot your computer. To complete installation you may have to reboot your computer for one or twice.
8. After the rebooting, the setup will start again.
9. The setup starts to install the rest of the components.
10. The installation complete.

6.2 ISSUES

• Database Connectivity with MSSQL Server 2005

1. First we chose the sql server 2005 for database. We want to connect our c# front end with sql server 2005.
2. We were using xampp, Apache as server for php file which will connect to sql server database and retrieve data and display it on customer side on tablet. But the main problem in connectivity between php and sql server is the file “**php_mssql.dll** ” missing.

3. We search it on different site for download but did not get the particular version. The issue is It announced from php website
4. <http://php.net/manual/en/intro.mssql.php>.These functions allow you to access MS SQL Server database.This extension is not available anymore on Windows with PHP 5.3 or later.
5. Since XAMPP 1.8.0 its used PHP 5.4.4 and php_mssql.dll extension is not available anymore on windows with PHP 5.3 or later. So you can not use this library to our new XAMPP although we get it from your old XAMPP
6. PHP version from XAMPP 1.8.3 is PHP 5.5.15,So we change the database to MySql Which is the most popular Open Source SQL database management system.
7. So se directly connect with our database with the function “mysql_connect”.

- **Bill Printing**

1. We use crystal report for printing the bill on administrator side.
2. For that we install Crystal Report for Visual Studio10.But we got the error “could not load file or assembly crdb_adoplus.dll or one of its dependencies”.

- **Installation apk**

We face one more issue for tablets. Because of repeatedly installing the application the memory got blocked, got some problem so thatâŽs why our application stop unfortunately. The solution is factories reset the tablet and then install the application.

- **WIFI Network**

We require strong wifi network, because less range of diss-connectivity connection get loss, the order will not going to reach to server from client, client will not got the all current menus on tablet.

- **Firewall**

The firewall is next obstacle, if firewall is off then again connectivity issue arises. Go to control panel type firewall in search window. Go to “windows firewall” option. On left side there is option “Turn windows firewall on or off” click on it. Select the radio button for “Turn on firewall”.

- **IP Adress**

The three system administrator, cashier, chef must have static ip address. We use “192.168.0.65” All client connect with this ip address only. Other 2 system also have static ip address. All system should be in same subnet mask also.

- **Text Sending And Receiving Problem**

1. We save the menu in our database for example “Aloo Ki Tikki” which contain space in between two words. So when fetching the data from tablet it break the connection because of the spaces also when sending feed back from tablet to database.
2. It again break the connection so we find one solution that is we replace the space with “_” the function is replaceAll.

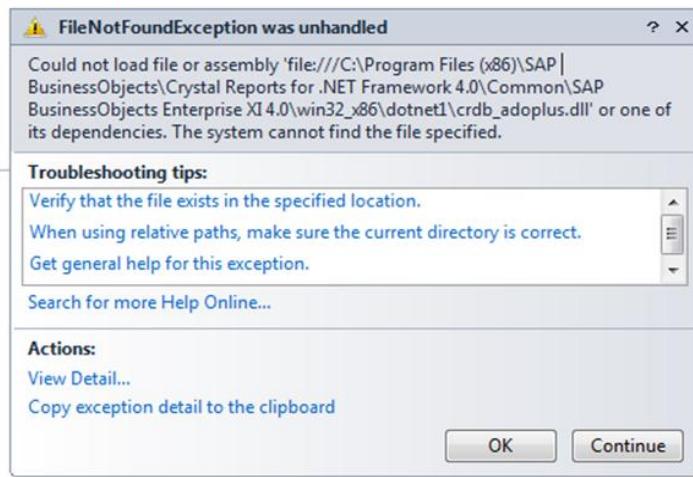


FIGURE 6.1: FileNotFoundException Error

The solution is edit app.config file and type this code:

```
<startup useLegacyV2RuntimeActivationPolicy = "true" >
<supportedRuntime version = "v4.0" sku = ".NETFramework, Version = v4.0" />
</startup>
</configuration>
```

6.3 Snippets

6.3.1 Login Window

Here we connect login form with the MySQL database which contains the users table. That table contain all the users username,password. We take input from the user the username and password. When user click on Login button it is checked that user is valid or not. If he is valid then respective user form will be displayed.

```
{
    string user1 = "ADMINISTRATOR";
    string user2 = "CHEF";
    string user3 = "CASHIER";
    string type = "";
    connection.Open();

    string CmdString = "select * from digidatabase.users where
        user_name=" + txtLName.Text + ' and user_password=' +
        txtLPassword.Text + "'";

    MySqlDataAdapter sda = new
    MySqlDataAdapter(CmdString, connection);
    DataSet ds = new DataSet();
    sda.Fill(ds, "users");
    if (ds.Tables[0].Rows.Count > 0)
    {
        type= ds.Tables[0].Rows[0][3].ToString();
        MessageBox.Show("+" + type);
    }
    else
    {
        MessageBox.Show("Invalid User... ");
    }
    connection.Close();
    if (type.ToUpper() == user1)
    {
        Dashboard g = new Dashboard();
        g.Show();
    }
    else if(type.ToUpper() == user2)
    {   currentorder co = new currentorder();
```

```

        co . Show () ;
    }
    else if ( type . ToUpper () == user3 )
    {
        cashier c = new cashier () ;
        c . Show () ;
    }
    txtLName . Text = "" ;
    txtLPassword . Text = "" ;
    type = "" ;
}

```

6.3.2 Add Menu Form

Add Button: From this form we insert the particular menu into our database. User will put respective data into particular textbox and click on add menu button.

```

private void add_Click ( object sender , EventArgs e )
{
    try
    {
        connection . Open () ;

        string query = "insert into itemtable values (" + itemid +
                      "," + txtCatId . Text + "," + txtItemName . Text + "," +
                      txtItemPrice . Text + "," + txtItemDesc . Text + "," +
                      txtItemStatus . Text + ")" ;

        MySqlCommand cmd = new MySqlCommand ( query ,
connection ) ;
        cmd . ExecuteNonQuery () ;

        clear () ;
        MessageBox . Show ("1 Menu added into
Database . . ." ) ;
        connection . Close () ;
autoCatid () ;
    }
    catch ( Exception e1 )

```

```

    {
        MessageBox.Show("error");
        connection.Close();
    }
}

