E-Restaurant

By

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3063

A project dissertation submitted in partial fulfillment of
The requirements for the
Bachelor of Technology (Hons)
(Information System)

JANUARY 2006

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CERTIFICATION OF APPROVAL

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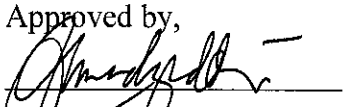
Approved by,



(Mr. Ahmad Izuddin Zainal Abidin)

UNIVERSITI TEKNOLOGI PETRONAS
TRONOH, PERAK
JANUARY 2006

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

WAN NUR SYAZRAH BINTI WAN AZMI

ABSTRACT

Food & Beverage Dine-in Ordering System is actually to transform the labor-intensive way of taking an order in restaurants in Malaysia to a computerized system. The objectives of the system are to minimize the number of employee and the cost of labor. As well of minimizing the cost and employee, it will also help to avoid probable to make mistake since it is a machine and it will be done by the customers itself. As technology changes, everything in Malaysia have been changed according to the latest technology but not for the ordering system. The methodology that will be use throughout the project is Rapid Application Development (RAD) method. There are 4 phases in using RAD method which are; Requirement Planning, User Design, Construction and Cut Over. The final phase will be implementing after the system has been finish.

ACKNOWLEDGEMENT

With all my heart, I would like to extend my grateful to many of these souls for their precious contribution towards making my Final Year Project in this university a success.

I would like to articulate my appreciation to University Technology of Petronas Malaysia for giving me opportunity to undergo and complete my Final Year Project in this university. I would like to thank the management of Final Year Project Committee for giving me chances to learn and gain useful knowledge in this project.

I also would like to thank my supervisor Mr. Ahmad Izuddin Zainal Abidin, lecturer IT/IS department for his kindness and guidance during completing my Final Year Project.

I also would like to thank my colleagues especially Miss Khairatul Azyyati and Miss Siti Aezane for spending their precious time teaching me and guiding me throughout my Final Year Project.

Lastly but not least for everyone who has been involved either directly or indirectly throughout this project, from the bottom of my heart your contribution and effort is valued and treasured. May God repay your kindness with prosperity and bless.

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CHAPTER 1

INTRODUCTION

Waving knowledge in restaurant industry with computer literacy is often difficult due to complexity and involved algorithms and protocols. Previously e-restaurant or food ordering system may not be a new system for restaurant owner in Malaysia, but still this system is not fully used by Malaysian according to some circumstances. Even though it looks like an impossible thing to be done, but the advancement of Information Technology makes the dream of combining restaurant industry and computer technology viable to be done.

1.1 BACKGROUND OF STUDY

Nowadays, technology such as Internet and World Wide Web become very common to a well developed country such as Malaysia. The technologies also give some influences to the people who used it. It is also cannot be deny that technology give peoples a lot of benefits and drawback. All industries have used the technology to make sure that they are not lagging behind as compared to any other industries.

Malaysia is one of the countries who are using the technology in order to keep on moving forward. But still, there are some parts of the technology have not been applied or still not very familiar among Malaysians. However, not much technological advancement is seen to be applied in Malaysia's ordering system. What is commonly used is the conventional system which is paper based system. E-restaurant have been used by other country a few years behind, but why Malaysia still using the conventional way of ordering system even though our country developing rapidly? Why Malaysia is not as good as other developed country in terms of this industry?

The current of information technology did affect restaurant Industry in general. In other countries such as Taiwan and London, it has been quite a long time since information technology and restaurant industry team up to provide services to public. But in Malaysia, the current trend in using e-restaurant is still slow. We still depend on conventional system where we are using a paper based on taking order. It isn't bad, but depending solely on the traditional way do has disadvantage. What happen if the orders are misplaced or forgotten? Of course it will give more harm than good to both parties.

Many of us in Malaysia have unfavorable attitude or zero attitude towards this kind of technology advancement. One of the reasons is they are scared that the system will replace the human being. This is not a true statement. Technology is not meant to replace human being, but it is used to make human lifestyle simpler. It also used to reduce time and improve efficiency in restaurant industry.

1.2 PROBLEM STATEMENT

Food and beverage serving and related workers are the front line of customer service in restaurants, coffee shops, and other food service establishments. These workers greet customers, escort them to seats and hand them menus, take food and drink orders, and serve food and beverages. They also answer questions, explain menu items and specials, and keep tables and dining areas clean and set for new diners. Most work as part of a team, helping coworkers to improve workflow and customer service. [14]

Waiters and waitresses, the largest group of these workers, take customers' orders, serve food and beverages, prepare itemized checks, and sometimes accept payment. Their specific duties vary considerably, depending on the establishment. In coffee shops serving routine, straightforward fare, such as salads, soups, and sandwiches, servers are expected to provide fast, efficient, and courteous service. In fine dining restaurants, where more complicated meals are prepared and often served over several courses, waiters and waitresses provide more formal service emphasizing personal, attentive

treatment and a more leisurely pace. They may recommend certain dishes and identify ingredients or explain how various items on the menu are prepared. Some prepare salads, desserts, or other menu items tableside. [14]

Figure below shows the distribution of job among the various food and beverage serving workers in United State in year 2004.

Table 1.1: Distribution of job in United State Year 2004 [14]

No.	Position	Number of workers
1.	Waiters and waitresses	2,252,000
2.	Combined food preparation and serving workers, including fast food	2,150,000
3.	Dishwashers	507,000
4.	Bartenders	474,000
5.	Counter attendants, cafeteria, food concession, and coffee shop	465,000
6.	Dining room and cafeteria attendants and bartender helpers	401,000
7.	Hosts and hostesses, restaurant, lounge, and coffee shop	328,000
8.	Food servers, nonrestaurant	189,000
9.	All other food preparation and serving related workers	64,000

According to the table above, it prove that the cost of labor for waiters and waitresses are the highest among all other position in restaurant industry since it is the largest group of workers. The author wanted to relate that even though the table above is a statistic for United State, Malaysia statistic would be more or less the same. The amount of the workers would be less than United State but the number of waiters or waitresses in restaurant industry in Malaysia would be higher compare to other position. Even though the restaurant owner knows that hiring too many staffs will increase the cost labor, but why they still keep on hiring staffs? It is because Malaysians are not aware of the increasing cost of labor or they are not ready to change?

The system that has been use in Malaysia is still a conventional way which is using the paper based ordering system. Sometime this manually ordering system will cause some problems. There are times where orders are misplaced or forgotten about, while other times, the orders are sent to the wrong tables. This is because, when the orders are done manually in paper, the chances of papers being misplaced or lost are incredibly high.

In this day and age, most of the diners are more focus about convenient and speed of services, yet in modern catering outlets, workflow is slow and not well organized. The author had come to a solution to implement a system where it can give benefits to both customers and staffs. The system will be used by customers and all the orders will be sent straight away to the chefs computers. The details of each order would then be saved into the computer for future references. This concept definitely saves a lot of space and time. Plus, the amount of effort contributed by each staff could be reduced.

1.2.1 RESEARCH QUESTIONS

Several type of research area will be covered through this project based on some questions. Some examples of the research questions are:

i) How does the system benefit the user?
ii) What are the system requirements?
iii) How does the system work?
iv) Does Malaysians willing to change?

1.2.2 SIGNIFICANCE OF THE PROJECT

With the prototype that will be developed, it will show that the system can help to reduce the cost of labor and time. User can order the food without any difficulties because it has been design to be a very user friendly system. The food also has been separated into different type or courses. This will make the ordering system more systematic and faster. On the other hand, it will reduce the cost of labor because the owner might not need more workers when this system is being used.

The author hope that this system will be accepted by Malaysian because this is one of the technology that Malaysians did not familiar with. Even though Malaysian has been practicing a manual ordering system, the author thinks that this is the time for Malaysian to change towards the technology advancement.

1.3 OBJECTIVES AND SCOPE OF STUDY

At the end of the study, there are several objectives need to be achieved. The objectives are:-

i) **To determine the readiness of Malaysians in using a computerized system.**

In order to develop a new system, the readiness of Malaysian should be determined. It is to know whether Malaysians are ready to change towards the technological advancement. In order to know the readiness of Malaysians to change, the author had come out with a questionnaires and it has been distributed among other peoples.

ii) **To make the system user friendly and overcome the current problem in this system.**

For this project, the author focuses on developing a user friendly system that can be use by all users. There are certain criteria that need to be considered in order to develop a good interactive system such as orienting the user to the interface. This is one of the ways to convince users to interact with the system because these first screen often the only chance to show the user and the expectation towards the system. On the other hand, the author also needs to consider a first time user who is not very familiar with the computers. This user friendly interface may help them to understand the system easily.

Usability of the system should be considered because usability refers to how easy an interface design is to understand and use. Using the system, users will key in the food that they like using the mouse.

1.3.1 THE RELEVANCY OF THE PROJECT

This project is definitely related to Information Technology. The development of the system involves the use of interactive method using Macromedia Dreamweaver. All the knowledge related to multimedia and human computer and interaction will be applied. All the information and data that involve the skills of using Information Technology tools will also be documented.

This system is being developed to decrease the amount of workload carried out by each of the employees in the restaurant. It is also being developed to decrease the amount of errors produced in the manual ordering system. This would thus, make the work performed in the restaurant more efficient, accurate and effective.

CHAPTER 2

LITERATURE REVIEW

2.1 E-RESTAURANT

"The system may be used by a restaurant to facilitate ordering menu items by a customer. The customer can request the system to display full-color images of a menu item as a help to decide what to order. The customer can also obtain a list of ingredients, method of preparation and nutritional information for a selected menu item. When the customer decides to order a particular menu item, the system captures the ordered item and tabulates a running bill. In another embodiment of the system, multiple visual ordering devices are networked together at the restaurant. The system enables businesses to reduce labor costs in running the business and provides the customer with more information at the point of sale to make a more informed decision." (United States Patent 5845263, last access, May 26, 2006)

"How many times have you sat around in a restaurant waiting for someone to notice that you are giving the international symbol for "I am ready to order" (namely...you stop looking at the menu) with no waitperson in sight? Many restaurants already have huge touchpad instruments for the staff to enter orders in, why not push that technology out to each table? Then you can order right away if you want to, nothing is forgotten. Keyboards can be part of system so that special requests can be requested. No more confusion about what the specials are as they can be displayed as the "title" page." (Halfbakery Automated Restaurant Table, last access, May 26, 2006)

"By end-2006 sandwich chain Subway, which franchises 24,000 locations worldwide, has a goal of installing kiosk-based ordering system in at least 500 to 1,000 of its

restaurants. Current industry estimates are that self-serve technologies at restaurants, including those in the fast-casual and casual dining markets, can reduce customer waiting time by up to 33 per cent. Typical line-busting kiosk devices for restaurants resemble ATMs or self-checkouts but contain software systems designed specifically for self-service ordering at fast-food and quick-serve restaurants. When a kiosk deployment goes live at a restaurant, managers are advised to retain at least one cashier to assist customers who may be wary of technology. Easy selection of orders is also key to a successful kiosk ordering system, as is the provision of user-friendly order lists, size options and a range of pricing structures to encourage successful customer adoption." (ePay News, last access, May 26, 2006)

"The basic problem in the food service industry is that restaurants are not realizing efficiencies that would result from better applications of technology in their daily operations. Now when the customer enters the restaurant, he will place his order with the help of the touch screen using the intuitive graphical user interface, right from the selection of language till the payment confirmation. He will select from the food options according to his choice and the system will display the payment amount he has to make once he has finished with his order." (Vimal Mayank, Mark Austin and Deep Saraf, September 22, 2004)

Cost Control alongside growth:
"We have reduced food and labor costs and actually improved guest service." (Applebee's Franchisee)

Lowest Total Cost of Ownership:
"eRestaurant is an amazing product, which far outperforms any back office software available." (Del Taco Franchisee)

Reliability and Availability:

"eRestaurant Services product runs stable even in a heavy load environment. We have been using it for over one and a half years now and it has exhibited outstanding performance in all situations." (Burger King Franchisee (47 units))

Differentiated Services:

"eRestaurant Services, its unbeatable performance and outstanding features are a must for every restaurant company serious about profitability." (Wendy's Franchisee)

"The tri-State area's premiere integrator of food service automation technologies, serving New York, Long Island, New Jersey and Southern Connecticut. Since our inception in 1991, we are continually strived to offer powerful, reliable, and affordable solutions to both corporate and independent markets. We offer an exciting array of products and services designed to cut operating costs while maximizing return on your investment. Our client range from single station cash and carry operations to multinational corporations, and everything in between. The products we represent have been successfully installed in over 30, 000 locations worldwide, including fast food chains, restaurants, corporate food service, delivery operations, catering facilities, bars, hotels, institutions, airport, arenas and more." (Rap Pos.com)

"eRestaurant Services is one of the most effective Restaurant Management Solutions available." (Golden West Restaurants)

"Cut time, decrease mistakes, ameliorates efficiency and maximizes the true implied of your restaurant with this restaurant patron & reservation package. – Manage reservation & patron details – Advanced table availability searching - Search after reservations, customers & aspect patron record - Easily control the flow of customers through the restaurant – User friendly interface with sunny reservation list – Extremely quick reservation input operation – Easy handling of 'Walk-in' bookings – Customer database – register patron details and notes – Fully customizable." (Kernow Software)

2.2 RAPID APPLICATION DEVELOPMENT

A programming system that enables programmers to quickly build working programs. In general, RAD systems provide a number of tools to help build graphical user interfaces that would normally take a large development effort.

