Graduation Thesis

Asian Restaurant Management Application

亚洲餐厅管理应用

Major	Computer Science and Technology
Class	140104
Stuent No.	14031274
Name	Hossain Syed Abir(阿贝尔)
Supervisor	Liang Zhao

SHENYANG AEROSPACE UNIVERSITY

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Abstract

The project **Asian Restaurant Management Application is implemented** to reduce the manual work and enhances the accuracy of work in a restaurant. This software has been made in a user friendly interface. This project is also designed with full consideration to help the users in an easy manner without any unnecessary wastage of time. This application can be implemented in big restaurant where customers can order their food from their table using application. The application consists of various food varieties available in the restaurant. Through the ordering form, the customer can simply click and order the food even from home. This application entirely reduces the unnecessary time waste inside the hotel as well as it reduces unnecessary noise. This report documents the process of designing, developing and testing a software application to be used in a restaurant; usually given the name restaurant management application. The restaurant management application is there to help communication between all teams within a restaurant by minimizing the probability of human errors. This project serves the best way of maintaining customer's information and caters their needs. The application is designed and implemented with client and server mode. This is an integrated application which contains both the user component (used by client to sign up, sign in, sign out the application, modifying personal information, browse the detail information of a food, query a specified cuisine according to the name or type, write user experience or comment on the dish and submit satisfaction score, user get reward points after sharing their experiences) and the admin component (used by the administrators for performing admin level functions such as sign up, sign in, sign out the application, modifying personal information, managing the order list, adding new cuisine items). This application is successfully running for the restaurant management. Asian Restaurant Management Application is a java application designed with Java technique and MySQL server as the database of the application.

Key Words: Java technique, Wamp server, MySQL Database.

摘 要

“亚洲餐厅管理应用”项目旨在减少人工劳动，提高餐厅工作的准确性。这个软件是用户友好的界面制作 的。这个系统由餐馆里各种各样的食物组成。通过订购表单，客户可以简单地点击和订购食品，甚至在 家里。这份报告记录了设计、开发和测试一个在餐馆使用的软件系统的过程；通常给出餐馆管理系统的 名称。餐厅管理系统通过最小化人为错误的概率来帮助餐厅内所有团队之间的沟通。这个项目是维护客 户信息和满足客户需求的最佳方式。系统采用客户机和服务器模式设计和实现。这是一个集成的系统应 用程序，它包含两个用户组件（由客户端用于注册、登录、签出应用程序、修改个人信息、浏览食物的 细节信息、根据名称或类型查询指定菜肴、在菜肴上写用户体验或评论以及提交满意度评分），用户在 分享他们的经验之后获得奖励积分）和管理组件（管理员用于执行管理级功能，例如注册、登录、签出 应用程序、修改个人信息、管理订单列表、添加新的菜肴项目）。此应用程序已成功用于餐厅管理。亚 洲餐厅管理应用程序是以Java技术和MySQL Server为系统的数据库设计的Java应用程序。

关键词：亚洲餐厅管理应用，Java技术，MySQL服务器，数据库

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1 Introduction

The concept of restaurant table order management system, since it is java application, I will keep everything as simple as possible. The project consists in an java application that can be used by employees in a restaurant to handle the clients, their orders and can help them easily find free tables or place orders. This application, created mainly for proof of proper user-java interaction. The restaurant menu is organized by categories (appetizers, soups,fig salads, entrees etc.) of menu items. Each menu item has a chef, preparation instructions and associated ingredients. The ingredients are identified by their ingredient id and the quality of the ingredient needed to prepare a particular recipe, the unit of measure and a name.

"Restaurant Management System(RMS)" is java application to restaurant management. This system wake to provide service facility to rastaurant and also to the customer. The services that are provided is food ordering and home delivery by the customer through the system, customer information management and waiter information management, menu information management and report. Main objective build the system, ordering, and home delivery management will become easier and systematic to replace traditional system.

1.1 Project Objectves

We are stuck with technology when what we really want is just stuff that works. With the current paradigm shift in technological field, there is an urgent need to embrace and appreciate the power of technology.Restaurant sector remains vigilant to face the challenges of change by employing a new strategy that facilities easy management system that can simplify work for the restaurant managers so that all their work can be efficient and effective. The general objectives of the study is to develop a reliable, convenient and accurate Ordering System.
The study has the following specific objectives:

- To develop a system that will surely satisfied the customer service.
- To design a system able to accommodate huge amount of orders at a time.
- To evaluate its performance and acceptability in terms of security, user-friendliness, accuracy and reliability.
- To improve the communication between the client and the server and minimize the time of ordering.

One of the main objectives of a restaurant to ensure customer satisfaction. Manual listing of orders by the waiters/waitresses may result to slow response in customer service. Hence, if the restaurant uses the proposed system, manipulation of orders to the customers be so easy and choosing the desired menu.

1.2 Project Requirements Analysis

Project requirements analysis are important stage in the system development. It determines the functions of the whole system integrity and stability. Software requirements analysis is an ongoing process of understanding and progressive refinement. Through requirements analysis, design functions of the management system as below.

a. User management. User can register (Manager or customer), login and logout the website;

b. Adding a food. Manager can add new food information for showing to customer.

c. Foods information browsing. The Foods are grouped by categories. Customers may browse the detailed information of a food.

d. Foods query: Manager can query foods according to price, name.

e. Foods comments. Customers can write comments on the food and submit satisfaction score.

1.2.1 Requirements Analysis

The in-front management application is the user visits food list and register user is customer. Only the manager can manage his/her searching potion about the specific food, comment and rate. So in this part, specific functions are described as below:

- **Login and logout:** User can signin into system and also signout from the system.
- **Register:** If user have no account, user have to must create an account.
- **Modify personal informationl:** User can also modify his personal information.
- **Browse detailed information of a food:** User can browse detaile of food.
- **Comments:** User can post a comment for each food.
- **Rate a food:** User can post a score for each food.

1.3 Project Deliverables

The main deliverables of this project is to build a simple and easy use of resaturant management system following the specific software requirements as well as the programming lagnuages.