```

6.3.3 Customer side login

User must put name,contact number in respective textbox and click on register button it will call a constructor of Remote Data file which connect with server database and make entry of user into customertable.

```

public void onClick(View v)
{
    tbl=etxTableNumber.getText().toString();
    UserName=etxUserName.getText().toString();

    Contact=etxContact.getText().toString();
    if(macid.equals("100")==true)
    {

        if(etxContact.length()==10==true)
        {
            int ii=0;
            new
            Remote_Data(getApplicationContext(),etxUserName,etxContact).execute(""
                Intent i=new
                Intent(MainActivity.this,homepanel.class);
                startActivity(i);
            }
            else
            {
                Toast.makeText(MainActivity.this,"NO",
                Toast.LENGTH_LONG).show();
            }
        }
    }
}

```

```

        {
        Toast.makeText(MainActivity.this, "invalid tablet",
        Toast.LENGTH_LONG).show();
    }
}
);

```

6.3.4 Skip Registration

User want to skipp the registration then click onskippr button it will call a cunstructor of Remote Data file which connect with server database and make entry of user into customertable.

```

public void onClick(View v)
{
    if(macid.equals("100")==true)
    {

tbl=etxTableNumber.getText().toString();
skip=100;
String
skipname="Table".concat(etxTableNumber.getText().toString());
String skipcon="0";
int s=1,k=1;
new
Remote_Data(getApplicationContext(),skipname,skipcon,s,k).execute("");
Intent i=new
Intent(MainActivity.this,homepanel.class);
startActivity(i);
Toast.makeText(MainActivity.this, "welcome to
insert",5).show();
}
else
{
Toast.makeText(MainActivity.this,"invalid tablet",
Toast.LENGTH_LONG).show();
}
}
);

```

6.3.5 Remote File code

Here the respective constructor is called by matching the parameters.

```

public Remote_Data(Context context ,EditText etxt1 ,EditText
etxt2)
{
    this.context=context;

    thisetxt1=etxt1;
    thisetxt2=etxt2;

    a="userreg";

}

public Remote_Data(Context context ,String strUserName ,String
strUserCon ,int s ,int p)
{
    this.context=context;
    this.strUserName=strUserName;
    this.strUserCon=strUserCon;
    a="skipreg";

}

@Override
protected String doInBackground(String... arg0)
{
    // TODO Auto-generated method stub

    try {
        if(a=="userreg")
        {
            String strName=
etxt1.getText().toString().replaceAll("\s+","_");
            String
con=etxt2.getText().toString();

strLink =
"http://192.168.0.65/registration.php?name="+strName+"&contact="
+MainActivity.Contact.toString();
            url = new URL(strLink);
        }
    } catch (Exception e) {
        e.printStackTrace();
    }
}

```

```

        client = new DefaultHttpClient();
        request = new HttpGet();
        request.setURI(new URI(strLink));
        response = client.execute(request);

    }

else if(a=="skipreg")
{
    String strUserName1=
strUserName.toString().replaceAll("\s+","_");
    String
strUserCon1=strUserCon.toString().replaceAll("\s+","_");
    strLink =
"http://192.168.0.65/registration.php?name="+strUserName1+"&contact>"+
strUserCon1;
    url = new URL(strLink);
    client = new DefaultHttpClient();
    request = new HttpGet();
    request.setURI(new URI(strLink));
    response = client.execute(request);
}

catch (Exception e)
{
    return new String("Exception: " +
e.getMessage());
}

```

6.3.6 PHP Code

1)Load All category:-

This is code for selecting all the menu and categories from server database and carry all the data to android tablet of customer and insert into local database.

```

<?php

// Connect to the database (hostname , username , password)
$cont = mysql_connect('192.168.0.65','root','')

```

```

        or die('Could not connect to the server!');

// Select a database:
mysql_select_db('digidatabase')
    or die('Could not select a database.');

$count=0;
$SQL = "SELECT * FROM digidatabase.category";
// Execute query:
$result = mysql_query($SQL)
    or die('A error occured: ' . mysql_error());

// Get result count:
$Count = mysql_num_rows($result);
$i=0;
$c=0;
$countrow=0;
// Fetch rows:
while ($Row = mysql_fetch_assoc($result)) {
    $flag['cat_id'][$i]=$Row['cat_id'];
    $flag['cat_name'][$i]=$Row['cat_name'];
    $i++;
}

$flag['countrow']=$i;
print(json_encode($flag));
mysql_close($cont);?>

```

2) Select all menu:-

```

<?php

// Connect to the database (hostname, username, password)
$cont = mysql_connect('192.168.0.65','root','');
    or die('Could not connect to the server!');
// Select a database:
mysql_select_db('digidatabase')
    or die('Could not select a database.');
$countrow=0;
$SQL = "SELECT * FROM digidatabase.itemtable";

```

```
// Execute query:  
$result = mysql_query($SQL)  
or die('A error occured: ' . sql_error());  
  
// Get result count:  
$Count = mysql_num_rows($result);  
$i=0;  
$c=0;  
$countrow=0;  
// Fetch rows:  
while ($Row = mysql_fetch_assoc($result)) {  
  
    $flag['item_id'].$i]=$Row['item_id'];  
    $flag['cat_id'].$i]=$Row['cat_id'];  
    $flag['item_name'].$i]=$Row['item_name'];  
    $flag['item_price'].$i]=$Row['item_price'];  
  
    $flag['item_discription'].$i]=$Row['item_discription'];  
    $flag['item_status'].$i]=$Row['item_status'];  
    $i++;  
}  
$flag['countrow']=$i;  
  
print(json_encode($flag));  
mysql_close($cont);  
?>
```

Chapter 7

TESTING

7.1 What Is Software Testing

Software testing is the process of analyzing or operating software for the purpose of finding bugs. Testing can be described as a process used for revealing defects in software, and for establishing that the software has attained a specified degree of quality with respect to selected attribute. The fundamental objective of testing is to find defects as early as possible and get them fixed.

Software Testing Process

- Test Planning high level plans which list test objectives, test approach, measurement criteria along with test schedule and resources.
- Test Design create test cases, identify test cases for automation(if applicable),prioritize test cases and finalize test iterations.
- Test Implementation Create test scripts using automated testing tools.
- Test Execution Execute the test cases on the test environment and test reports.
- Test analysis Use test and project metrics to calculate key indicators. The data usually will be obtained from your defect tracking system.
- Postmortem reviews Discuss lessons learns and identify strategies which will prevent such problems in future.

7.2 Test methods

7.2.1 Black Box Testing

It is also called as functional testing, it is the process of giving the input to the system and checking the output of the system. Without bothering about the system that how the system generates the output. It is also called as Behavior testing.

- Approach to testing where the program is considered as a Black Box.
- Testing based solely on analysis of requirements user specification, user documentation etc.
- The test cases are based on the specifications.
- Black box testing techniques apply to all levels of testing.
- Test planning and design can begin early in the software process.
- Tests are done from a users point of view.