According to James Martin (1991), Industry Guru:

> "RAD refers to development lifecycle designed to give much faster development and higher quality result than the traditional lifecycle"

According to Walter Maner, (2005), Lecturer of Boston University, USA:

> "A software development process that allows usable systems to be built in as little as 60 to 90 days often with some compromises"

According to Hoffer, (2005), Prentice Hall Glossary:

> "Systems development methodology created to radically increasing the time needed to design and implement information systems. RAD relies on extensive user involvement, Joint Application Development (JAD) sessions, prototyping, integrated CASE tools and code generators"

2.3 HUMAN COMPUTER INTERACTION

Human computer interaction (HCI) lies at the intersection between the social and behavioral sciences and computer and information technology. HCI is concerned with how people make use of devices and systems that incorporate or embed computation.

Below is the definition of Human computer interaction (HCI):

- "Human computer interaction is concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomenon surrounding them." (ACM SIGCHI, 1992)

- "Human computer interaction is the branch of informatics that studies and supports the design, development and implementation of humanly and socially acceptable information technologies." (Indiana University)
- "Human computer interaction is the disciplined concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomenon surrounding them." (Dix, 1998)

2.3.1 PRINCIPLE OF HUMAN COMPUTER INTERFACE DESIGN

According to Shneiderman's (1988), Principle of Human-Computer Interface Design:

1. Strive for consistency

    - Consistent sequences of actions should be required in similar situations
    - Identical terminology should be used in prompts, menus, and help screens
    - Consistent color, layout, capitalization, fonts, and so on should be employed throughout.

2. Enable frequent users to use shortcuts

    - to increase the pace of interaction use abbreviations, special keys, hidden commands, and macros

3. Offer informative feedback

    - for every user action, the system should respond in some way (in web design, this can be accomplished by DHTML - for example, a button will make a clicking sound or change color when clicked to show the user something has happened)

4. Design dialogs to yield closure

    - Sequences of actions should be organized into groups with a beginning, middle, and end. The informative feedback at the completion of a group of actions shows the user their activity has completed successfully

5. Offer error prevention and simple error handling

    - design the form so that users cannot make a serious error; for example, prefer menu selection to form fill-in and do not allow alphabetic characters in numeric entry fields
    - if users make an error, instructions should be written to detect the error and offer simple, constructive, and specific instructions for recovery
    - segment long forms and send sections separately so that the user is not penalized by having to fill the form in again - but make sure you inform the user that multiple sections are coming up

6. Permit easy reversal of actions
7. Support internal locus of control

    - Experienced users want to be in charge. Surprising system actions, tedious sequences of data entries, inability or difficulty in obtaining necessary information, and inability to produce the action desired all build anxiety and dissatisfaction

8. Reduce short-term memory load

    - A famous study suggests that humans can store only 7 (plus or minus 2) pieces of information in their short term memory. You can reduce short term memory load by designing screens where options are clearly visible, or using pull-down menus and icons

According to Norman (1988), design should:

Use both knowledge in the world and knowledge in the head. Knowledge in the world is overt - we don't have to overload our short term memory by having to remember too many things (icons, buttons and menus provide us with knowledge in the world - we don't have to remember the command for printing, it's there in front of us). On the other hand, while knowledge in the head may be harder to retrieve and involves learning, it is more efficient for tasks which are used over and over again (providing a command key sequence like Control P for Print is an example of this).

"Make it easy to determine what actions are possible at any moment (make use of constraints)" (p. 188)

2.3.2 THE PRINCIPLE OF USER PROFILING

According to Talin (August 14, 1998):

-- Know who your user is.

Before we can answer the question "How do we make our user-interfaces better", we must first answer the question: Better for *whom*? A design that is better for a technically skilled user might not be better for a non-technical businessman or an artist.

One way around this problem is to create user models. [TOG91] has an excellent chapter on brainstorming towards creating "profiles" of possible users. The result of this process is a detailed description of one or more "average" users, with specific details such as:

- What are the user's goals?
- What are the user's skills and experience?
- What are the user's needs?

Armed with this information, we can then proceed to answer the question: How do we leverage the user's strengths and create an interface that helps them achieve their goals?

In the case of a large general-purpose piece of software such as an operating system, there may be many different kinds of potential users. In this case it may be more useful to come up with a list of *user dichotomies*, such as "skilled vs. unskilled", "young vs. old", etc., or some other means of specifying a continuum or collection of user types.

2.3.3 GENERAL PRINCIPLE OF USER INTERFACE DESIGN

According to Jakob Nielsen (1990), ten general principles for user interface design:

1) **Visibility of system status** - The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.
2) **Match between system and the real world** - An HCI which uses real-world metaphors is easier to learn and understand. This will assist a user in figuring out how to successfully perform tasks.
3) **User control and freedom** - System functions are often chosen by mistake. The user will then need a clearly marked exit path.
4) **Consistency and standards** - Words, situations and actions need to be consistent and have the same meaning. A list of reserved words can be assist in this area.
5) **Error prevention** - It is obviously best to prevent errors in the first place through careful design. However, errors do occur and they need to be handled in the best possible way.
6) **Recognition rather than recall** - The user should not have to remember information from one session to another. Rather, the user should be able to 'recognize' what is happening.
7) **Flexibility and efficiency of use** - The system should be efficient and flexible to use. Productivity should be increased as a user learns a system. The system should not control the user; rather, the user should dictate which events will occur. The system should be suitable for new and power users.
8) **Aesthetic and minimalist design** - Information which is irrelevant should not be displayed. The user should not be bombarded with information and options

9) **Help users recognize, diagnose, and recover from errors** - Error messages need to be clear and suggest a solution.

10) **Help and documentation** - Users tend to turn to help and documentation as a last resort. Help functionality needs to be context-sensitive and easy to search.

CHAPTER 3

METHODOLOGY

This section describes the process that has been gone through in completing the system.

3.1 PROCEDURE IDENTIFICATION

The development of this project is based on Rapid Application Development methodology. RAD is a software development process that allows usable systems to be built in as little as 60-90 days, often with some compromises. This methodology is chosen because:

i) To more actively involve system users in the analysis, design and construction.

ii) To save development time.

iii) To accelerate the requirement analysis and design phase through an iterative construction approach.

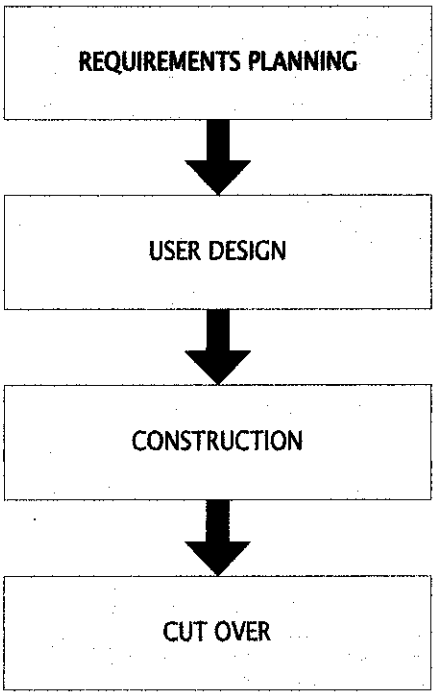

Figure 3.1: RAD Process

3.2 STAGES OF RAD

In developing this project, the methodology of Rapid Application Development (RAD) is selected as the project should be completed and deployed within a short timeframe. Generally, this methodology has four (4) main phases which are:

i) Requirement Planning;
ii) User Design;
iii) Construction;
iv) Cut Over

Since all the stages are interrelated, each phase has to be done sequentially, without any exception.

3.2.1 REQUIREMENTS PLANNING

Requirement planning establishes the project scope, goals, schedule, and budget (if applicable) required to solve the problem or opportunity represented by the project. Project scope defines the area of the business to be addressed by the project and the goals to be achieved. In this phase, the author had discussed about what are the problems that

current system has and what are the things that are needed for the development purposes. In this phase also, identification of the criteria of the system is done in order to make sure it fulfills the requirement of the e-restaurant. Among discussed criteria that will be included in the system are:

i) The design of the system;

ii) User input;

iii) User view

During this phase, the author also had been considering some other element such as the end users itself. Even though Malaysia is a developing country that is using a latest technology, but still there are some of the citizen who is computer illiterate. The author had that that into a consideration whereby the system will not be a very complicated and it will be helpful and easy to understand. This is to ensure that the system can be implemented and can be accepted by Malaysians.

3.2.2 USER DESIGN

The next step in Rapid Application Development (RAD) methodology is User Design. It is intended to design an interface and database of the system. The completion of this phase often results in the need to update many of the deliverables produced earlier, during system initiation. There several task that is done to complete this phase. The author is using the Macromedia Dreamweaver MX to create the user interface. In order to create the user interface, the author had used the ten general principle of user interface design in order to make sure that the interface can be understand easily even for a first time user. The author had used the principle in human computer and interaction because the system is expected to use by all level. The author had considered some people who are not getting formal education in using computers to use this system. The author also had made a very user-friendly interface with very minimum pages for the customers in order to make them feel very comfortable and on the other hand to reduce time.

The user interfaces have been design in a very proper way whereby it can be recognize even from a first look. In order to create the user interfaces, all words and the function had been design very consistence and standards. This is to ensure that all words or button

function is the same in that particular pages and system. In this phase also, the author had come out with a flow of the system. The reason why the author came out with this flow is to make sure that the flow is efficient as compared to the current system. Figure below shows the flow of the system.