2 Technological Background

2.1 Implementation Process

In the thesis project, Window 10 as an operating system,MySQL as a database and netbeans as a IDE. The application is a collection of Apache server, MySQL server comprehensive programming and easy to use.

2.2 Tools and Technologies

Use these three tools are MySQL[1], Java[2] and Apache Server[3].

2.2.1 MySQL Database

MySQL[1] is an open source relational database management system. It is based on the structure query language (SQL), which is used for adding, removing, and modifying information in the database. Standard SQL commands, such as ADD, DROP, INSERT, and UPDATE can be used with MySQL.

A database is a data structure that stores organized information. Most databases contain multiple tables, which may each include several different fields. For example, a company database may include tables for products, employees, and financial records. Each of these tables would have different fields that are relevant to the information stored in the table. Today's relational databases allow users to access, update, and search information based on the relationship of data stored in different tables. Relational databases can also run queries that involve multiple databases. While early databases could only store text or such numeric data, modern databases also let users store other data types such as sound clips, pictures, and videos.

SQL (Structured Query Language) is a standardized programming language used for managing relational databases and performing various operations on the data in them. Initially created on 1970s, SQLs is regularly being used by database administrators, as well as by developers writing data integration scripts and data analysts looking to set up and run analytical queries. For example, books information, customer information, orders

2.2.2 JAVA

Java[2] is a high-level programming language developed by Sun Microsystems. It was originally designed for developing programs for set-top boxes and handheld devices, but later became a popular choice for creating web applications. The Java syntax is similar to C++, but is strictly an object-oriented programming language. For example, most Java programs contain classes, which are used to define objects, and methods, which are assigned to individual classes. Java is also known for being more strict than C++, meaning variables and functions must be explicitly defined. This means Java source code may produce errors or and quot;exceptions and quot; more easily than other languages, but it also limits other types of errors that may be caused by undefined variables or unassigned types.

Unlike Windows executables (.EXE files) or Macintosh applications (.APP files), Java programs are not run directly by the operating system. Instead, Java programs are interpreted by the Java Virtual Machine, or JVM, which runs on multiple platforms. This means all Java programs are multiplatform and can run on different platforms, including Macintosh, Windows, and Unix computers. However, the JVM must be installed for Java applications or applets to run at all. Fortunately, the JVM is included as part of the Java Runtime Environment (JRE), which is available as a free download. Oracle acquired Sun Microsystems in January, 2010. Therefore, Java is now maintained and distributed by Oracle.

Java is a general-purpose computer-programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere" (WORA), meaning that compiled Java code can run on all platforms that support Java without the need for recompilation.Java applications are typically compiled to bytecode that can run on any Java virtual machine (JVM) regardless of computer architecture. As of 2016, Java is one of the most popular programming languages in use,particularly for client-server web applications, with a reported 9 million developers.Java was originally developed by James Gosling at Sun Microsystems (which has since been acquired by Oracle Corporation) and released in 1995 as a core component of Sun Microsystems' Java platform. The language derives much of its syntax from C and C++, but it has fewer low-level facilities than either of them.

The original and reference implementation Java compilers, virtual machines, and class libraries were originally released by Sun under proprietary licenses. As of May 2007, in compliance with the specifications of the Java Community Process, Sun relicensed most of its Java technologies under the GNU General Public License. Others have also developed alternative implementations of these Sun technologies, such as the GNU Compiler for Java (bytecode compiler), GNU Classpath (standard libraries), and IcedTea-Web (browser plugin for applets).

The latest version is Java 11, released on September 25, 2018, which follows Java 10 after only six months, being in line with the new release schedule. Java 8 is still supported but there will be no more security updates for Java 9.Versions earlier than Java 8 are supported by companies on a commercial basis; e.g. by Oracle back to Java 6 as of October 2017 (while they still "highly recommend that you uninstall" pre-Java 8 from at least Windows computers).

2.2.3 Apache Server

Apache server[3] is an open source Web server tool developed by the Apache Software Foundation (ASF). It is one of many Apache-related open source products used by IT professionals for various tasks and objectives. It allows the implementation of Java Servlets and JavaServer Pages (JSP) to promote an effective Java server environment. Users can also access resources for configuration and use extensible markup language (XML) to configure projects. Successive versions of Apache Tomcat have solved different problems by applying software patches and other solutions. Some experts characterize Apache Tomcat as a product offering a runtime shell for Java Servlets. Users can also set up Java virtual machines (JVM) to configure virtual hosting.

Apache is an open-source and free web server software that powers around 46 percent of websites around the world. The official name is Apache HTTP Server, and it's maintained and developed by the Apache Software Foundation.

It allows website owners to serve content on the web — hence the name "web server". It's one of the oldest and most reliable web servers, with the first version released more than 20 years ago, in 1995.

2.2.4 How does Apache Web server

Although we call Apache a web server, it is not a physical server, but rather a software that runs on a server. Its job is to establish a connection between a server and the browsers of website visitors (Firefox, Google Chrome, Safari, etc.) while delivering files back and forth between them (client-server structure). Apache is a cross-platform software, therefore it works on both Unix and Windows servers.

When a visitor wants to load a page on your website, for instance, the homepage or your “About Us” page, their browser sends a request to your server and Apache returns a response with all the requested files (text, images, etc.). The server and the client communicate through the HTTP protocol and Apache is responsible for the smooth and secure communication between the two machines.

Apache is highly customizable, as it has a module-based structure. Modules allow server administrators to turn additional functionalities on and off. Apache has modules for security, caching, URL rewriting, password authentication, and more. You can also set up your own server configurations through a file called .htaccess, which is an Apache configuration file supported with all Hostinger plans.

3 System Design

System design is the process of defining the elements of the system such as the architecture, modules and components, the different interfaces of those components and the data that goes through the system.