7.2.2 White Box Testing

White box testing or structural testing considers facets like programming style, control method, source language, database design. A test for remote monitoring routine can be an example of structural test. This type of testing helps to uncover defects at structural level. The tests go below the top or functional layer to uncover the defects.

- Testing that takes into account internal structure and flow of a system or component.
- The testing is based on code structure or the algorithm.
- White box testing assumes that the procedural design and code is known to the tester.
- Obviously test design can be done only after coding is complete.
- White box tests are inherently finite.

7.3 Test Cases and Test Data

- Test data are inputs that have been devised to test the system.
- Test cases are inputs and output specification plus a statement of the function under test.
- Test data can be generated automatically or real.

7.3.1 Test Cases

TC ID	OBJECTIVE	PREREQUISITES	STEPS TO BE FOLLOWED	EXPECTED RESULT	ACTUAL RESULT	REMARK
1	Login into the application	User Must be login	1.User Should be enter the correct user name. 2.User should be fill the password in the password field. 3.Click on login button	The Application will give an authorized access.	Granted the permissions and login successfully.	Pass
2	Login into the application	User Must be login	1.User Should be enter the incorrect user name. 2.User should be fill the password in the password field. 3.Click on login button	The Application will not give an access to login.	Check user name and password to login successfully	Pass
3	Login into the application	User Must be login	1.User Should be enter the correct user name. 2.User should be fill the wrong password in the password field. 3.Click on login button	The Application will not give an access to login.	Check user name and password to login successfully	Pass

Continued on next page

Table 7.1 – continued from previous page

TC ID	OBJECTIVE	PREREQUISITES	STEPS TO BE FOLLOWED	EXPECTED RESULT	ACTUAL RE-SULT	REMARK
4	Login into the application	User Must be login	1.User will be exit on the login window 2.Clicks on exit button	The login window will be terminated.	Abort it's current operation.	Pass
5	Add Menu module	To perform it's operation user must be click on this button	1.Click on add menu button to makes an operation	It opens the add menu form with details	It opens the add menu form	Pass
6	Add Menu module	Add the items	1.User should add any item in the application to fill all natural data 2.Enter the Name of Category 3.Enter the name of the item to include into the database. 4.Fill some item description 5.Clicks on the add menu button.	The item will be added into db successfully.	The record added	Pass
7	Add Menu module	Show particular item	1.User should be select any particular item.	The data will be shown successfully	The data pre-viewed with all information.	Pass

Continued on next page

Table 7.1 – continued from previous page

TC ID	OBJECTIVE	PREREQUISITES	STEPS TO BE FOLLOWED	EXPECTED RESULT	ACTUAL RE-SULT	REMARK
			2.Enter the item id into the text field. 3.Clicks on the select button to preview the data .			
8	Add Menu module	Update a particular item	1.User should be update any item which are added. 2.Enter the item id into the text field 3.Fill the changed data into the appropriate palce 4.Clicks on the update button.	The data will be update successfully	Data updated	Pass
9	Add Menu module	To delete an item	1.User should be delete any item which are added. 2.Enter the item id into the text field 3.Clicks on the delete button to vanish.	The data will be delete successfully.	Data deleted.	Pass
10	Add Menu module	To clear fields existing data must be available	1.Clears all the text filed. 2.User clicks on the clear button to clear.	The data will be cleared .	It clears all the fields	Pass

Continued on next page

Table 7.1 – continued from previous page

TC ID	OBJECTIVE	PREREQUISITES	STEPS TO BE FOLLOWED	EXPECTED RESULT	ACTUAL RE-SULT	REMARK
11	Add Category module	To perform it's operation user must be click on add category button on dashboard.	Clicks on add category button to perform it's operation.	It will be open the form	Form will be opened	Pass
12	Add Category module	Category should be added	1.User should be enter category name 2.Clicks on the add button.	The category name will be added successfully.	The category name is added.	Pass
13	Add Category module	Category name must be updated	1.User should be update its name of category. 2.Enter its category id into the text field. 3.Data will be previewed and make changes into them. 4.Clicks on update button	The data will be update successfully.	The data is updated.	Pass

Continued on next page

Table 7.1 – continued from previous page

TC ID	OBJECTIVE	PREREQUISITES	STEPS TO BE FOLLOWED	EXPECTED RESULT	ACTUAL RE-SULT	REMARK
14	Add Category module	Category name must be deleted	1.User should be delete	The record we'll be delete successfully.	The record is deleted.	Pass
15	View Menu module	Category must selected to see the items	1.To select an appropriate category name into the combo box. 2.When category selects the item will be displayed on data grid.	The all records will be fetch from the database successfully.	All records are retrieved.	Pass
16	View menu module	Status of the item	1.To check the menu item will be available or not.	The item will be change it's status.	The item status of the item is performed.	Pass
17	Current Order module	The orders must be come continuously	Orders should be added into the current orders.	To check the records will be added into this form simultaneously.	All the orders are come successfully.	Pass

Continued on next page

Table 7.1 – continued from previous page

TC ID	OBJECTIVE	PREREQUISITES	STEPS TO BE FOLLOWED	EXPECTED RESULT	ACTUAL RE-SULT	REMARK
18	Current Order module	The Order status must be changed	1. User should be checks the check box 2.Order status should be changed pending to billing.	The orders status will be changed	The orders will changed as complete	Pass
19	Billing Module	The orders status should be completed	1.Cashier should be see all completed records 2.Cashier should be check the check box to give bill 3.Selected order to give an print through print button.	The billing will be done successfully.	It print the bill.	Pass
20	Todays special order module	The special order details must exists into the database.	1.Enter the natural data to give an offer on any item 2.User clicks on the give offer button	The offer will be sends to the client.	The offer is send successfully.	Pass

TABLE 7.1: Test Cases

Chapter 8

DEPLOYMENT

8.1 Deployment Steps

Deployment is next important procedure. As we discussed in this system require 3 Computers , Some tablet,1 wifi router for connectivity and printer.

- One computer is used as administrator which having all the authority. It must have the operating system and required softwares as mentioned in Software requirement. Install Digi-Restaurateur.exe setup on this machine.
- Connect wifi router to this system and configure it. Administrator machine must have static IP address and password to system.
- After installation of setup you can refer Help Manual for getting knowledge about how to use it.
- Then for another system which is used by chef install Digi-RestaurateurChef.exe Setup.
- Connect this system to Administrator system through wifi router.
- The cashier system also having the required software as mention in software requirement. This system must connected with printer for printing the bill.
- Install Digi-RestaurateurCashier.exe on this machine. Connect this system with Administrator with help of wifi router.
- On tablet install Digi-Restaurateur.apk, then turn on the wifi and connect with administrator access point.