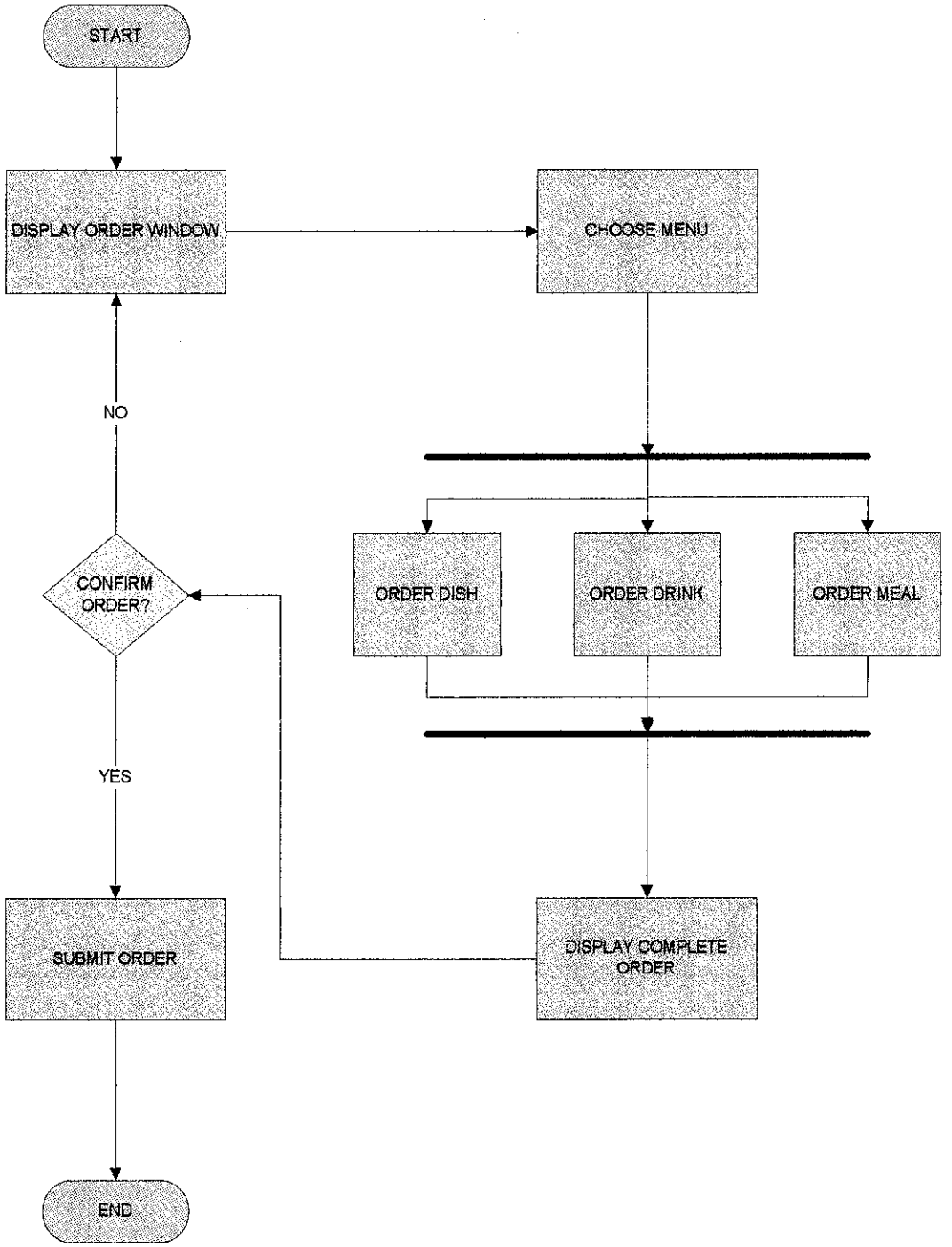

Figure 3.2: System flow for customer order

3.2.3 CONSTRUCTION

Once a technical alternative is chosen and approved, the Construction phase develops the actual system that referred from the requirement planning and the User Design phase. In this phase, all the detailed design will be turned into code using CASE tools' code generator. Some changes and adjustment will occur during this phase.

3.2.4 CUT OVER

The final step in this methodology is Cut Over. In this phase, the fully tested system is produced. Preparing the user manual is also will be done in this phase. The installation, testing, and delivery of a system are to be put into operation. The maintenance of the system also will be considered into Cut Over phase.

3.3 FACTORS FOR CHOSEN METHODOLOGY

There are some factors that make the author choose RAD as a methodology. Those factors are:-

3.3.1 Time Constraint

RAD methodology had been used in order to develop this project because it is the fastest way because it only has four phases. Instead of that, this method also is very suitable for a short term period project.

3.3.2 User Involvement

The level of user involvement is also very important in doing this project. The author needs to know what end user opinions on this project. Besides that, the author also needs to look on the end-user perspective whether this project can be accepted or not.

3.4 SYSTEM ARCHITECTURE

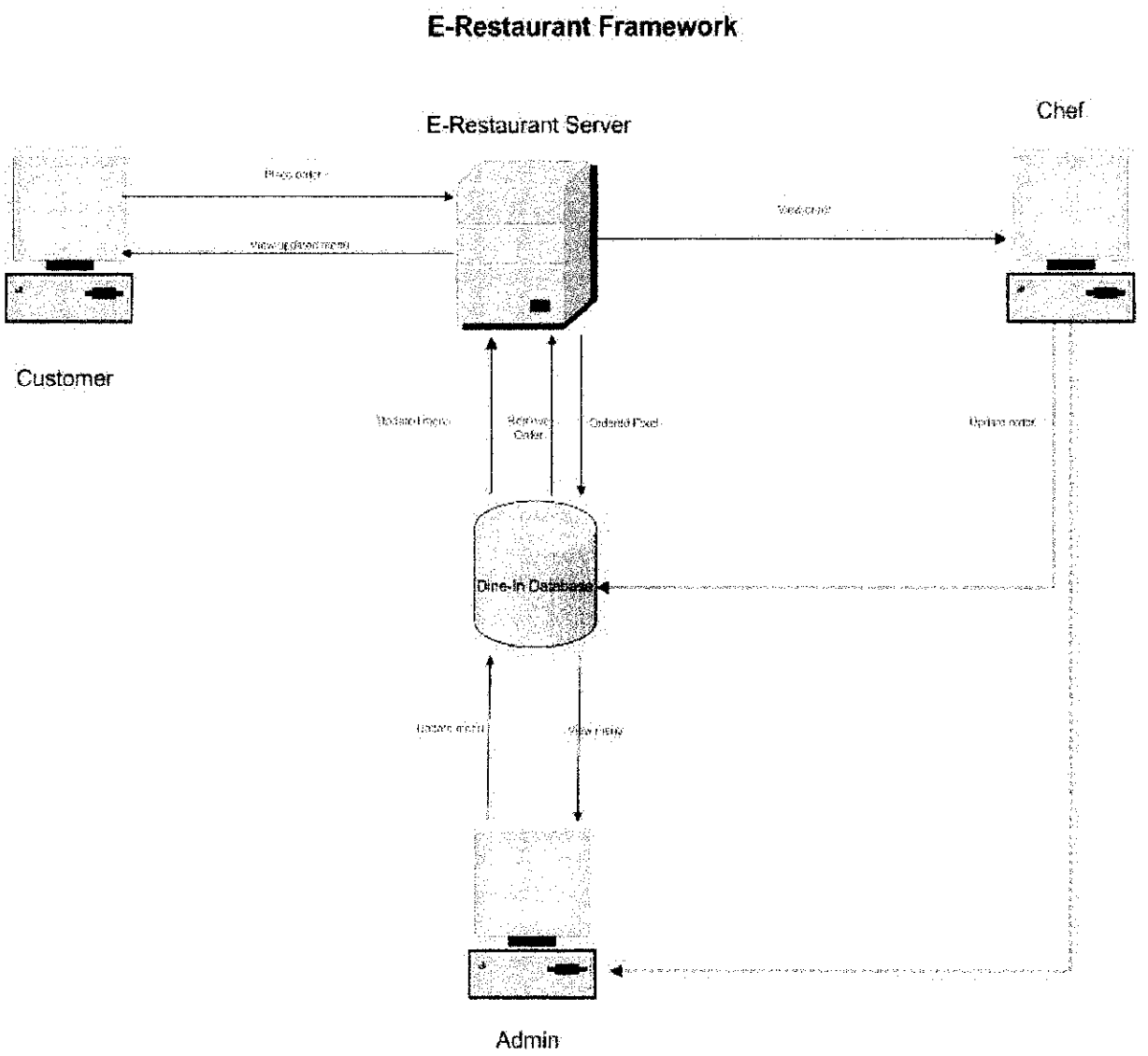

Figure 3.3: System architecture for e-restaurant

Figure 3.4 shows the system architecture for e-restaurant system. This system has 3 main users which is customers, administrator, and second level administrator. This system will begin with customers place their order using the order form that has been created for the system. The order will be process in the server and it will be store in the database. After chef or second level administrator login using the system, they will get the order that have been submitted by customers. Chefs will make the foods that have been ordered by customers and after finish making the food, they will update the order. Chefs or second

level administrator will update the status of order to "served" after food had been served to customers. In the system architecture also shows that there is an external process between the second level administrator and first level administrator in order for first level administrator to update the menu. According to the system architecture, first level administrator can view and update the menus.

3.5 TOOLS

In developing this project, tools are used to ensure it will successfully complete. The author has divided the tools into two categories which are:

3.5.1 Managerial purpose:

i) Microsoft word

This software is used to edit the text in the system and for report purposes. It is to ensure the system is free from grammatical error and spelling error.

ii) Microsoft Excel 2003

This software is used to create tables and Gantt chart for the project questionnaire.

iii) Microsoft Office Visio 2003

This software is used to draw figures and flow of the project.

3.5.2 Development purpose:

i) Macromedia Dreamweaver MX

This web development software will be used to create the web pages for the system. It has more features compare to other software. Macromedia Dreamweaver MX is one of the RAD tools that support some languages such as ASP, PHP, CSS, ColdFusion, Java (.jsp), and ASP.Net.

ii) Microsoft Access

Microsoft Access 2003 provides a powerful set of tools that are sophisticated enough for professional developers and easy to learn for new users. Access 2003

supports a variety of data formats including Extensible Markup Language (XML), Object Linking and Embedding (OLE) and Open Database Connectivity (ODBC).

iii) Active Server Pages

ASP is a Microsoft Technology. It can dynamically edit, change or add any content of a Web page. It is stable and mature in Windows environment. It also bundled with IIS and can interface to ODBC-compliant databases through ADO (ActiveX Data Objects).

iv) Internet Information Services

Microsoft's suite of Internet-related software included with the Windows 2000 and above operating system software. IIS provides both FTP server and web server capability. In order to run the ASP pages in windows platform, this web server must be installed in the operating system.

CHAPTER 4

RESULT AND DISCUSSION

This section discussed about the findings of the project and also the output of the system. Firstly it will begin with the questionnaires that have been distributed. The result of the questionnaires will be place in a table to make it more understandable. The detail of the result will be discussed and explain in a discussion section.

4.1 RESULT

In order to find out what are the readinesses of Malaysian to change towards the technology, some questionnaires have been distributed to 200 respondents. The questionnaires have been distributed among many different level such as students, government servant and self employed. These are the questions that have been asked to the respondents:

1) Have you ever heard about food ordering system?
2) Have you ever encounter with food ordering system?
3) Do you think Malaysians familiar with this kind of system?
4) In your opinion, can this system improve the conventional system?
5) If this system were to be implemented in Malaysia, u will
6) As a Malaysian, are you ready to face the change towards this technological advancement?
7) Among these, what is your priority?

The table below will be shows respondent feedback on e-restaurant:

Table 4.1: Respondent feedback on the surveys

QUESTION 1	**Yes**	**No**		
Have you ever heard about food ordering system?	126	74		
QUESTION 2	**Yes**	**No**		
Have you ever encounter with food ordering system?	80	120		
QUESTION 3	**Yes**	**No**		
Do you think Malaysians familiar with this kind of system?	69	131		
QUESTION 4	**Yes**	**No**		
In your opinion, can this system improve the conventional system?	153	47		
QUESTION 5	**Agree**	**Not Agree**	**Not Bother**	
If this system were to be implemented in Malaysia, u will	156	9	38	
QUESTION 6	**Yes**	**No**	**Not Sure**	
As a Malaysian, are you ready to face the change towards this technological advancement?	154	26	20	
QUESTION 7	**Ingredient**	**Price**	**Nutrition**	**Others**
Among these, what is your priority?	46	86	32	36

The respondents' feedbacks on the survey have been show in pie chart below. All details on the charts will be discuss and explain in discussion part.