3.1 Architectural Design

In this part, system block diagram details are given. According to requirements gather, the asian restaurant management system will be designed as below:

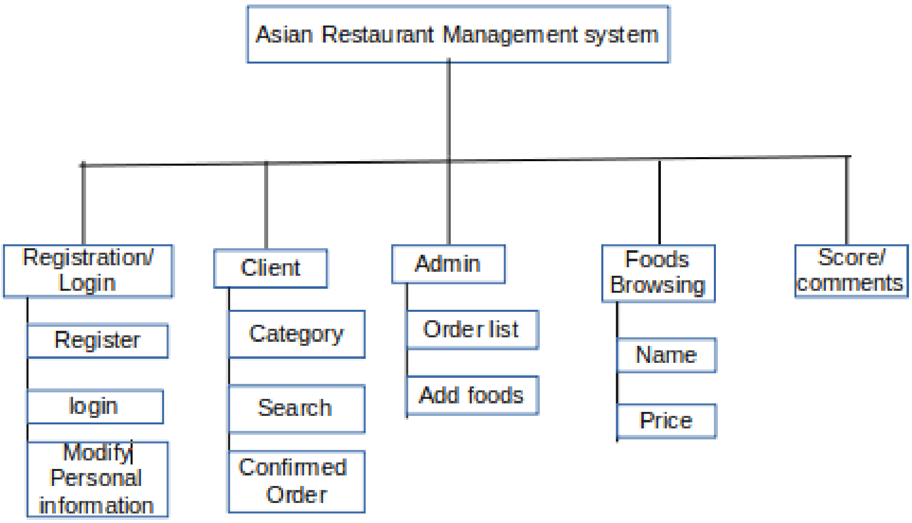


Figure 1: System block diagram.

As show on figure1 is showing the **Asian Restaurant Management System** is divided into some modules and submodules.

3.2 Database Diagram

3.2.1 Entity Diagram

These diagrams below show how the attributes are defined in database table:

An admin who must entry his personal information like first name, last name, user name, email and password.

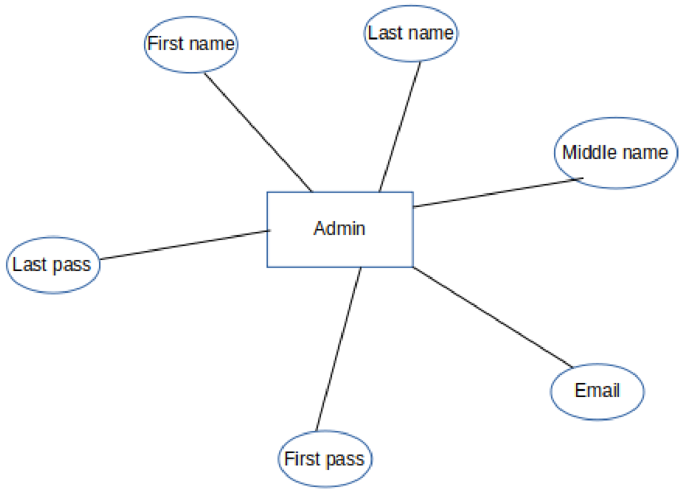


Figure 2: Admin Register entity diagram

Client who must entry his personal information like first name, last name, user name, email and password.

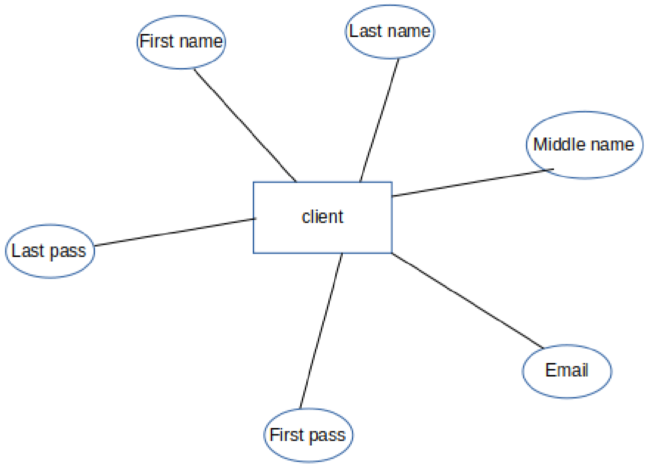


Figure 3: Client Register entity diagram

When add food on food list, must include food name, food price and details of food.

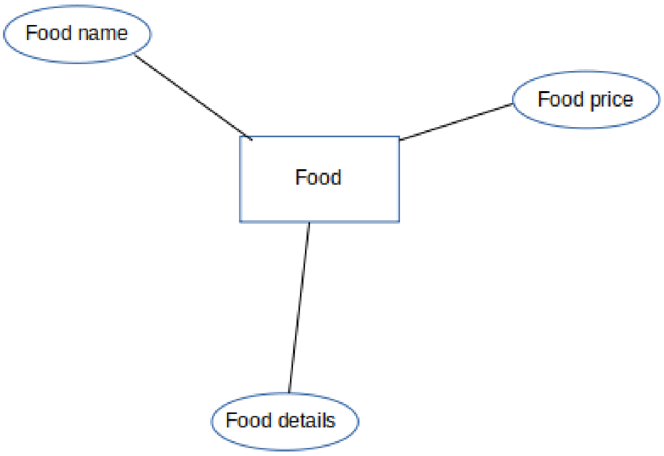


Figure 4: Food add entity diagram

When a client post his comment, client must be give name of food and select the score number.