- Before customer come to restaurant the waiter should update the tablet with current menu and offers.

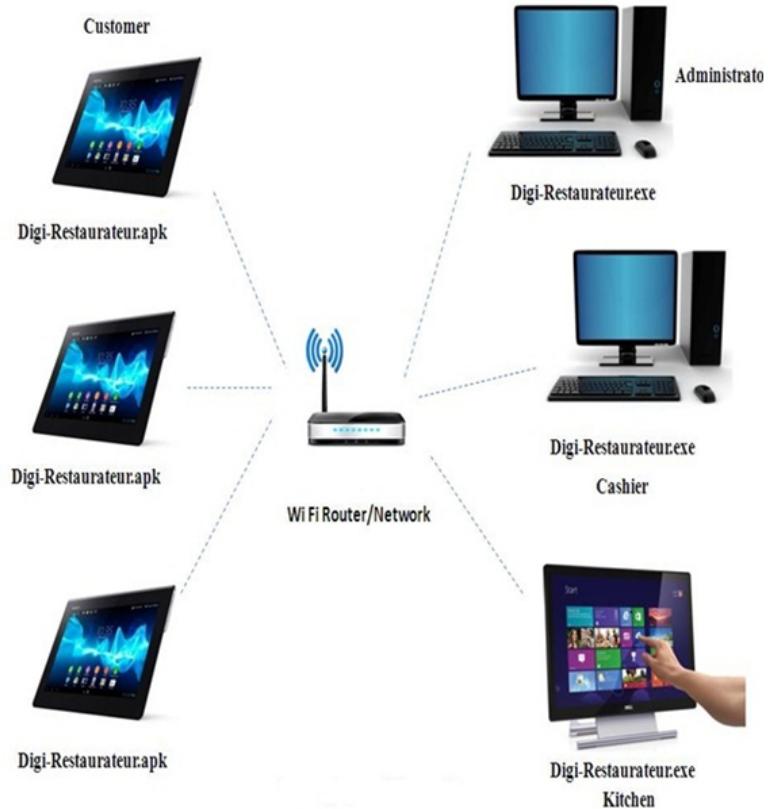


FIGURE 8.1: Actual Deployment of The Project

8.2 Server Side Snapshots

Login Window:-

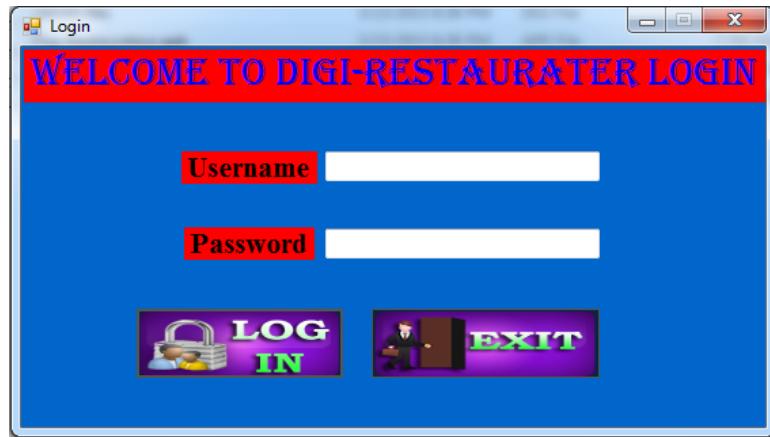


FIGURE 8.2: Login Window

1. First you have to login with your username and password.
2. Put them in respective text box and click on login button if they are correct then Dashboard will be displayed.

Dashboard:-



FIGURE 8.3: Dashboard

1. Dashboard is nothing but the Digi-Restaureur applications home page with this page we can move to any particular forms which are included into the administrator panel which has been controlled by administrator.

Add Menu:-

FIGURE 8.4: Add Menu

1. The Item id will be generated automatically.
2. Select the category within the combo box.ex.Veg,Non-Veg,Drinks.
3. Enter the item name in name textbox.
4. Enter the item price in price textbox.
5. Enter the short description of the item what the actually item will be.
6. Enter the status of the item as Available OR Not-Available.
7. Click on the add menu, it will be added into the database.

Update Item:

1. Enter the item id into the Item Id text field which has been provided in front of item id.
2. Click on select button it will retrieves the details of your required item.
3. Then we can modify the records and click on update button it will be saved into the database.

Delete Item:-

1. Enter the item id into the Item Id text field which has been provided in front of item id.

2. Enter the item id into Item Id the text field which has been provided in front of item id.
3. Click on delete button it will delete the particular record or item.

Clear Button:-

1. This will be used as clears the text fields to add new items.

Add Category:-

FIGURE 8.5: Add Category

1. The category id will be generated automatically.
2. Enter the category Name, ex.Veg, Non-Veg.
3. Click on add button, it will save into the database as well as this category will added into combo box when new item will be added.

Select/Update Category:-

1. Enter the category id into the text field which has been provided in front of category id.
2. Click on select button it will retrieves the details.
3. Then we can modify the records and click on update button it will be saved into the database.

Clear Button:-

1. This will be used as clears the text fields to add new category.

View Menu:-

FIGURE 8.6: View Menu

1. Modify or View menu panel is one of the important panel of the system which fetch all the records from the database according to category selection.
2. When we have to fetch a particular category menus, Select category from the combo box it is placed on top of the panel in Middle.
3. If we select the category it shows all the items included in that category .
4. In the data grid view has the check box by default the status has available if you check the box then status will be changed.
5. The Not-Available status menu can not seen by the customer on a tablet.