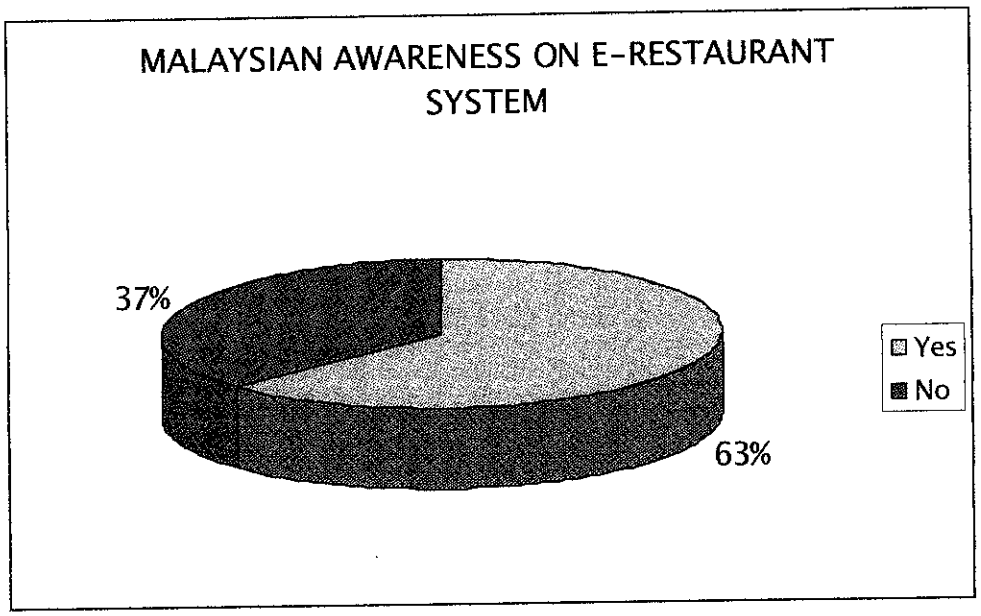

Figure 4.1: Malaysian awareness on e-restaurant

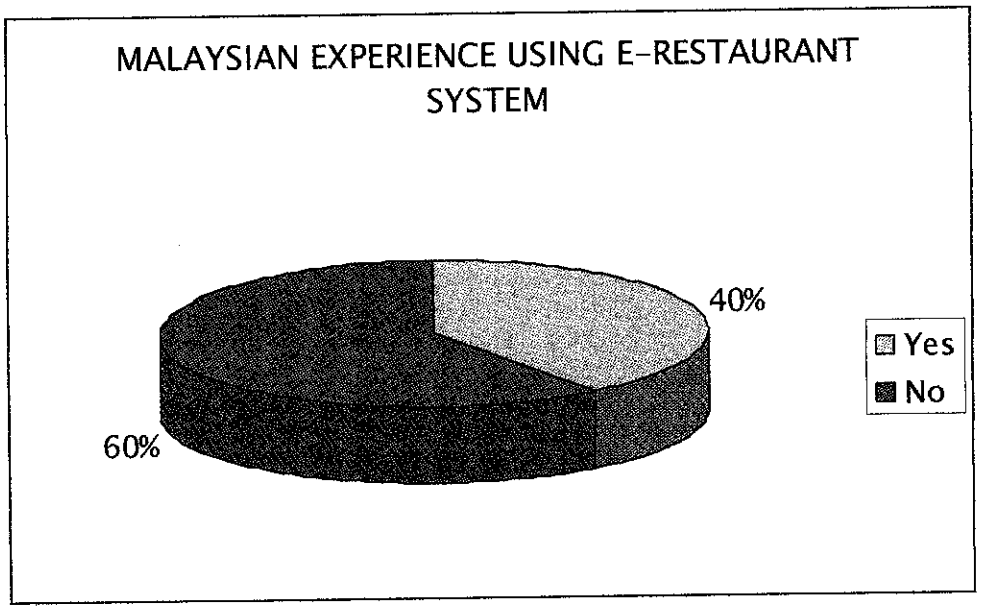

Figure 4.2: Malaysian experience using e-restaurant system

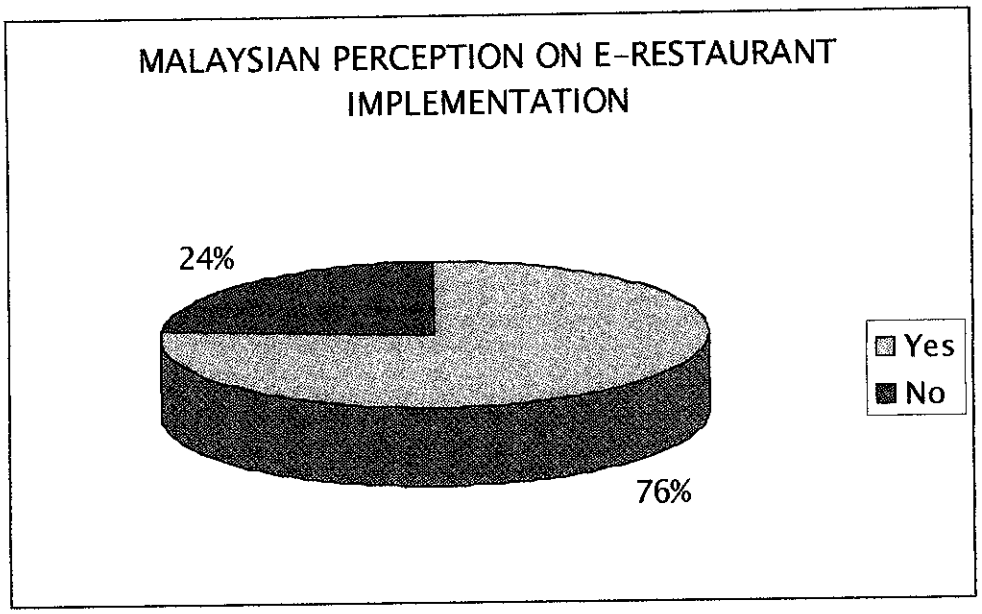

Figure 4.3: Malaysian perception on e-restaurant system

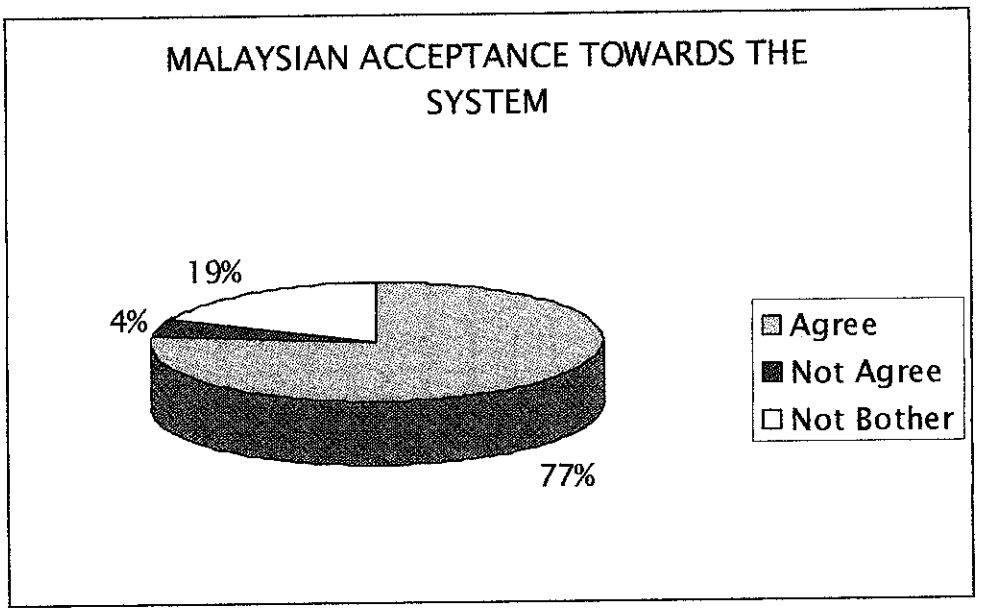

Figure 4.4: Malaysian acceptance towards the system

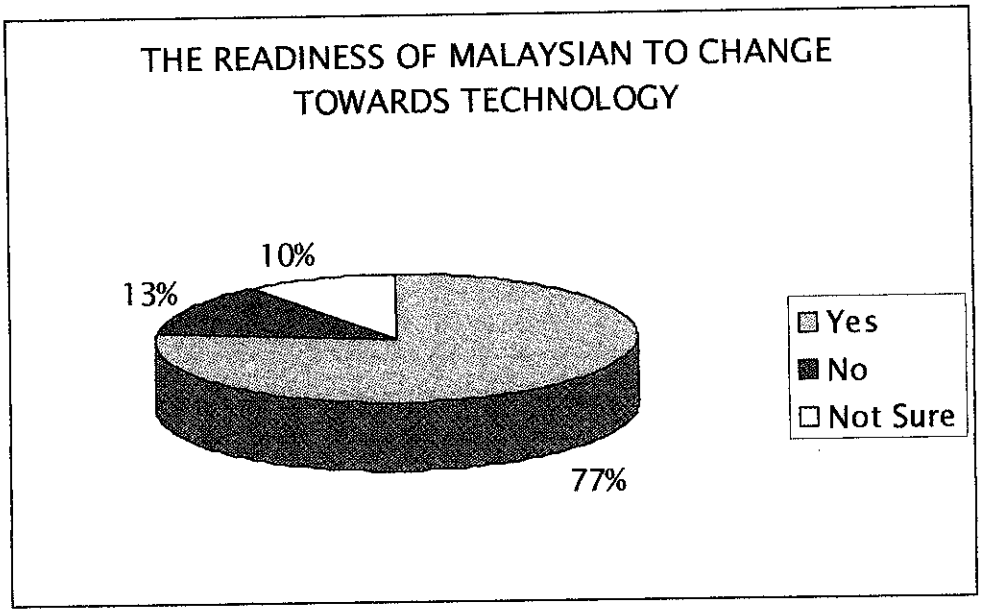

Figure 4.5: The readiness of Malaysian to change towards technology

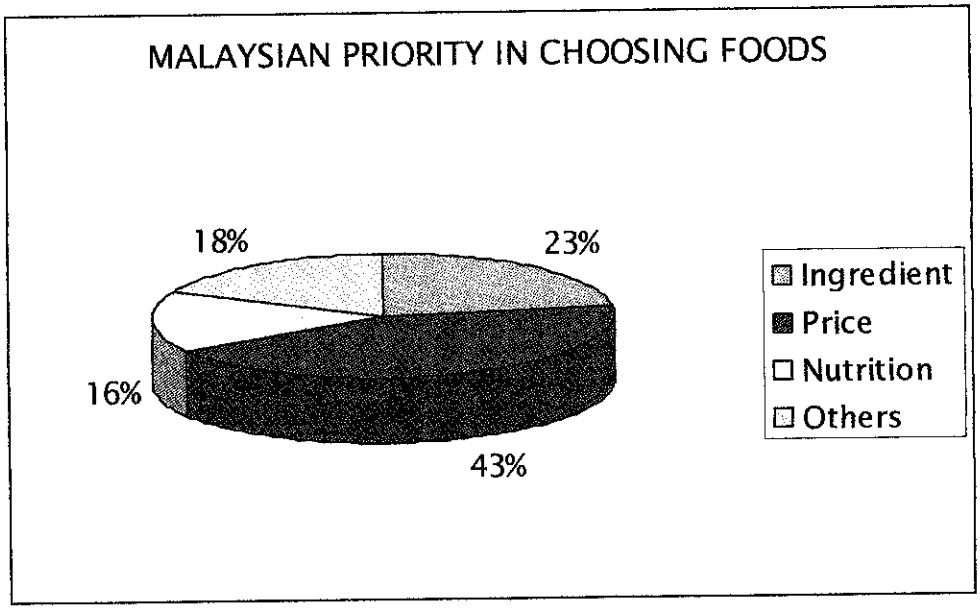

Figure 4.6: Malaysian priority in choosing foods

4.2 SYSTEM OUTPUT

4.2.1 Customers Order

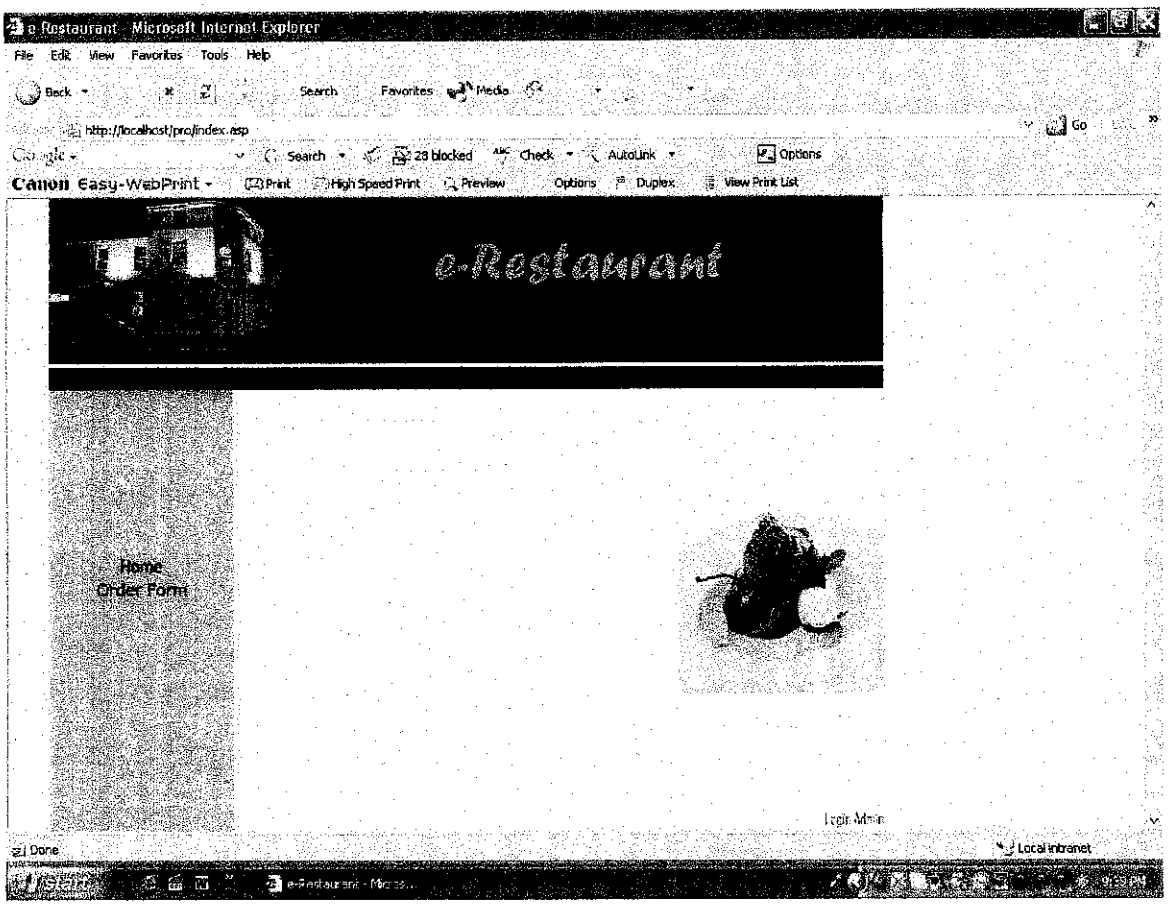

Figure 4.7: Main Page

Figure 4.7 shows the main page for e-restaurant system. From this page, user can access the order page. This page has been design with a very user-friendly and simple to use. Colors and the interface have been done according to human computer and interaction principle. This page also linked to administrator page whereby administrator can login through that page in order to insert, delete, or edit the menus.

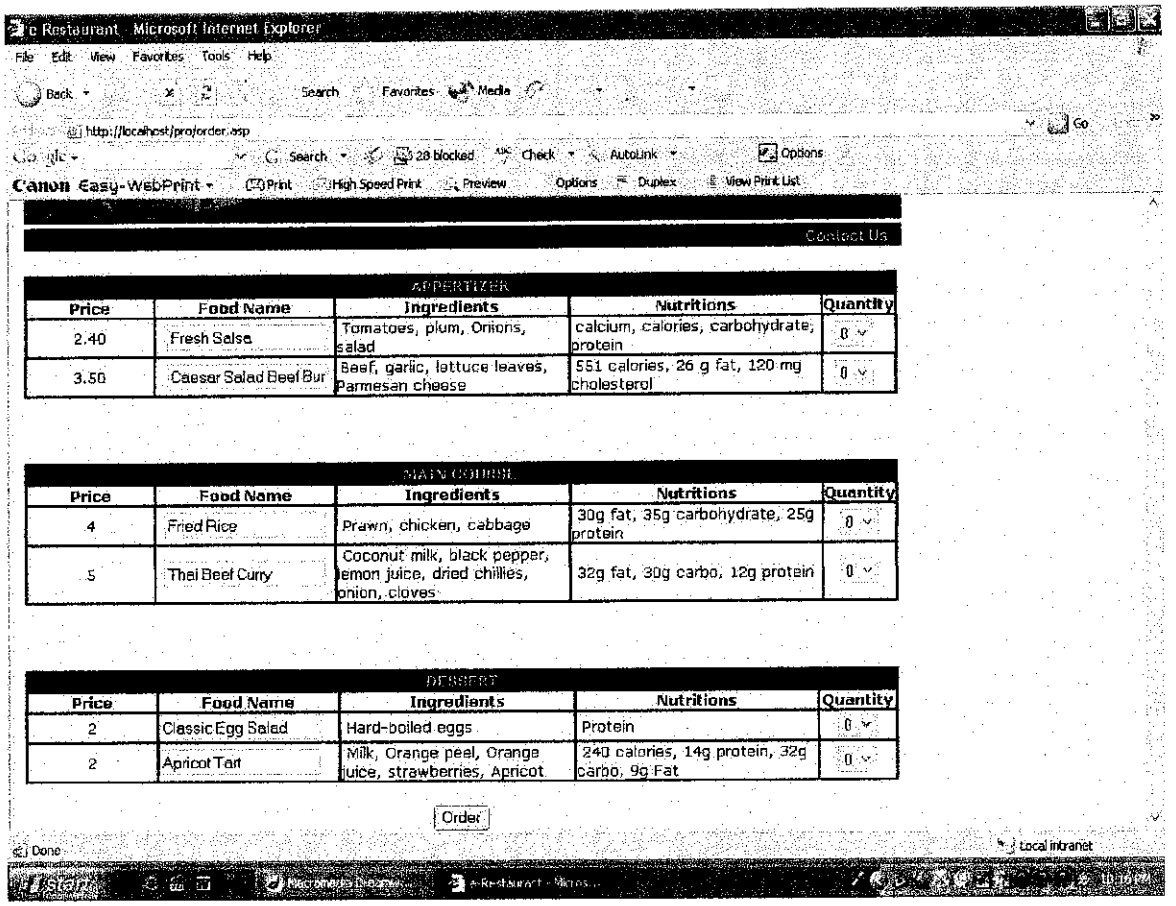