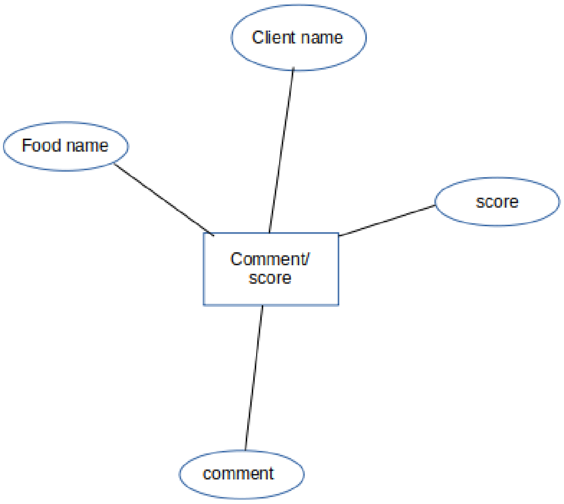


Figure 5: Comments/Score entity diagram

3.2.2 E-R Diagram

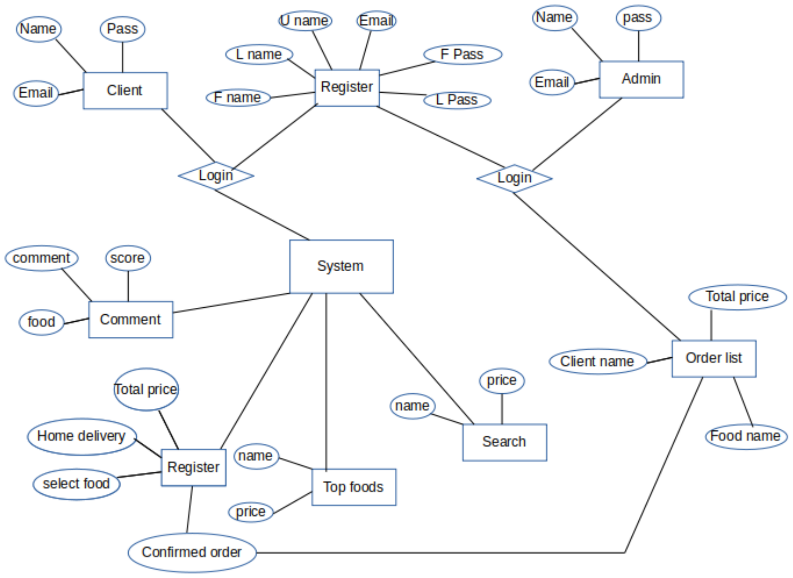


Figure 6: Entity Relationship diagram

3.2.3 Database schema

```
1. Create database ResturentManagement;

2. CREATE TABLE RegistrationForAdmin (
u_id TINYINT UNSIGNED NOT NULL AUTO_INCREMENT,
u_f_name varchar(80),
u_l_name varchar(80),
u_u_name varchar(80),
U_mail varchar(50),
u_f_pass varchar(20),
u_r_pass varchar(20),
status int(11)
PRIMARY KEY (u_id)
)ENGINE=InnoDB DEFAULT CHARSET=utf8;

3. CREATE TABLE Salad (
sl_id TINYINT UNSIGNED NOT NULL AUTO_INCREMENT,
sl_name varchar(255),
sl_price float(10, 2),
sl_details varchar(255),
PRIMARY KEY (sl_id)
)ENGINE=InnoDB DEFAULT CHARSET=utf8;

4. CREATE TABLE Soups (
so_id TINYINT UNSIGNED NOT NULL AUTO_INCREMENT,
so_name varchar(255),
so_price float(10, 2),
so_details varchar(255),
PRIMARY KEY (so_id)
)ENGINE=InnoDB DEFAULT CHARSET=utf8;

5. CREATE TABLE Chicken (
ck_id TINYINT UNSIGNED NOT NULL AUTO_INCREMENT,
ck_name varchar(255),
ck_price float(10, 2),
ck_details varchar(255),
PRIMARY KEY (ck_id)
)ENGINE=InnoDB DEFAULT CHARSET=utf8;

6. CREATE TABLE Pork (
po_id TINYINT UNSIGNED NOT NULL AUTO_INCREMENT,
po_name varchar(255),
po_price float(10, 2),
po_details varchar(255),
PRIMARY KEY (po_id)
)ENGINE=InnoDB DEFAULT CHARSET=utf8;

7. CREATE TABLE BeefLamb (
bl_id TINYINT UNSIGNED NOT NULL AUTO_INCREMENT,
bl_name varchar(255),
bl_price float(10, 2),
bl_details varchar(255),
PRIMARY KEY (bl_id)
)ENGINE=InnoDB DEFAULT CHARSET=utf8;

8. CREATE TABLE SeaFood (
sf_id TINYINT UNSIGNED NOT NULL AUTO_INCREMENT,
sf_name varchar(255),
sf_price float(10, 2),
sf_details varchar(255),
PRIMARY KEY (sf_id)
)ENGINE=InnoDB DEFAULT CHARSET=utf8;

9. CREATE TABLE NoddlesRice (
nr_id TINYINT UNSIGNED NOT NULL AUTO_INCREMENT,
nr_name varchar(255),
nr_price float(10, 2),
nr_details varchar(255),
PRIMARY KEY (nr_id)
)ENGINE=InnoDB DEFAULT CHARSET=utf8;
```

```
10. CREATE TABLE VegeTofu (
vt_id TINYINT UNSIGNED NOT NULL AUTO_INCREMENT,
vt_name varchar(255),
vt_price float(10, 2),
vt_details varchar(255),
PRIMARY KEY (vt_id)
)ENGINE=InnoDB DEFAULT CHARSET=utf8;

11. CREATE TABLE ClientOrderList (
col_id TINYINT UNSIGNED NOT NULL AUTO_INCREMENT,
col_name varchar(255),
col_price float(10, 2),
UserName varchar(255),
PRIMARY KEY (col_id)
)ENGINE=InnoDB DEFAULT CHARSET=utf8;

12. ALTER TABLE ‘ClientOrderList‘ ADD ‘UserName‘ VARCHAR(255) NOT
    NULL AFTER ‘col_price‘;

13. CREATE TABLE RankList (
rl_id TINYINT UNSIGNED NOT NULL AUTO_INCREMENT,
rl_name varchar(255),
rl_score int,
rl_comments varchar(255),
PRIMARY KEY (rl_id)
)ENGINE=InnoDB DEFAULT CHARSET=utf8;

14. ALTER TABLE ‘Registration‘ ADD ‘reward_point‘ float(10, 2)
    NOT NULL AFTER ‘status‘;
```

3.2.4 Database tables structures

The table 1 is used for register a user as a admin of the system.

Table 1: Registration for admin

Name	Type	Null
u-id	tinyint(3)	NO
u-f-name	varchar(80)	YES
u-l-name	varchar(80)	YES
u-u-name	varchar(80)	YES
U-mail	varchar(50)	YES
u-f-pass	varchar(20)	YES
u-l-pass	varchar(20)	YES

The table 2 is used for register a user as a client of the system.