Current Orders:-

1. In current order panel it show which orders are coming through the customers they are seen by kitchen/chef.
2. If the chef has checked the check box of data grid view for particular item then it will be treated as that menu is complete and status is changed from Pending to Billing

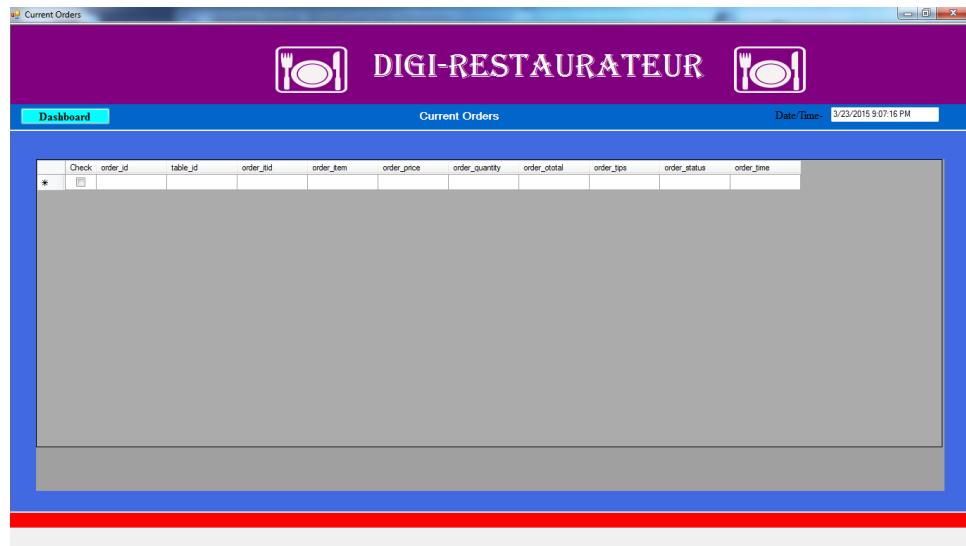


FIGURE 8.7: Current Orders

3. The completed order is subsequently send to the cashier to prepare the bill.

Current Menu:-

Column1	item_id	cat_id	item_name	item_price	item_description	item_status
▶	1	10	pavbhaji	50	Spicy	Available
	2	10	Aloo ki Tikki	30	Potatoes and pe...	Available
	3	10	Aloo methi	20	Potato, fresh Me...	Available
	4	10	Aloo baingan	35	spicy Aloo baingan	Available
	5	10	Baigan bharta	35	Baigan cooked ...	Available
	6	10	Baati	40	Ghee, Wheat flour	Available
	7	10	Bhindi Masala	45	Oks sauted wit...	Available
	8	10	Chast	35	Typical north Ind...	Available
	9	10	Chana masala	45	spicy Chana mas...	Available
	10	10	Chole bhature	40	wheat flour and ...	Available
	11	10	Daal Puri	45	Stuffed dal in par...	Available
	12	10	Dal makhani (Kali...	50	A typical type of...	Available
	13	10	Dal fry with tadka	50	Typical north Ind...	Available
	14	10	Dum Aloo	40	Potatoes cooked...	Available
	15	10	Gajar ka Halwa	55	A sweet dish	Available
	16	10	Kofta	35	Gram flour balls fr...	Available
	17	10	Paneer Tikka Ma...	60	Paneer with Tik...	Available
	18	10	Paratha	35	Wheat flour potat...	Available
	19	10	Rajma	35	Kidney beans & e...	Available
	20	10	AkkhaMasoor	65	Akkha masoor wit...	Available

FIGURE 8.8: Current Menu

1. It Display all currently available menu,administrator can make them not available by simply clicking on left side check box.

Billing:-

1. Billing window show all the completed orders of customer,Cashier can simply click on left side check box of respective customer and click on print button his/her bill will be displayed on new print window from there we can print the bill.

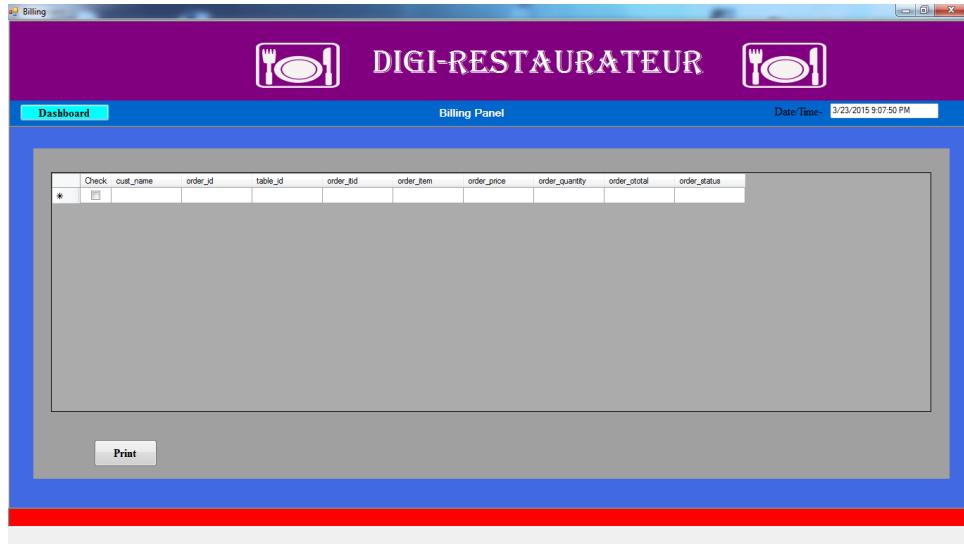


FIGURE 8.9: Billing

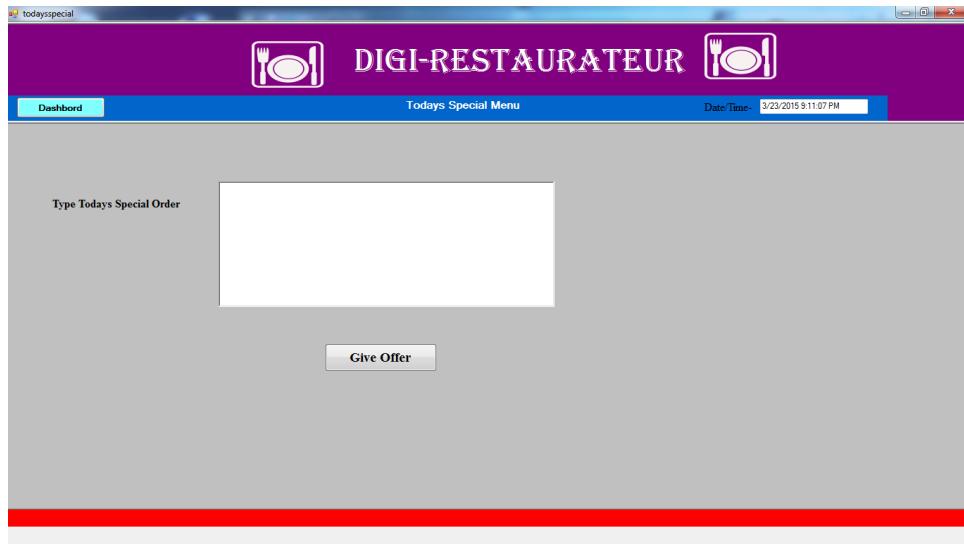
Todays Special:-

FIGURE 8.10: Todays Special

1. In this option a administrator can type todays special menu,order in the text box and click on Give Offer button so all the customer can see this offer on their tablet.

