CUSTOMER SELF-ORDERING SYSTEM IN FAST FOOD RESTAURANT

CHIK SOON WAI

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DECLARATION

Name: CHIK SOON WAI

Matric Number: CGS00384518

I hereby declare that this project is the result of my own work, except for quotations and summaries which have been duly acknowledged.

Signature: Date:

                                                27-02-2011

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ABSTRACT

Customer Self-Ordering System in Fast Food Restaurant (CSOSFR) is developed to automate the ordering process in fast food restaurants. This system manages the food ordering process, providing real-time ordering status for food preparation and as well as generates useful reports for decision making. As a result, it helps to increase customer satisfaction by speeding up and simplifying the ordering process. The system can also improve work effectiveness and efficiency of the restaurant's staff as well as allows them to keep track on the customer orders. All processes that should be carried out in order to produce CSOS are demonstrated throughout the progress of completing this project. A user acceptance survey has been carried out to examine the level of acceptance among the public and majority of them agree to use and wish Malaysian restaurants have applied this kind of system in fast food restaurants where it can shorten their purchasing time. CSOS is developed based on Software Development Life Cycle (SDLC) with PHP as the programming language while MySQL Server is the database for the system.

Keywords: Food ordering management system

SISTEM TEMPAHAN-SENDIRI PELANGGAN DI RESTORAN MAKANAN SEGERA

CHIK SOON WAI

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ABSTRAK

Sistem Tempahan-Sendiri Pelanggan di Restoran Makanan Segera (CSOSFR) dibangunkan untuk mengautomasikan proses tempahan makanan di restoran makanan segera. Sistem ini mampu menguruskan proses tempahan makanan, memaparkan status tempahan masa-nyata untuk penyediaan makanan, serta menjana laporan untuk membuat keputusan. Oleh itu, system ini dapat membantu meningkatkan kepuasan pelanggan dengan memudahkan dan mempercepatkan process penempahan. Sistem ini juga mempertingkatkan kecekapan dan keberkesanan setiap tugas pekerja di dalam restoran serta membolehkan pekerja menjejaki tempahan pelanggan. Semua proses yang terlibat dalam menghasilkan CSOS akan ditunjukkan sepanjang pembangunan projek ini. Sesi soal-selidik bagi penerimaan pengguna telah dijalanan dan didapati bahawa kebanyakan orang bersetuju untuk menggunakan sistem ini dan mereka berharap restoran makanan segera di Malaysia juga boleh mempunyai sistem yang boleh memendekkan jangka masa pembelian makanan mereka. CSOS dibangunkan berdasarkan Kitar Hidup Pembangunan Perisian (SDLC) dengan PHP sebagai bahasa pengaturcaraan manakala MySQL Server sebagai pangkalan data bagi sistem tersebut.

Kata Kunci: Sistem pengurusan tempahan makanan

ACKNOWLEDGEMENT

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LIST OF ABBREVIATIONS

CSS   Cascading Style Sheet
DBMS   Database Management System
ERD   Entity Relationship Diagram
HTML   HyperText Markup Language
HTTP   Hypertext Transfer Protocol
IP   Internet Protocol
IT   Information System
OMS   Ordering Management System
OS   Operating System
PDA   Personal Digital Assistant
PHP   Hypertext Preprocessor
RAM   Random Access Memory
SDLC   How can Software Development Life Cycle
SMTP   Simple Mail Transfer Protocol
SQL   Structured Query Language
URL   Uniform Resource Locator
UML   Unified Modeling Language
WLAN   Wireless Local Area Network

CHAPTER 1

INTRODUCTION

1.1   Project Overview

This project involves developing a prototype for Customer Self-Ordering System in Fast Food Restaurant (CSOSFR). Through this project, the answers of the following questions will be figured out with the purpose of completing the project as well as achieving the objectives:

i.   What are the problems occurring in the ordering process at most of the fast food restaurants in Malaysia?

ii.   How can the system help to overcome the problems?

iii.   What should be done to produce CSOSFR?

iv.   How can Software Development Life Cycle (SDLC) be implemented in order to produce the propose system?

To discover information about this project, it is planned to having visits to the fast food restaurants for observing the current ordering process. Besides that, browsing fast food restaurants official websites is a must. Browsing through those websites can help to gather some information, such as, about the restaurants' promotions, available foods and the prices. A research on food ordering system is considered to get better understanding about the system. This can be done by reading through the journals and articles. Nevertheless, reviewing up-to-date documentation such as restaurant's menu and receipts will also be included in the plan.

This project is an individual project. It contains a prototype for CSOSFR as well as a project report. The prototype will demonstrate how this system works, whereas the report will consist of detail descriptions in the system such as, the system specification, the system design as well as the implementation of the system.

1.2   Literature Survey

1.2.1   Ordering System

Ordering is a process of the customers specifying what they want, so that the order can be recorded by using a note, form, computer system and many others, followed by passing it to the relevant department for processing and finally delivery of the services or products to the customers based on the order.