Table 2: Registration for client

Name	Type	Null
u-id	tinyint(3)	NO
u-f-name	varchar(80)	YES
u-l-name	varchar(80)	YES
u-u-name	varchar(80)	YES
U-mail	varchar(50)	YES
u-f-pass	varchar(20)	YES
u-l-pass	varchar(20)	YES

The table 3 is used for hold the list of chooseing foods by client

Table 3: Client order list

Name	**Type**	**Null**
col-id	tinyint(3)	NO
col-name	varchar(255)	YES
col-price	float(10, 2)	YES
UserName	varchar(255)	YES

This table 4 is used for hold the list of top ranked food depend on score number and number of comments.

Table 4: Top foods

Name	**Type**	**Null**
dl-id	tinyint(3)	NO
rl-name	varchar(255)	YES
rl-score	int	YES
rl-comments	varchar(255)	YES

This table 5 is used for hold the list of salads.

Table 5: Salad table

Name	**Type**	**Null**
sl-id	tinyint(3)	NO
sl-name	varchar(255)	YES
sl-price	float(10, 2)	YES
sl-details	varchar(255)	YES

This table 6 is used for hold the list of Chickens.

Table 6: Chicken table

Name	Type	Null
ck-id	tinyint(3)	NO
ck-name	varchar(255)	YES
ck-price	float(10, 2)	YES
ck-details	varchar(255)	YES

This table 9 is used for hold the list of Vegetables and Tofus.

Table 7: Vegetable and Tofu table

Name	Type	Null
vt-id	tinyint(3)	NO
vt-name	varchar(255)	YES
vt-price	float(10, 2)	YES
vt-details	varchar(255)	YES

This table 8 is used for hold the list of Noodles and Rice.

Table 8: Noodles and Rice table

Name	Type	Null
nr-id	tinyint(3)	NO
nr-name	varchar(255)	YES
nr-price	float(10, 2)	YES
nr-details	varchar(255)	YES

4 Design

4.1 Chapter Overview

This chapter will focus on the design of the system using diagrams to illustrate graphically certain sections of the software system.

4.2 Detailed Design

In this section, I designed the first flowchart of the Asian Restaurant Management System. The purpose of the flowchart is to show functions the Asian Restaurant Management System has.

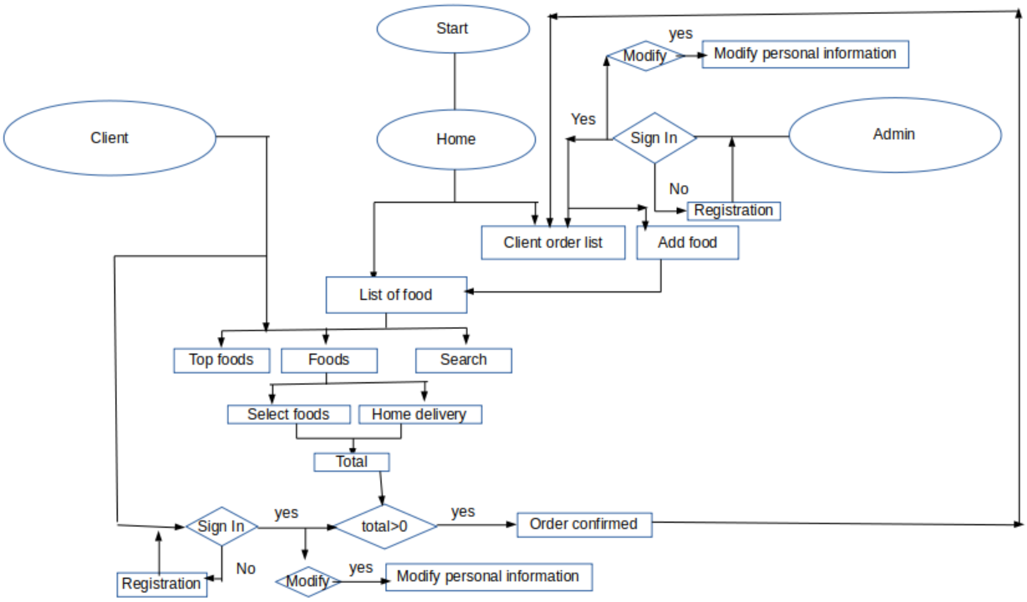


Figure 7: System flowchart

4.3 Manager and Customer function

4.3.1 Register or login function

Every time a registered user is must to login in order to client confirmed order or admin see the order list or new food add on table, the user has to input both of the correct user name and the password into the input-form. The application will get the input data and send to the system Server, and the server will communicate with the MySQL database and check if the user name and password are matched. If the input is correct, the the order of clent will display the main window with the name of the user. Otherwise, the error- window will be instead.

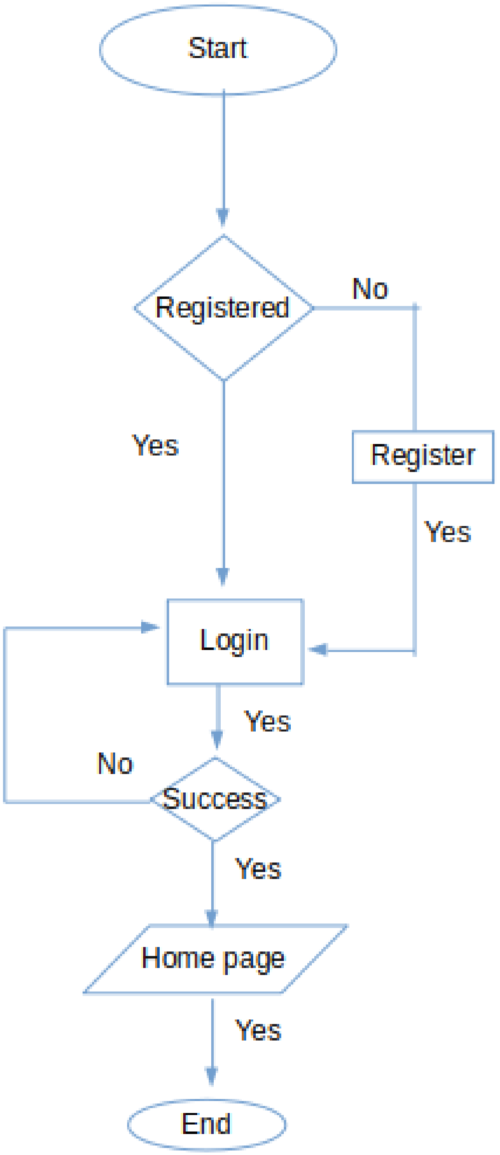


Figure 8: Registration flowchart

4.3.2 Order list

After successfully admin login, he/she see the list of order.