Customer Information: -

FIGURE 8.11: Customer Information

1. It contains all the customers data like customer name, contact number, visit count, feedback.
2. In customer information the customer visit count also recorded which is used to give discount.

Settings:- Click on the setting button. It opens the setting form which has two choices

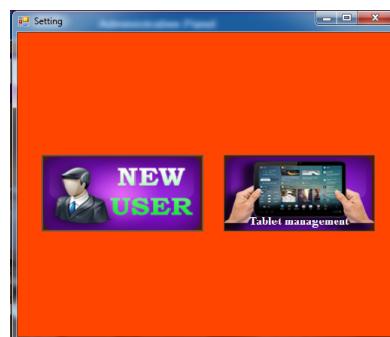


FIGURE 8.12: Settings With Our System

1. Add new user
2. Tablet management

Add New User:-

1. If we want to add the users in the system then we go to the new user form it will opens the user registration form.



FIGURE 8.13: Add New User

1. If we want to add the users in the system then we go to the new user form it will opens the user registration form.
2. User id will generate automatically.
3. Enter the name of the user who will use the system and the restaurant management.
4. Enter the password, it will provide privileges to the user as well as the users are identified as the authenticated person in the system.
5. Select the appropriate user type in combo box.(Ex.Administrator,Cashier,Chef)
6. Enter the E-Mail address for communication purpose.
7. Click it on add user.

Update User:-

1. Enter the User id into textbox to update that user details and press search button then all information is displayed..
2. If any existing user wants to any changes in the added record then we can update the user details.

Search User:-

1. Enter the User id to search any particular user details.

Delete User:-

1. Enter the User id into textbox to delete the user type in the system.
2. If any existing user wants to delete account then he/she can delete.

Show/Hide:-

1. If administrator want to see all the authorized users of system then click on show/hide button a login window will be appear. Login with username and password.
2. A table will be displayed all information of users.

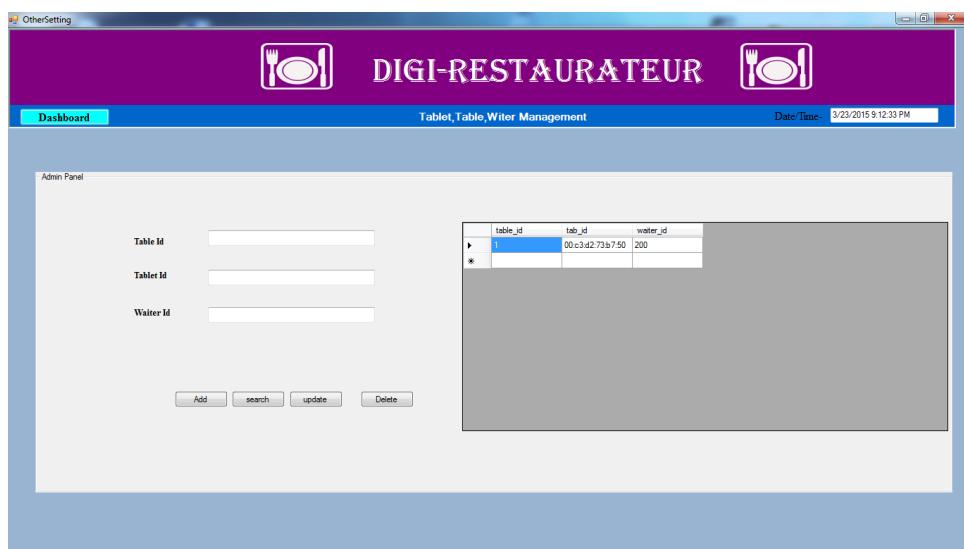
Tablet Management:-

FIGURE 8.14: Tablet Management

1. It will open the tablet, table and waiter management form.
2. Enter the Table Id, Tablet MAC ADDRESS, Waiter Id and clicks on the add button, It will added these records in system.
3. If administrator want to delete any tablet or table id in the system then he/she can delete the particular data in system. Enter table id in Table Id text box press delete button.

4. If administrator want to update any information then type Table Id in text box click on search button then make changes and press the Update button.

Bill:-

4/6/2015	DIGI-RESTAURATEUR BILL		
<u>cust_name</u>	Milind_Vadagave	<u>cust_contact</u>	9665407252
<u>table_id</u>	<u>order_item</u>	<u>order_price</u>	<u>order_quantity</u>
1	Pizza	50	1
		Total	65.00
		Discount	0.00
		Final Amount	65.00