Figure 4.8: Order Page

Figure 4.8 shows the order page that will be use by the customers. Customer can see the details that have been provided in the menu list. The details that have been included in this page are price, food name, ingredients and nutrition. Customers can choose the quantity of the food that will be order using the drop down list that have been stated in the form. After choosing their order, they will order the foods by clicking the order button below the page.

4.2.2 Administrator (First level)

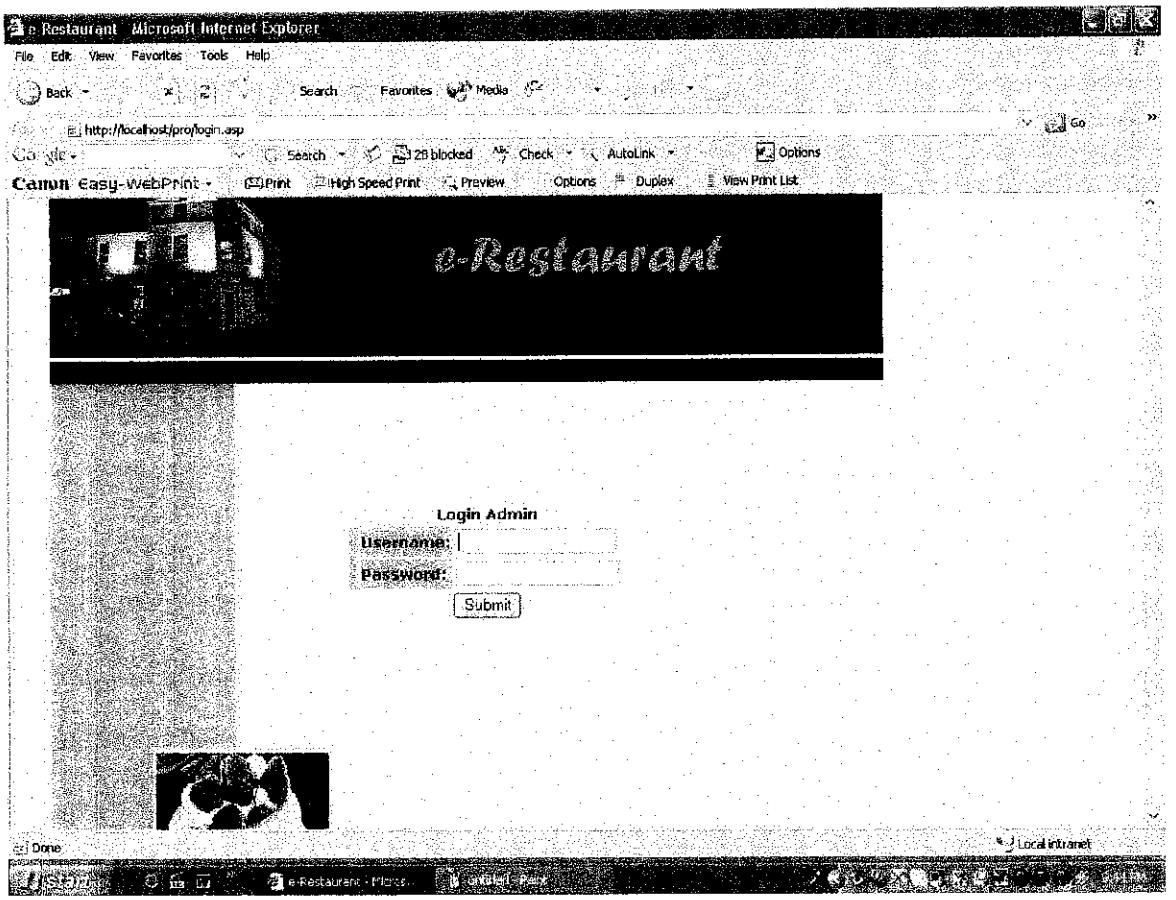

Figure 4.9: Admin Login Page

Figure 4.9 stated the screenshot of administrator login. Administrator will login using the password and username that have been given. This is also will redirect administrator to another page which has a few more options. There are two level of administrator. Those levels of administrator had some different functions.

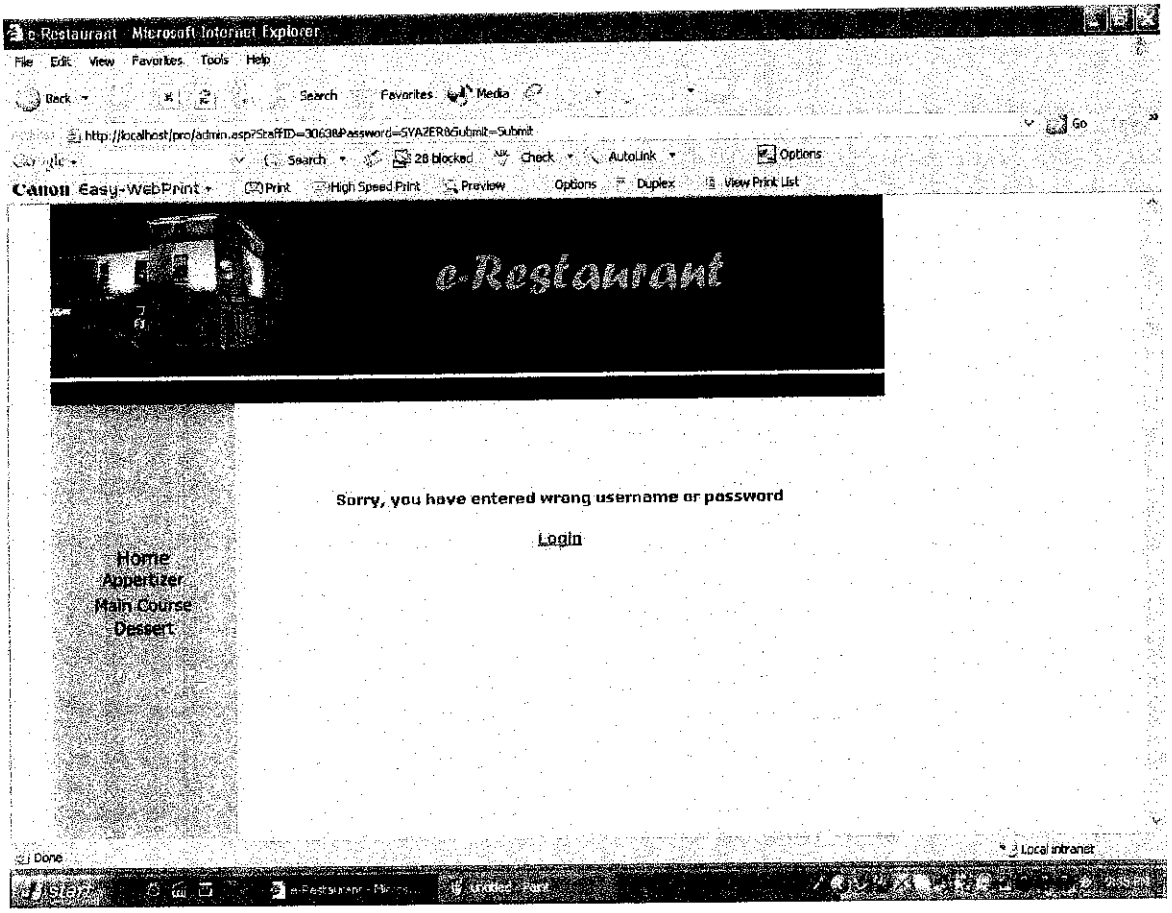

Figure 4.10: Error Message

Figure 4.10 show the error message that will be occurring if the administrators key in a wrong username or password. The login link will redirect to the login page.