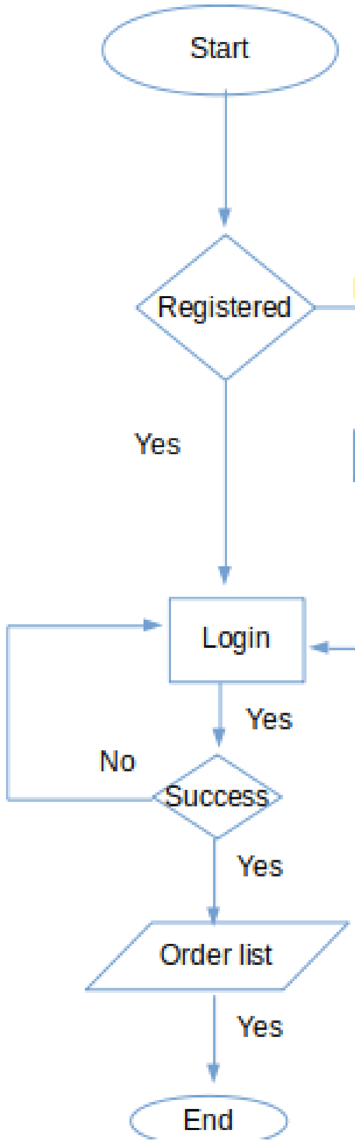


Figure 9: Client order list flowchart

4.3.3 Confirmed order after successfull signin

After successfully client login, he/she confirmed the order.

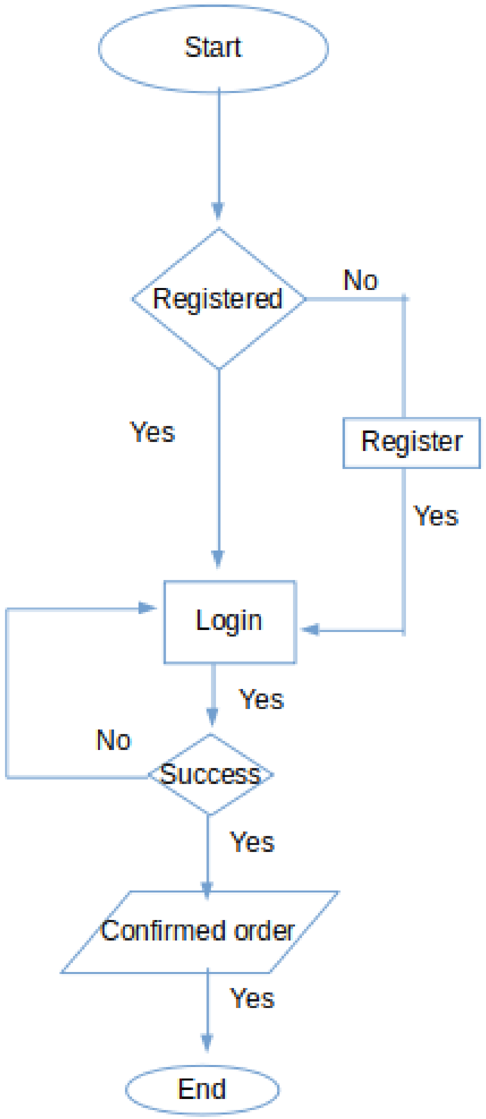


Figure 10: Confirmed order flowchart

4.4 Chapter Summary

This chapter has displayed many graphical representations of the design of the system. The implementation of the system is documented in the next chapter.

5 Implementation And Testing

5.1 Chapter Overview

Implementation is the process in the project in which the existing design is changed into working system and is giving assurance confidence on the new system for the users that it will work correctly. It involves careful planning, checkout of the current system and it compulsion or constraints of design, implementation of methods to achieve the changeover, an evaluation of the changeover methods. Apart from it planning major tasks of arranging the implementation are educating and training of users. The more complex the system is being implemented the more involved will be the system analysis and the design efforts requires just for the implementation. The implementation process begins at preparing a plan for the implementation of the system.

5.2 Document List

Table 9: Document list

No	Package name	Purpose
1	Database connection	This package use for implementation of database connection with local host using jdbc driver
2	Food add on database	This package use for add food name, price and details into specific table of food
3	Home activity	Home activity package use for design and implementation of homepage
4	Order insert into orderlist table	After confirmed order from customer, these order are insert into order list table using this package
5	Order insert into orderlist table	After confirmed order from customer, these order are insert into order list table using this package
6	Personal info show	This package use for personal information show on homepage
7	Read data from Database	This package use for read data from database and set into table on home page
8	Registration	This package use for registration purpose of admin and client
9	Search from database	This package use for searching an item by name or price of food from database

5.3 User module

5.3.1 Sign in

Already registered user will have to login in the system by inputting username and password in order to enter the system. The screen shot is shown in Fig 11

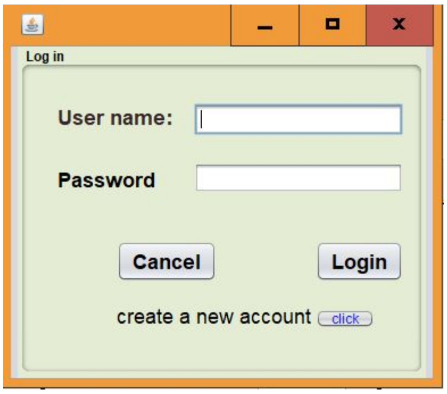


Figure 11: Sign in window

5.3.2 Sign up

A new user will have to sign up in the system by providing essential details in order to be a client of the restaurant. The screen shot is shown in Fig 12