An ordering system is referred as a set of detail methods that is being used in handling the ordering process. Food ordering can be computerized or done manually. A computerized ordering system or more often known as Ordering Management System (OMS) can be defined in several ways, which stated as the following:

"An ordering management system is a computer software system used in a number of industries for order entry and processing." (RFID Journal, n.d.)

"An ordering management system is an electronic system developed to execute stocks orders in an efficient and cost-effective manner. Brokers and dealers use OMSs when filling orders for various types of stocks and are able to track the progress of each order throughout the system." (Investopedia, n.d.)

"OMSs are systems that receive customer order information and inventory availability from the warehouse management system and then group orders by customer and priority, allocates inventory by warehouse site, and establishes delivery dates." (Bitpipe, n.d.)

Therefore, the customer self-ordering system can be defined as a computerized system that is being used by customers to place their own orders in the restaurant and allow the orders to be tracked, in order to prepare and deliver the food to the customers.

1.2.2   Self-service / Self-ordering in Restaurant

Self-service or self-ordering in restaurant industry refers to the restaurant taking orders from customers through applying various types of technologies such as the Internet, kiosks and many others. Self-service or self-ordering is very successful when it is being applied at restaurants in many other countries. The usage of the self-service or self-ordering technology is proven to benefit most of the investors. The following cases show scenarios of applying self-service or self-ordering technology in restaurants.

Odesser-Torpey (Odesser-Torpey, 2008) reports that most of the Americans hate waiting for an order. Therefore, they prefer self-service technology. Self-service can be in the form of text messaging, the Internet and kiosk. He claims that self-service has the potential to get more businesses on-side of creates positive perception and increase customer loyalty. Usually the consumer prefer self-service because of speed and convenience in making order and transaction while minimize the miscommunication. Odesser-Torpey also mentioned that self-activated terminals are

more likely serve as ordering innovation in the future. The implementation of alternative ordering can increase check size, free up counter staff that needs to serve customer and take money handling out the service equation.

Bhatnagar (Bhatnagar, 2006) mentioned that the innovation of kiosk and computerized table top ordering screen will force restaurant industry re-jigger an often-used acronym quick service restaurant to the self-service restaurant. Customer can get information or search for recipes from the kiosk. The kiosk also takes orders and receives credit card or debit card payment. As a result, wrong order and long queue can be avoided, order staff can be arranged to somewhere else and focus to speed up on delivery orders. On the other hand, a table-top touch screen order system can take customer orders as well as handle other customer requests such as refill drinks, call a waiter and make payment by credit card or debit card. Of course, there are some conventional ideas to grow restaurant operation such as mobile, using "SanitGraps" for the restaurant's door, etc.

The first automated restaurant opens in Nuremberg, German. The waiter has been replaced by metal rails that link table with the kitchen. Customers will make an order themselves through a touch screen system at each table. The restaurant was linked through computerize system. Kitchen located at up stair will get customers' orders and the computer in the basement will trace supply stocks. The system can forecast delivery times of the foods and informed customer. The owner of this restaurant would like to start the business in the fast food chains sooner because of the successfulness in the automated restaurant. (Goodbye Rude Waiters, 2007)

Bytes, a restaurant located at Canterbury has been successfully standing apart from the competitors because of applying self-service ordering and the payment concepts. The system used in Bytes allows customers make an order through the touch screen, and the order will be directed to bar or kitchen. The system also offers games after a customer placed the orders while Internet access will be provided to customers in the future. The system's interface is clean and simple for easily translated to touch screen. Touch screen ordering reduces the need of the waiter. The system also provides database for customer habits and preferences, generate the management reports, perform analysis as well as allow the menu to be updated instantly. (Brickers, 2006)

Heng (Heng, 2008) stated that automated dining was applied in Kitchen Mogu Mogu, a Singapore-based Japanese style fast-food restaurant. The customer will make an order through the touch screen and make payment by cash or by the wireless card payment system. Then, the customers will pick up the order from the counter. The ordering experience is just like buying from a vending machine. This system can reduce incorrect orders from the waiter, and customers can only blame themselves if wrongly make an order.

Sturgeon (Sturgeon, 2006) reported that with the new concepts from Dunkin' Donuts, self-ordering system for drive-through changed. Suggested menu is included then only followed by order screen and also confirmation step to eliminated error of ordering. When a customer places an order, the system will give a further suggestion to customer according to their orders. This idea also applied by Doughnut QSR and one of the test operators get sales increase in a week. Although the computerized

system is good but some people will still prefer human contact. Suggestive selling is good yet it can slow down the pace of service.

Brickers (Brickers, 2006) said that self-service in restaurant start with a slow step. The situation change when the marketplace turns into more competitive, operation cost increase and technology cost decrease continuously. These were the main driving force and benefit to both restaurants and customers. Besides that, self-service also brings a host of operational and cost-related benefits where the system increases the average food service order. However, applying self-service require "techie" to conduct maintenance and services, where sometimes might be very costly.