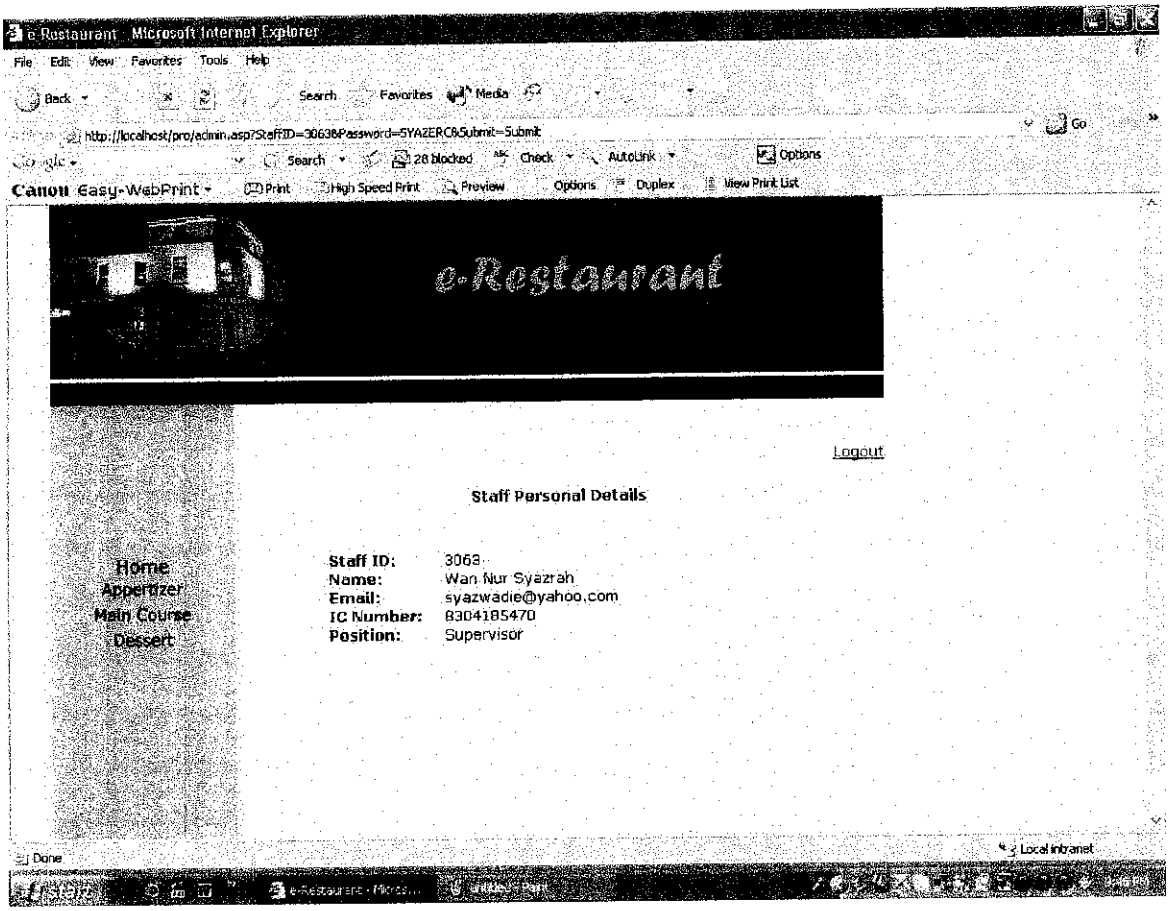

Figure 4.11: Staff Detail (Administrator)

Figure 4.11 show the staff details for first level administrator. Screenshot above shows the page that has been redirect after administrator had inserted the correct username and password. The logout link will be used in order for the administrator to logout from their account. There is a few other links that can be access by first level administrator. Link home will direct administrator to the main page. Link appetizer, main course and dessert will redirect administrator to the list of food for each courses.

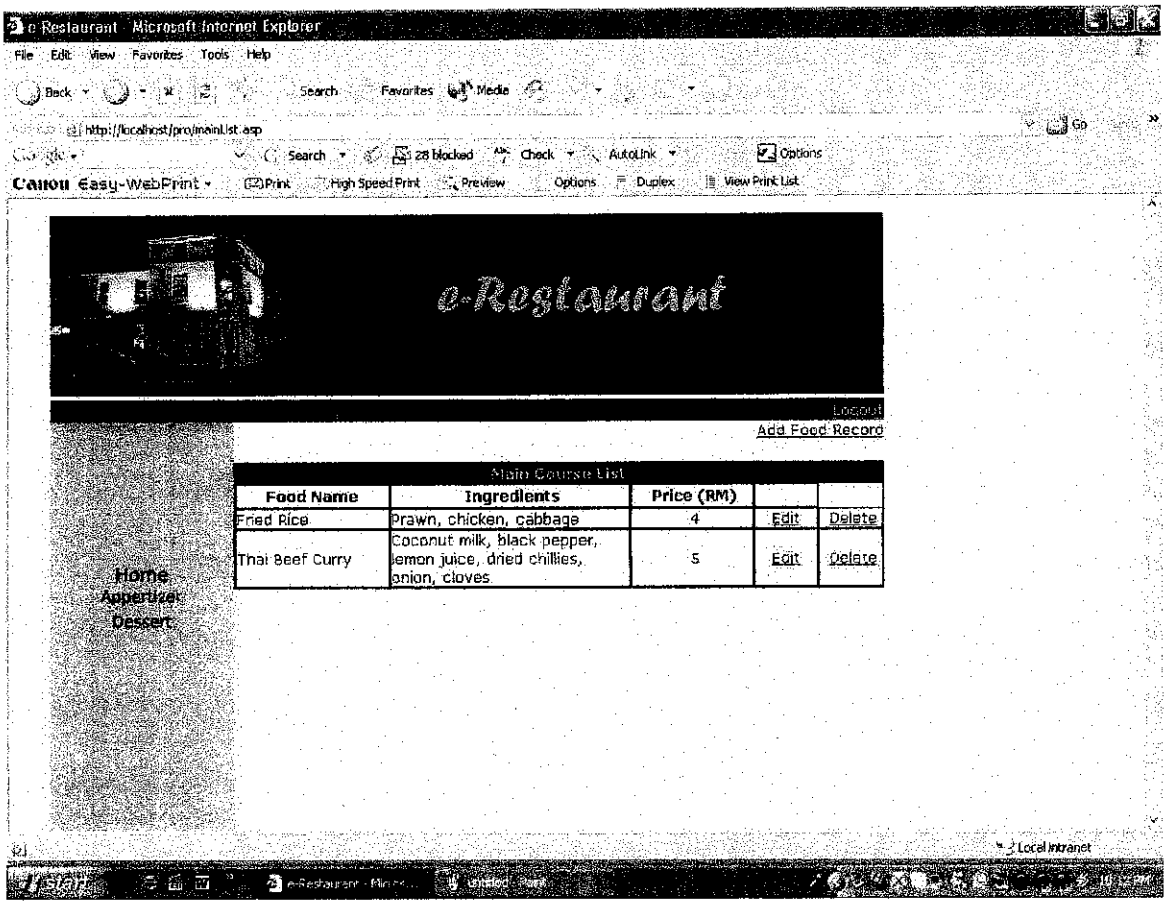

Figure 4.12: List of Foods

Figure 4.12 shows the list of foods that have been stored in the database. For each type of food, administrators are allow editing the existing menu, deleting the menus and add new menu. On this page, there are 3 functions that have been stated which adding food record is, edit and delete menu. Each link will redirect administrator to different pages.

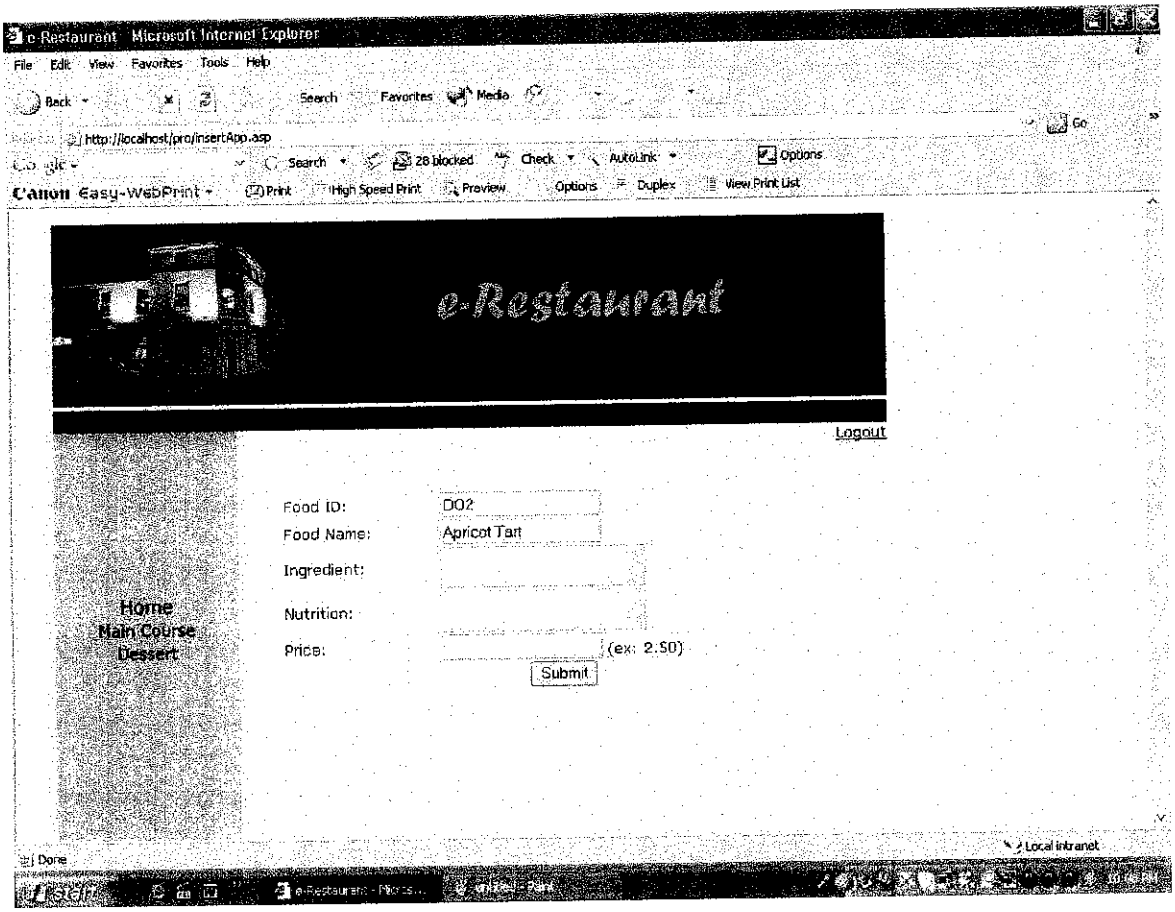

Figure 4.13: Insert New Menu

Figure 4.13 will appear if the administrator click the "Add food record" link in the previous page (Figure 4.12).This page used for inserting the food in the database menu. There a few options that need to be fill in by the administrator. All textboxes need to be fill in. If administrator did not or forget to fill in the blanks, popup message will be appear to remind them. In order to store the record in the database, the submit button must be click.