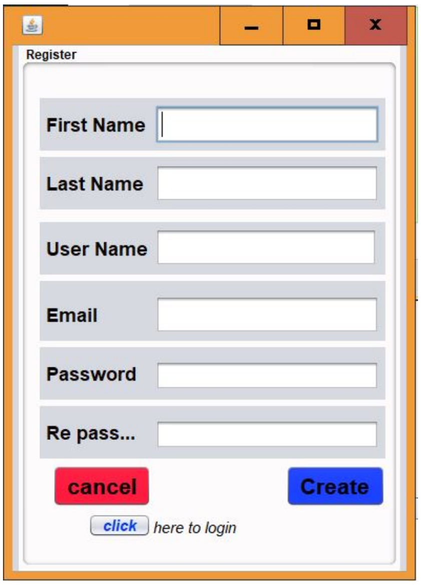
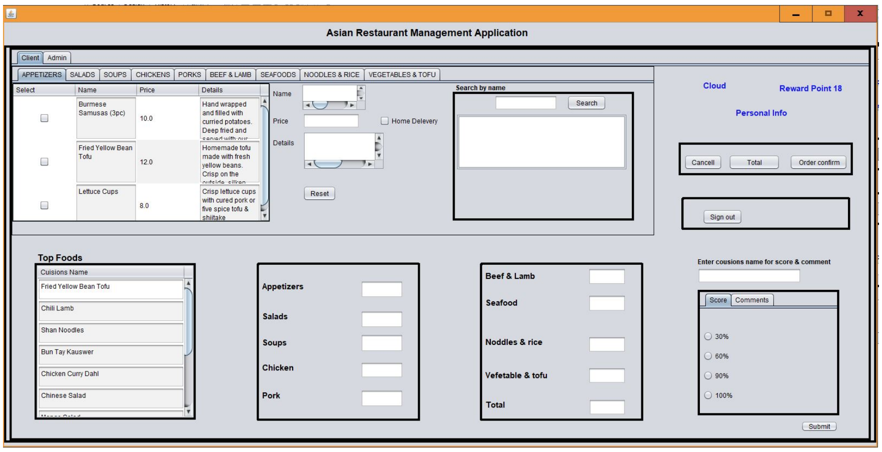


Figure 12: Sign up window

5.3.3 HomePage

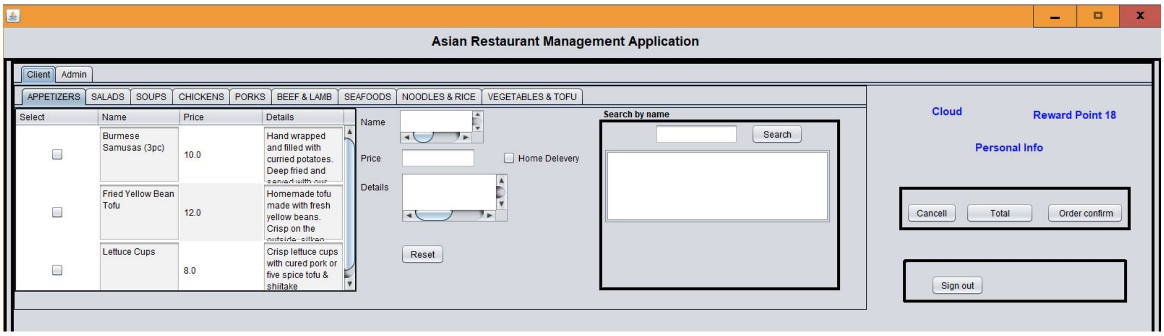
After a successful sign in, the client is redirected to the home activity of the application. It includes the activities that happens in the restaurant and rewards top foods also modifying about the personal information. The screen shot is shown in Fig 13 and Fig 14.



Select	Name	Price	Details
☐	Burmese Samusas (3pc)	10.0	Hand wrapped and filled with curried potatoes. Deep fried and served with our
☐	Fried Yellow Bean Tofu	12.0	Homemade tofu made with fresh yellow beans. Crisp on the outside, silken
☐	Lettuce Cups	8.0	Crisp lettuce cups with cured pork or five spice tofu & shiitake

Cuisions Name
Fried Yellow Bean Tofu
Chili Lamb
Shan Noodles
Bun Tay Kauswer
Chicken Curry Dahl
Chinese Salad
Mango Salad

Figure 13: Homepage window

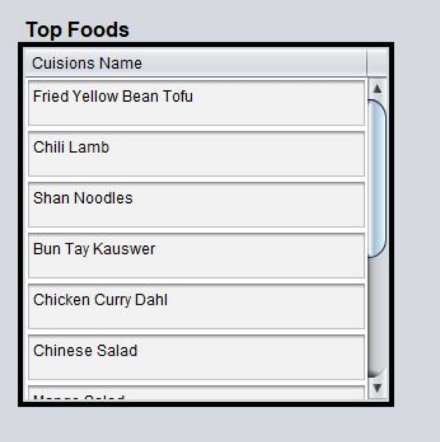


Select	Name	Price	Details
☐	Burmese Samusas (3pc)	10.0	Hand wrapped and filled with curried potatoes. Deep fried and served with our
☐	Fried Yellow Bean Tofu	12.0	Homemade tofu made with fresh yellow beans. Crisp on the outside, silken
☐	Lettuce Cups	8.0	Crisp lettuce cups with cured pork or five spice tofu & shiitake

Figure 14: Order list window

5.3.4 Topfoods

Write user experience or comment on the dish and submit satisfaction score and user get reward points after sharing their experiences. The screen shot is shown in Fig 15.