FIGURE 8.15: Bill

1. This is final look of the bill.

Help:-

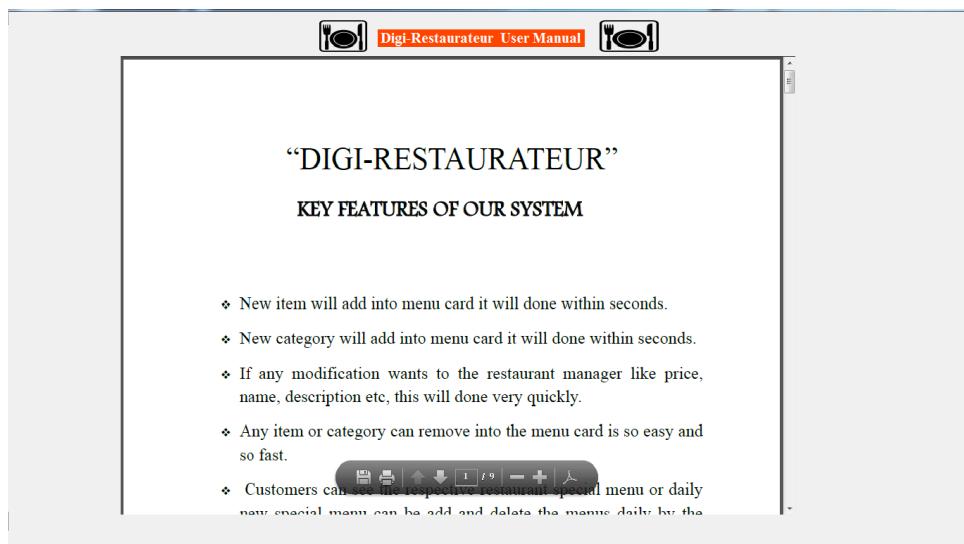


FIGURE 8.16: Help

1. It will show you the user manual, For how to use this software

8.3 Client Side Snapshots

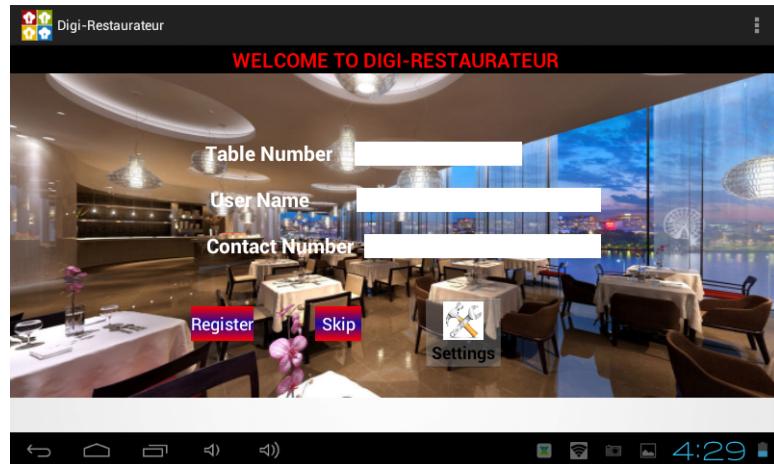


FIGURE 8.17: Registration

1. Registration
 - (a) Type your name in name text box.
 - (b) Type your contact number(must be 10 digit) in contact number text box click on register button.
 - (c) You will switch to Home panel which contain many options.
2. Skip
 - (a) Just click on skip button, You will switch to Home panel
3. Home Panel

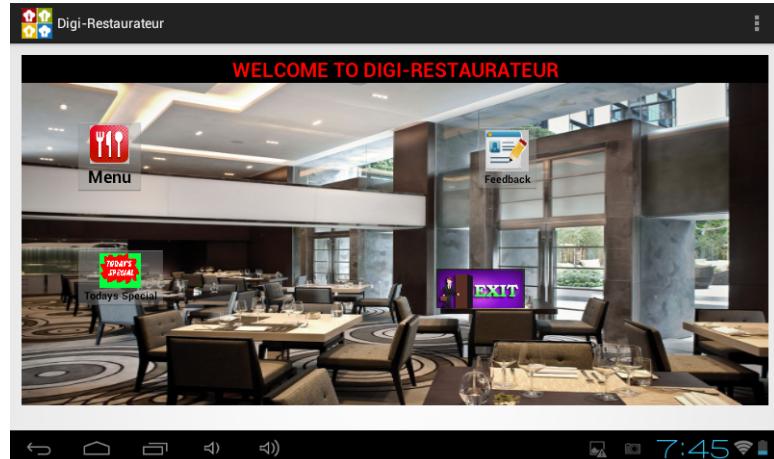


FIGURE 8.18: Home Panel

- (a) It contain option for Menu,Feedback,Todays special,Log out.

4. Menu

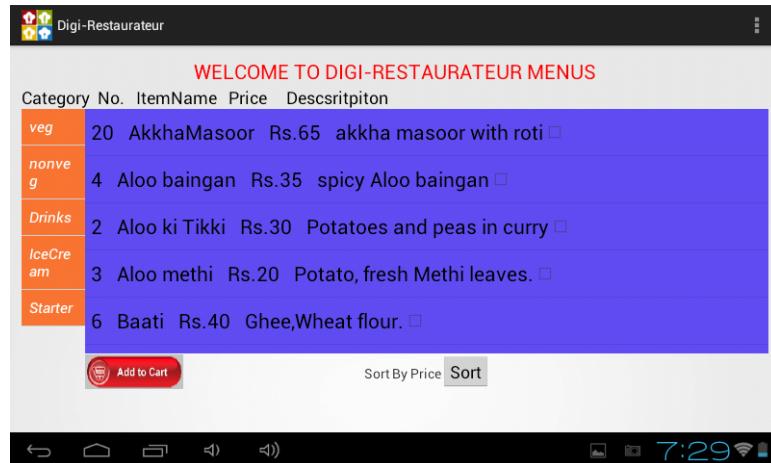


FIGURE 8.19: Menu Details

- (a) Click on menu button menu form will be displayed to you.
- (b) On left side it contain all current available categories of menu select any category.
- (c) The menu belongs to that category will be displayed on list-view with check-box showing your selection status.
- (d) For selecting any menu click on the name of menu a Quantity box will appear asking for quantity of that menu select it click on ok.That menu is added to your collection.
- (e) If you want to delete that menu from your collection again click on the menu name it will be deleted.
- (f) You can sort menu based on price by just clicking on Sort button.
- (g) After completing your menu selection click on Add Cart button.

5. MY ORDER

- (a) It will display your order(ordered,table id,item id,item name,item price,quantity,total)
 - (b) If you want to update order click on update button,else if you want to cancel order click on cancel order button,if you are done with your collection of menu click on confirm.
- Cancel
- (a) If you want to update order click on update button,else if you want to cancel order click on cancel order button,if you are done with your collection of menu click on confirm.