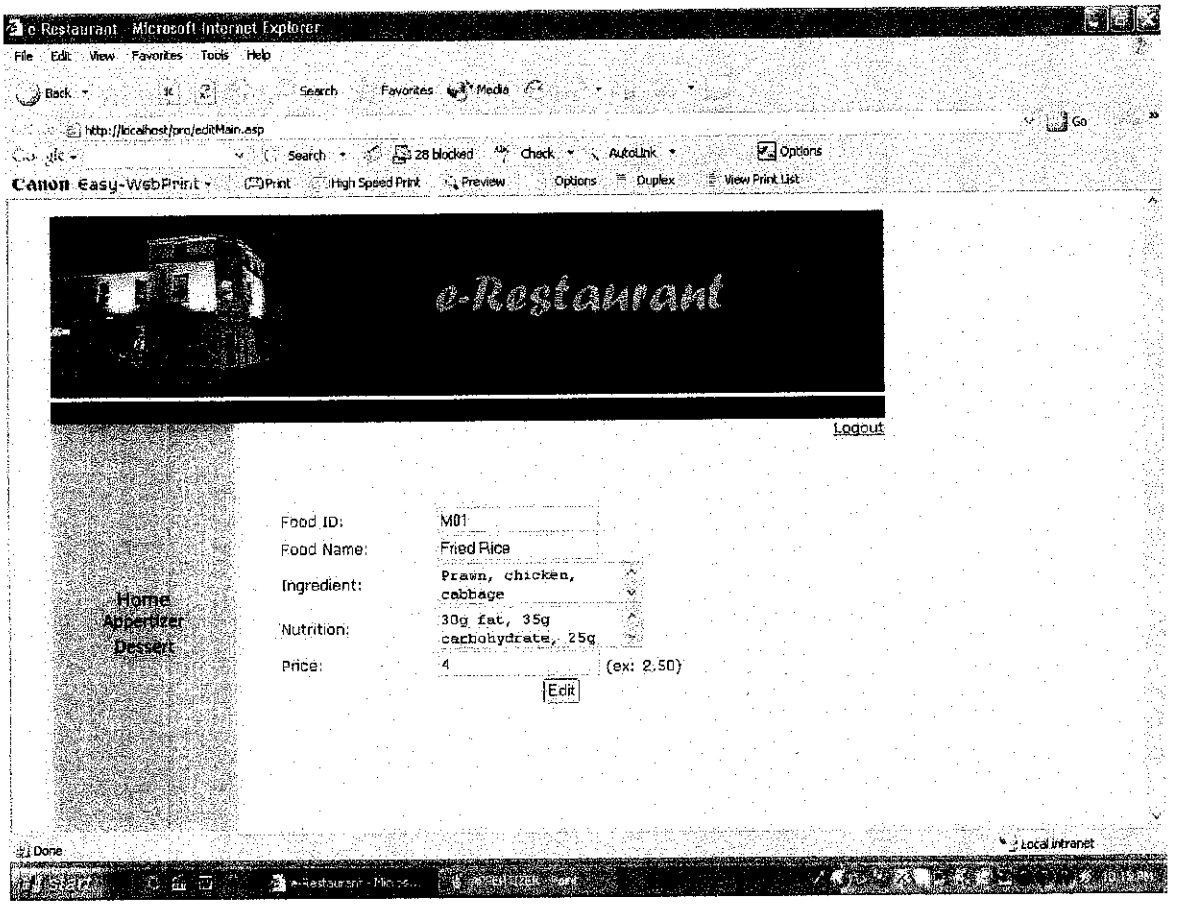

Figure 4.14: Edit Menu

When the administrator clicks the edit link that has been stated in the figure 4.12, it will link to the figure above. Figure 4.14 shows the edit menu whereby the administrator can edit the existing menus that have been stored in the database. When administrator click the edit button, all information that have been inserted using this page will be edited and replace the previous data.

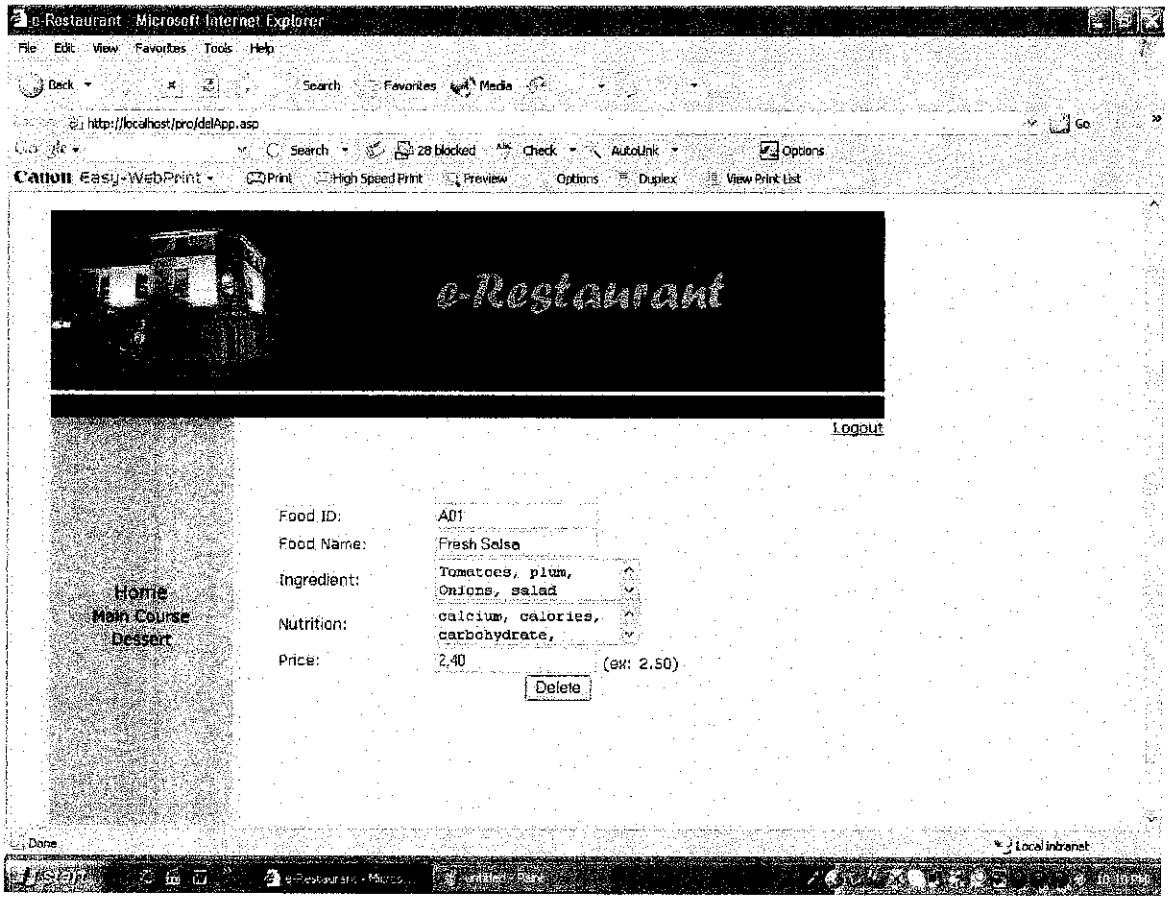

Figure 4.15: Delete Menu

Figure 4.15 will be redirect if administrator clicks the delete link. All menus that have not yet available can be deleted by accessing this page. After clicking the delete button, the food data will not be available in the database.

4.2.3 Chef (Second level administrator)

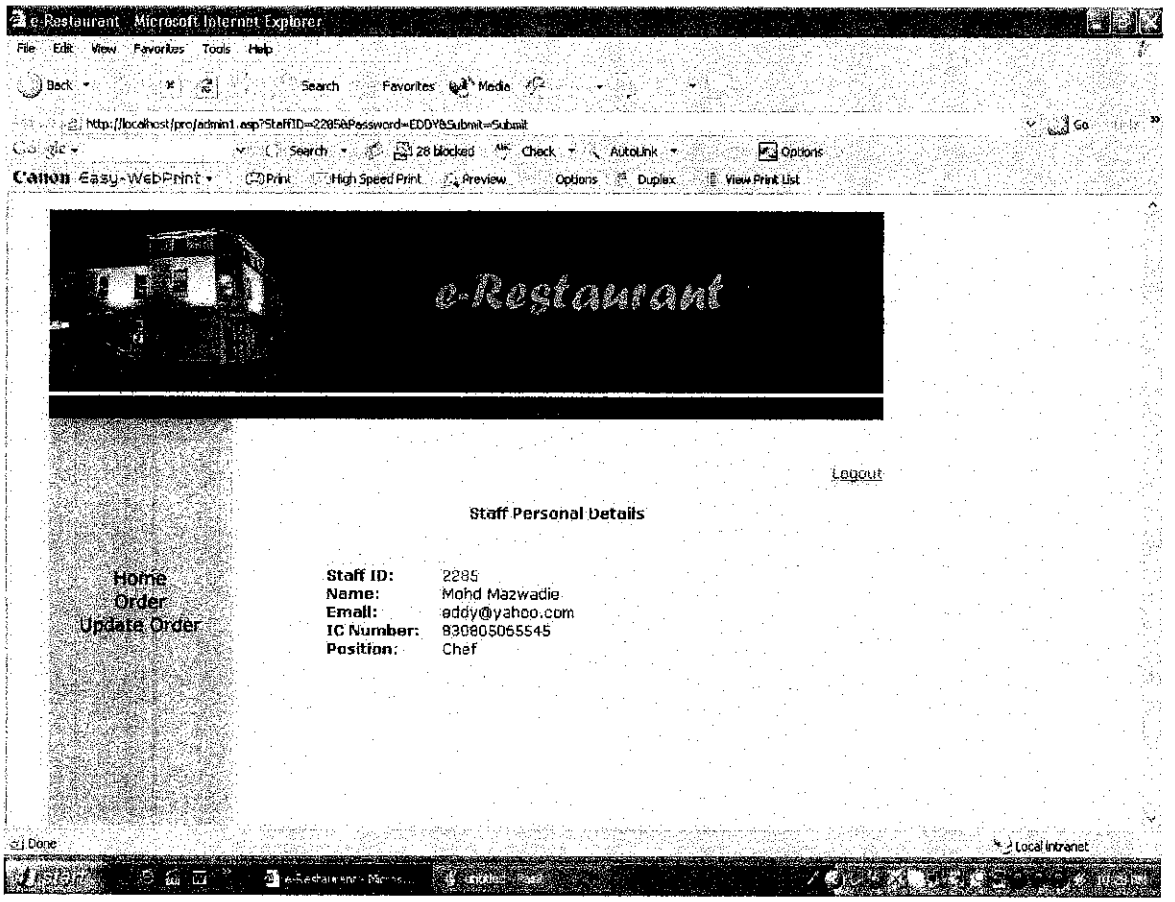

Figure 4.16: Staff Detail (Second Level Administrator)

Figure 4.16 is the screenshot of second level administrator detail. After submitting a correct username and password, it will automatically redirect to this page. Second level administrator or chefs have two functions which are viewing the order that have been submitted by customers and update the order. Since this is the second level administrator, so they are not allow to add, edit or deleting the menus in the database.