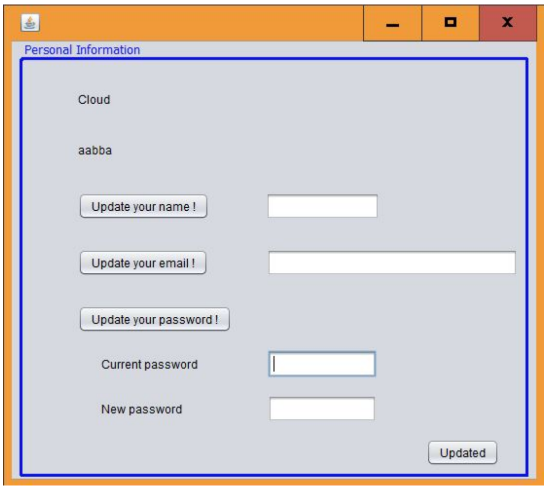


Cuisions Name
Fried Yellow Bean Tofu
Chili Lamb
Shan Noodles
Bun Tay Kauswer
Chicken Curry Dahl
Chinese Salad
Mango Salad

Figure 15: Top food window

5.3.5 Modify personal information

Users can modify their information lately if he/she wishes to. But to remind that, apart from the username, other information are changeable (as shown in Fig 16 and Fig 17).

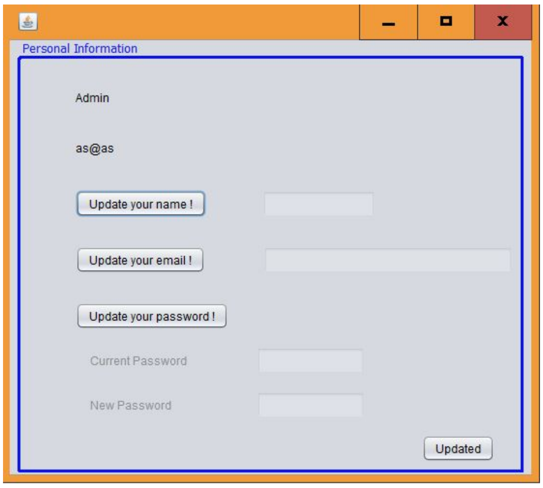


Personal Information

Cloud

aabba

Figure 16: Modify admin information window



Personal Information

Admin

as@as

Figure 17: Modify client information window

5.4 Test Case

Table 10: Test Cases

Scenario	Test Cases	Expected Result	Test Result	Pass or Fail
Registration	Enter null in mandatory fields.	It should not do the registration and show error.	It will show message that please fill out this field.	Pass
	Enter incorrect data	It should not do the registration and show error.	Email: Please enter an email. Password: Password. do not match	Pass
	Enter correct data of all required field	It should lead to successfully registration	It will show the message of successfully registrattion	Pass
Login	Enter null email or password.	It should not do the login and show error.	It will show message that please fill out this field.	Pass
	Enter wrong data of email or password.	It should not do the login and show error.	It will show message that please enter an email or your email address or password are not correct.	Pass
	Enter correct data of email or password.	It should let do the login.	It will redirect to your all purchased products	Pass

Scenario	Test Cases	Expected Result	Test Result	Pass or Fail
Update password	Enter null in mandatory fields.	It should not do the update and show error.	It will show message that please fill out this field.	Pass
	Enter incorrect data	It should not do the update and show error.	It will show the message that the old password do not match.	Pass
	Enter correct data of all required field.	It should let do registration.	It will show the message that password successfully updated.	Pass
Search Food	Enter null or incorrect data in search fields.	It will not search food	It will show the message that there was no search results!	Pass
	Enter correct data in Search fields.	It should search foods depending the keywords.	It will display the foods regarding the keywords.	Pass
Comment Food	Enter non ASCII character.	It will not let to comment	It will show error as unsupported character.	Pass
	Enter ASCII character.	It will lead a successful comment.	It will view the succession of a comment.	Pass

5.5 Code Documentation

Code documentation is an important part of any software engineering project. Throughout the im- plementation, a JavaDoc tool was used to generate HTML API documentation of the project. The JavaDoc could then be used to provide assistance to any future developer.

5.6 Version Control

Due to the type of development methodology used for this project, incremental backups of the system were required. Version control systems (also known as Revision control) such as Mercurial manage the changes to documents storing each backup in its own revision with the ability to restore back to a particular version in the event of debugging.

5.7 Chapter Summary

This chapter has discussed the interesting aspects from the implementation stage. The next chapter documents the results by demonstrating the working system.

6 Conclusion

6.1 Chapter Overview

This chapters draws the project report to a close and reflects on the design decisions made throughout. It also discusses possible future development ideas.

6.2 Project Overview

The system achieved all of its proposed priority 1 and priority 2 functional requirements and even some priority 3 outlined in Section **??**. However, the initial project plan and gannt chart had to be modified as the project became about a month behind due to underestimations on the time to implement some desired features. This meant that some of the lower priority requirements had to be scrapped.

6.3 Further Development

This project was developed under time constraints of 120 hours. Therefore the proposed features specified in the requirements were what the developer thought to be realistic targets. However, if more time became available the following could be implemented.

6.3.1 Table Management

A feature that was thought of as a possibility but never documented past the design stage was the use of a table management feature. This would give the system the ability to reserve and allocate tables. The table data could then be used to help predict how busy the restaurant may be and help prepare the staff rota.

6.4 Reflection

On reflection, even though the majority of the proposed features were completed and the project was deemed a huge success, the author felt that he could have been more disciplined in keeping to the plan. He also felt that the proposed features were slightly unrealistic and some even unnecessary. For the general project, the author felt that important aspects of research were not undertaken including interviews with restaurant owners and user questionnaires. This would have provided good insight into existing solutions.

6.5 Skills Attained

This project has helped the author to attain new skills as well as develop existing skills. The skills attained have been both technical and individual with the main individual skill being project manage- ment which required good time keeping and management of the workload.
Some technical skills that have been developed include:

- Advanced coding using the Java Swing interface.

- Relational database schema design and trigger coding.
- Advanced coding using Java threads.

6.6 Chapter Summary

This chapter has concluded the project report and provided an insight into possible future development.

References

[1] MySQL. [Online]. Available: https://www.siteground.com/tutorials/php-mysql/mysql

[2] “Java (programming language).” [Online]. Available: https://en.wikipedia.org/wiki/Java_(programming_language)

[3] “What is apache? an in-depth overview of apache web server.” [Online]. Available: https://www.hostinger.com/tutorials/what-is-apache#gref

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