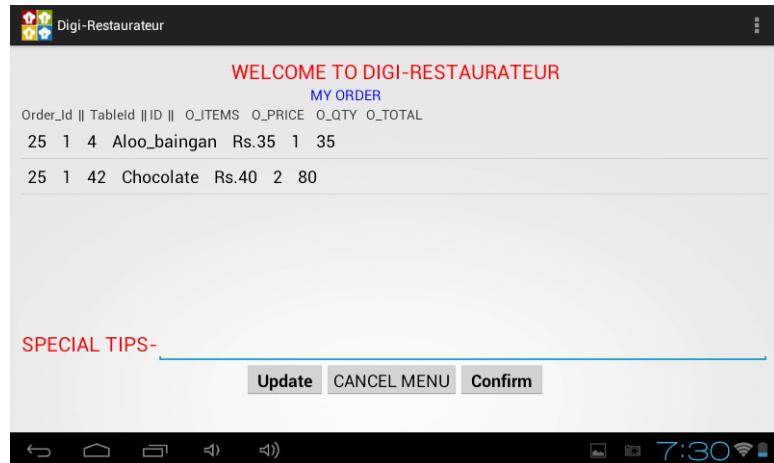


FIGURE 8.20: My Order

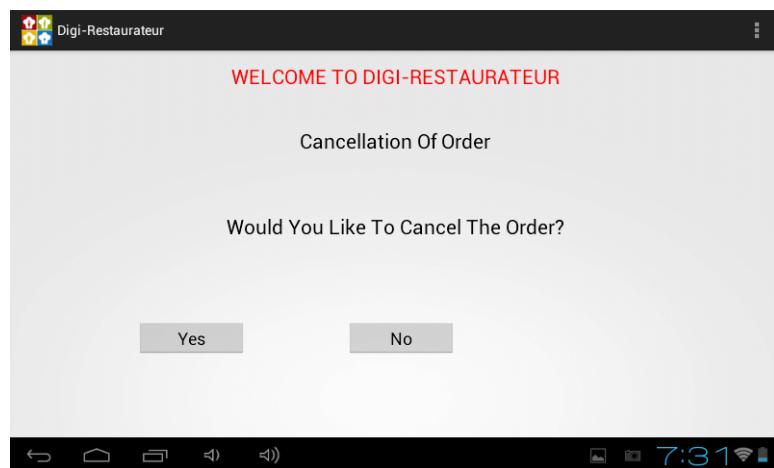


FIGURE 8.21: Cancel Order

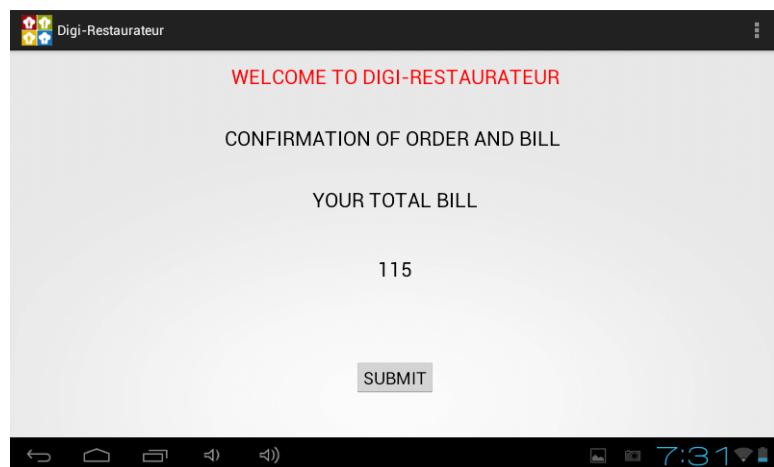


FIGURE 8.22: Confirmation Order

6. Confirmation

- It will display you total bill then click on submit button which send your order to kitchen then click on close button.

7. Feedback

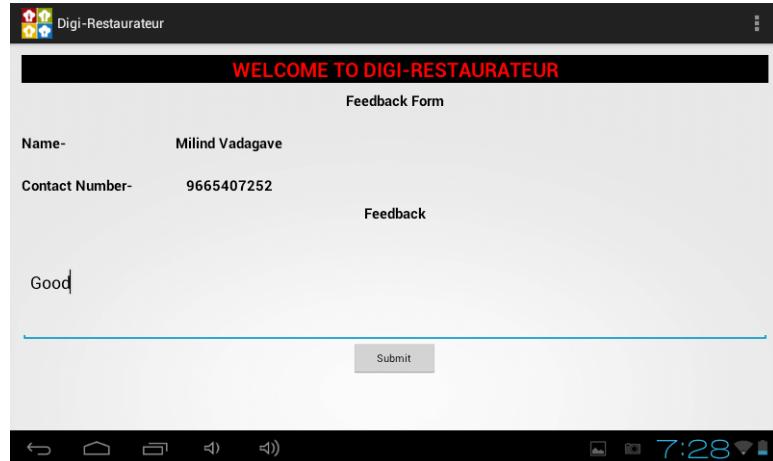


FIGURE 8.23: Feedback

- (a) Feedback form give you a text box in which you can type your feedback and click on submit button.Your feedback will be saved to system with your name,contact number.

8. Today's Special

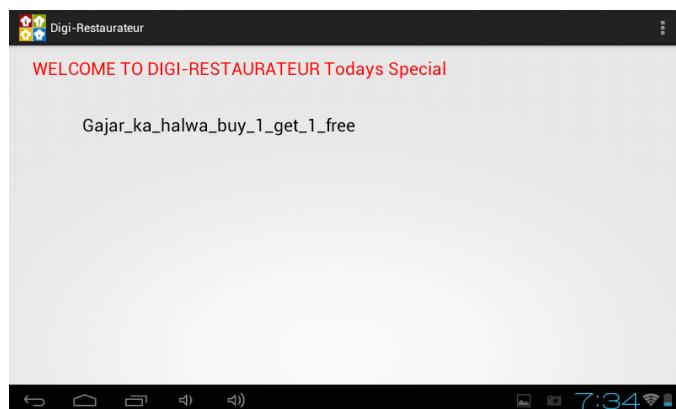


FIGURE 8.24: Today's Special

- (a) It will show you todays special menu or offer.

9. LogOut

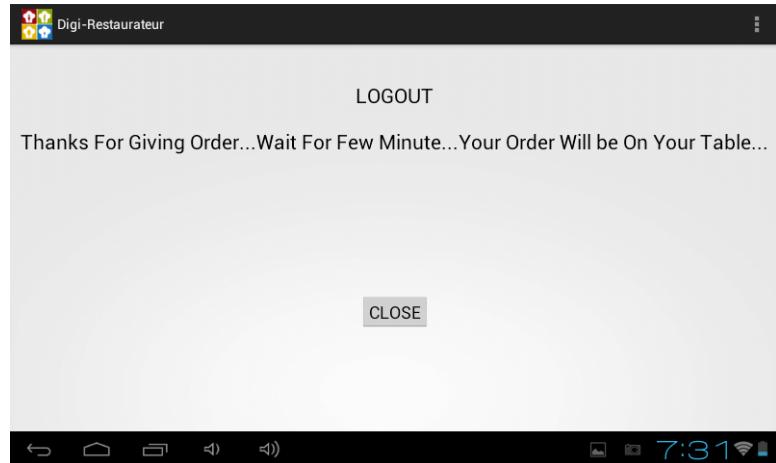


FIGURE 8.25: Logout

- (a) If you complete your ordering process and want to leave then click on logout button.

Chapter 9

CONCLUSION

9.1 Conclusion

We compare the three major automaton ordering system in Restaurant sector namely, the PDA based System, QORDER restaurant system and Android based system. The user interface of Android based system is more attractive and informative than the PDA and QORDER systems. The processing speed of Android system and Multi-touch system is almost the same whereas the PDA based systems are slower than the other two systems. Thus, Android based system is the cheapest automation solution for the restaurant owners.

This project is focusing on providing an affordable solution to increase the efficiency of restaurants ordering system using android and wireless technology. This system is convenient, easy and effective thereby improving the restaurant staff's works performance besides providing quality of service and customer satisfaction. This system provides pleasure to customers for making orders and management and feedback of system as well dining experience of Digi-Restaurateur. Thus, the proposed system would attract customers and also adds to the efficiency of maintaining the restaurant's ordering and billing sections. This system provides pleasure to customers for making orders and management can meliorate their management.

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