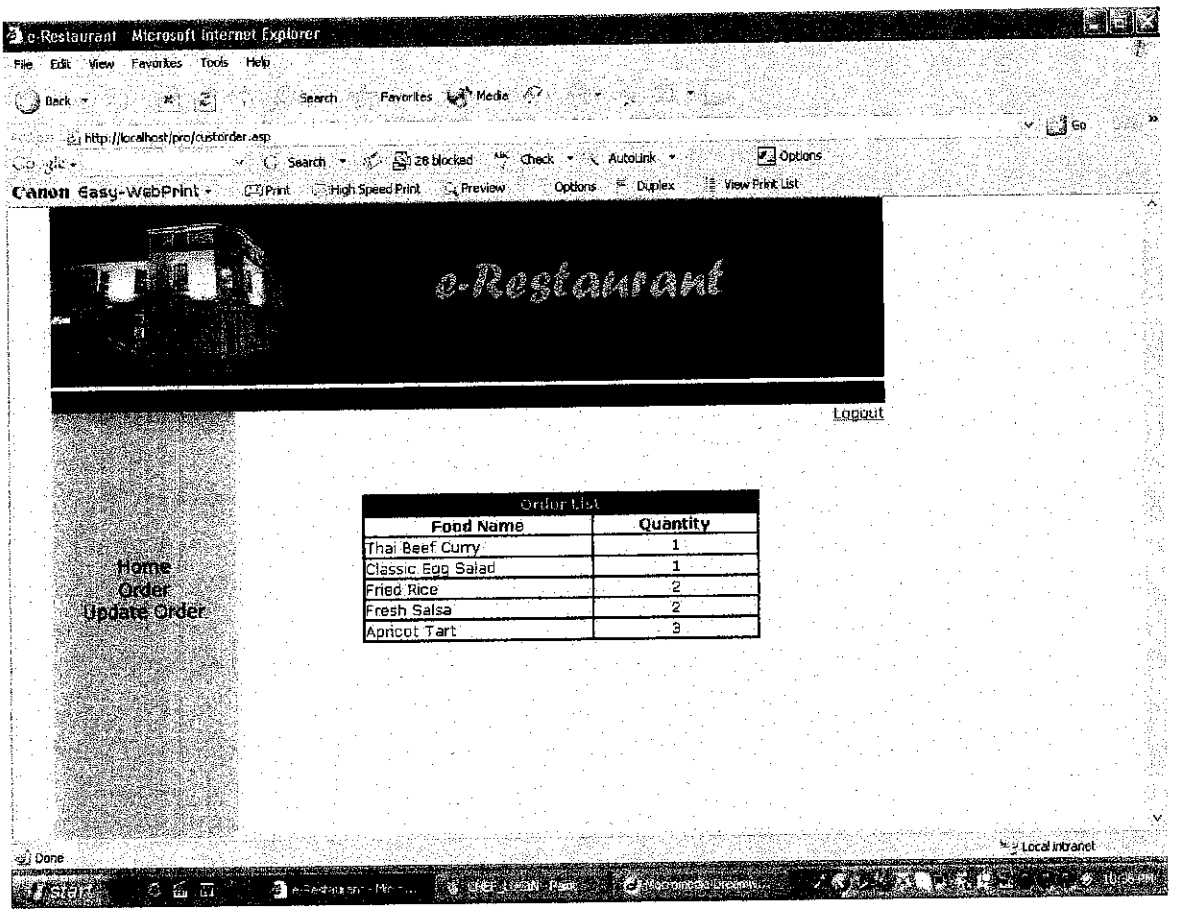

Figure 4.17: List of Order

The order link will redirect second level administrator to the figure above. It will show the order that have been submitted and the quantity of order for each food.

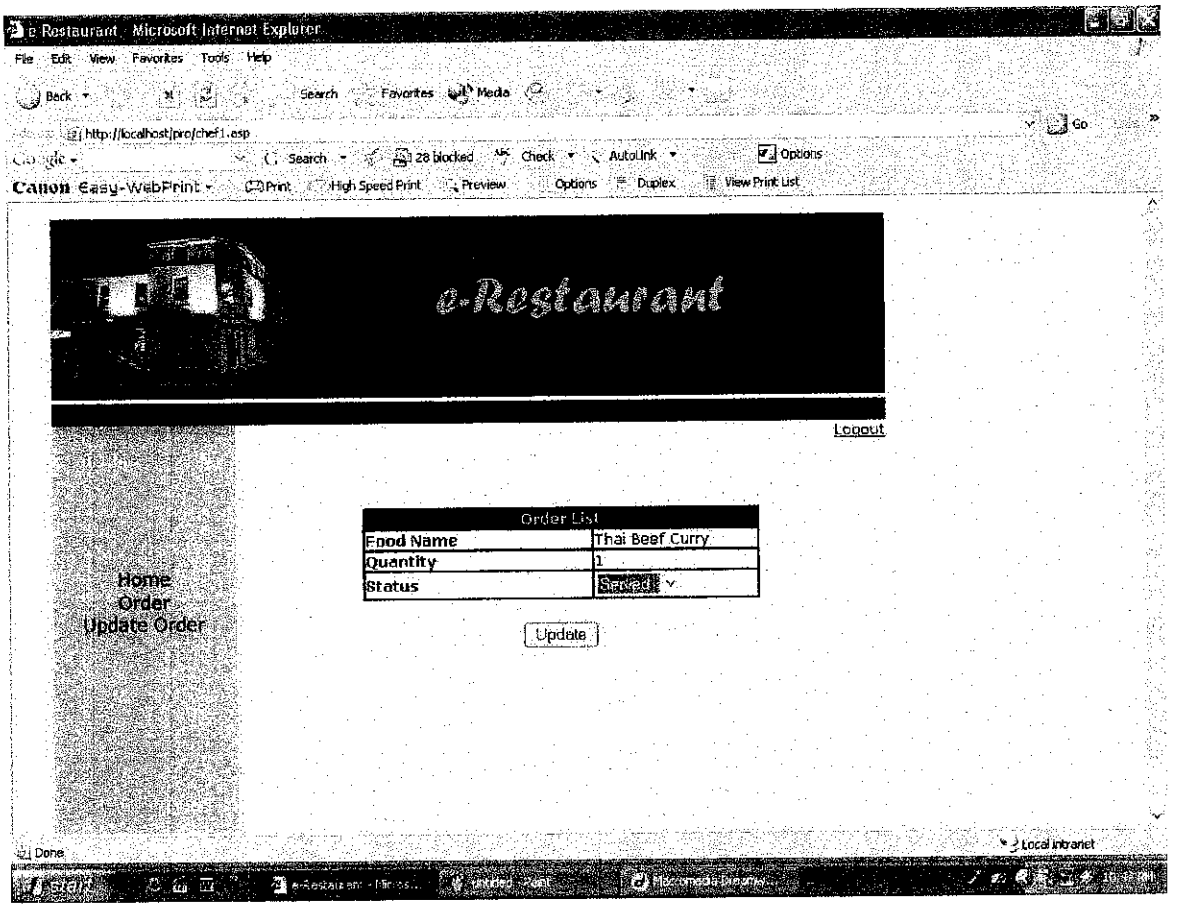

Figure 4.18: Updating Order

Figure 4.18 shows the page for chefs to update the order that have been made. The reason of having this page is to make sure that the same food will not be made. In the status list, there are 2 options which are served and pending. The status will be update to "served" if it has been made. When the chefs click the update button, the status will be updated.

4.3 DISCUSSION

Figure 4.1 shows the questions that have been asked during the survey. All surveys have been distributed to 200 respondents. The answers have been short listed in the table for each questions. Among 200 respondents, there are only 80 people have encountered with the e-restaurant system. This shows that some of them had been exposed to this kind of system. Some of them had experienced using this system in other countries such as Taiwan and London. According to the respondent, food ordering system that have been implement in Taiwan is suitable for small and medium company. E-restaurant system also have been using in fast food restaurant in some developed country.

According to the survey that have been done, most of the respondents agree that Malaysians are not exposed to this kind of system. This is because Malaysian keeps on using the manual system without realizing the disadvantages of the current system. Some of them might realize the drawback of the current system, but most of the restaurants in Malaysia using the same manual system make them ignore some of the disadvantages. Besides that, Malaysians still not familiar with e-restaurant system because the nature of ordering system in this country from the very beginning is using a paper based.

Figure 4.1 shows the awareness of Malaysians on the existence of e-restaurant system. There are 54% of Malaysians who is aware with the existence of this system. 54% of the survey is equal to 126 people out of 200 respondents. This graph is response to the first question in the survey form. The reason why the author asking this question is to identify how alert Malaysians on the system even though this system is not yet been implementing in Malaysia. Besides that, it is to determine whether Malaysians have been exposed to this kind of system or not.

Based on the answers on the survey question, the author had identified some of the respondents had encountered with this system. 40% of the respondent had an experience in using this system. The author had made some simple interview regarding the system.

Some of the respondents agree that the system had reduced customers waiting time. Figure 4.2 had responded to question 2 in the survey question.

According to figure 4.3, 24%, which are 47 people out of 200 saying that e-restaurant system cannot improve the conventional way of ordering system. The author had made some simple interview to know why they are saying that computerized system cannot improve the manual way of ordering system. The main reason why they are saying that e-restaurant cannot improve the conventional ordering because they are afraid that the services will be more disorganized because Malaysians did not familiar with the system.

Figure 4.4 shows the Malaysians acceptance towards the e-restaurant system. This figure responds to question 5. According to the survey, most of the respondents agree if this system be implementing in Malaysia. 77% of respondents agree if this system be implementing in Malaysia because they believe that this system can improve the current system. On the other hand, they are also believe that this system is much better compare to manual system in terms of cost and time constraint. But still 4% of the respondents did not agree if this system were implemented in Malaysia. The reason that they give is there will be lack of communications among people. This 4% group did not agree because they believe that by having a communications among people will develop one new relationship between people. Even though this reason seems a bit conservative but this is the nature of Malaysians that cannot be neglected.

Figure 4.5 responds to the question 6 which is, to know the readiness of Malaysian to change towards the technology advancement. There are 77% respondents willing to change as compare to 13% of them who is not willing to change to the new technology. The other 10% are not sure whether they are ready or not to change towards the technology advancement. According to the survey that have been done, the minority group not willing to change because they are not ready to deal with a new environment whereby they are not sure whether they can adjust themselves with the technology. The author had made an assumption that, if Malaysians did not willing to change, we cannot step forward in order to get as same level as other develop countries.

The last figure (Figure 4.6), was responds to the last question in the questionnaire. It is to determine what Malaysian priority in choosing foods is. The pie chart has been divided into 4 fractions which are ingredients, price, nutrition and other. The biggest priority that have been given in order to choose food is price which is 43%, followed by ingredients which is 23%, others includes taste and time consuming which is 18% and nutrition which is 16%.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 CONCLUSION

E-restaurant is a system that is design especially for the sake of restaurant industry. This is because, restaurant industry especially in Malaysia is still lack in technology. It is not because of there is no technology that can be apply into this industry, but because of the acceptance and the readiness of Malaysians towards the technology is not attractive. But, after having a survey on a few people, most of them are ready to change and willing to adapt with the new technology.

E-restaurant is an efficient system whereby it has been used in develops country. This system had decrease the customers waiting time and it have widely used overseas. Even though this system might not solve all problems that are occurred in manual system, but it has solved some of it.

E-restaurant benefit also should not be seen in customers' perspective only because it is also give the restaurant owner advantages such as reducing the cost of labor and the cost for menus if the menus keep on changing from time to time.

Since, Malaysia is lacking of this kind of system, the author hope that the prototype of the system can prove that it can improve the current system in term of time consuming, cost and efficiency. This system had been done with very minimum pages to help users who are not very familiar with computers and it is a very user-friendly system that can be used by all level of users.

5.2 RECOMMENDATION

This system has been developed through limited time, money constraint and also limitation of knowledge. Of course the system has limited capabilities and function. To improve its capabilities and functions, here are few recommendations that might help to improve the overall system performance.

The first thing that need to be done is to broader the scope of the system. The system should not only cover on the walk-in order, but it also recommended covering on the reservation order. By having the computerized reservation order, there will be no problems by having a miscommunication between the restaurant staffs and the customers. This is because, by having a conversation using telephone sometimes will mislead another person.

The second thing that needs to be improved is having a 3D view of table in the restaurant. The author recommends this kind of view because it can help customers to choose a place to enjoy their food. The author also recommends that the table view can be click in order to choose the place.

Overall, there are still spaces for improvement in order to make the system better in terms of functionality and also usability. The improvement is important to make the system more usable to the end-user. Even though the system has weaknesses, but it is a good start to expose Malaysian with the system.

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APPENDIX

QUESTIONNAIRE: E-RESTAURANT (FOOD ORDERING SYSTEM)

1. Have you ever heard about food ordering system?

   A. Yes
   B. No

2. Have you ever encounter with food ordering system?

   A. Yes (.....)
   B. No

3. Do you think Malaysians familiar with this kind of system?

   A. Yes
   B. No

4. In your opinion, can this system improve the conventional system?

   A. Yes
   B. No

5. If this system were to be implemented in Malaysia, u will

   A. Agree
   B. Not agree
   C. Not bother

6. As a Malaysian, are you ready to face the change towards this technological advancement?

   A. Yes
   B. No
   C. Not sure

7. Among these, what is your priority?

   A. Ingredient
   B. Price
   C. Nutrition
   D. Others (_____)