Hobbs (Hobbs, 2004) mentioned that ChefPlex opens business on September 2003 with five restaurants under one roof. ChefPlex is equipped with a computerized system that manages ordering and paying process to facilitate total-service to customers. The implementation of the computerized system in ChefPlex is not successful as what is expected. In fact, two of the restaurants stop operating few months later and replaced by other restaurants. Hobbs personally visits ChefPlex to try foods in the restaurants and figure out that there is nothing wrong with the food taste and system. The only problem may be the incomplete concept of the restaurant where wooden rafter and wood-burning stone design are not suited with the clipped techno-talk of the automation cashier.

Based on the study, it is possible for applying the self-ordering system to the fast food restaurants in Malaysia. This is because the system can improve workplace efficiency, increase sales of the restaurant as well as reduce making incorrect order. As a result, it

is worth for investing on the system, whereby it can shorten the return on investment. In addition, the system should be supported by the food origin taste and good services to maintain the customer loyalty and satisfaction. However, widely implementing the self-ordering system may cause the influx of labour due to the elimination of waiters in restaurant industry. Even the system is important to be implemented, yet there is still having some risk in other factors such as a direct interaction and restaurant design concept, which need to be considered for ensuring the success of the system.

1.2.3 Food Ordering System

A food ordering system is not a new system type. In fact, some of the software companies develop and commercialize the system. However, some restaurants still prefer to develop the food ordering system themselves due to the cost and customization issues. The following is some of the example of food ordering systems with a brief description of the systems' functionality.

Hu (Hu, 2005) proposed a multimedia ordering system for restaurants, which contains a website ordering system and an in-restaurant ordering system. This system is used to shorten dining customer awaiting time and help waiter to describe the meal in the menu clearly. Waiter no longer needs to describe meal details to customer and wait for them to select the meal. The system also supports take-away transaction and provides meal info through the website. Customer can check dishes, place order and pay through the website ordering system. In-restaurant ordering system works with PDA that used to display dishes' info to customers, order food and submit the orders to the kitchen. Those order records are saved in the database. The in-restaurant

ordering system contains PC client which handles orders as well as used to train the staff.

Purnama & Wibowo (Purnama & Wibowo, 2007) developed a PDA utility for restaurant ordering. The application can take the food order, send the order to the kitchen, receive notification from the kitchen and view the order progress information. Besides that, the project also includes using ordering management where the system can send notification, manage menu, record payment and generate reports through the use of computer.

Mayank & Saraf (Mayank & Saraf, 2003) analyzed and demonstrated high-level system concept of fast food automated ordering system where Unified Modeling Language (UML) is used to explain the functionality of the system. A framework for the system is layout, which can bring to maximum market use. With the new system, numbers of employees at the back counter can be minimized and helps to reduce labour cost and mistake. The system can avoid long queues due to faster execution to accommodate maximize throughput. The system also allows customers to place orders and make payment. Manager can update the food menu, while manager and food prepare staff can monitor inventory through the system as well as read the order, so that they can process the orders.

Gan (Gan, 2002) proposed to develop an online fast food restaurant ordering system that allows customers to place orders any time at any place. The system helps to manage order from customer as well as advertise promotion. It allows kitchen staff to view ordering info, management to manage fast food raw material and staff to search

customer delivery and profile info. This system helps to resolve the queue issue during peak hours; speed up food preparation and increase customer volume. As a result, market share of fast food restaurant can be boosted up and increase return of investment for the investor.

Tsang (Tsang, 2003) created a food and drink order automation system which allows communication between wait staff and kitchen through mobile device to eliminate waiter walking time. Waiter makes order and views order notification through a handheld unit. Kitchen and bar staffs view order and update the status. Central station will show the activities and print receipt, whereas the owner can print report and view sales history through the computer at owner station.

The following table shows the comparison of the four different food ordering systems by functionality:

Table 1.1 Comparisons for the Functionality of Food Ordering Systems

Function(s)	Hu (2005)	Purnama & Wibowo (2007)	Mayank & Saraf (2003)	Gan (2002)	Tsang (2003)
Make Order	√	√	√	√	√
View Order	√	√	√	√	√
Order Status/Notification	×	√	×	×	√
Manage Payment	√	√	√	√	×
Menu/Meal Info	√	×	√	√	×
Advertisement/Promotion	×	×	×	√	×
Manage Raw Material	×	×	×	√	×
Report	×	√	×	×	√

Legend:- √ - function exist; × - function not exist/not specified

Based on the results, a food ordering system should be at least consisting of make orders, view orders, manage payment as well as display menu or meal info function. Of course, generating reports should also be included although most of the cases

didn't mention about reporting feature in their system. This is because reporting is an important element in an information system as a useful material for decision making. A food ordering system is not good enough although it can provide basic functions only. In fact, other important factors such as user-friendly and security is also a critical issue.

De Leon (De Leon, 2008) mentioned there are several aspects that should be included in a good online food ordering system. System should be simple to navigate, not cluttered and easy to make an order (Sharma, 2007), designed with professional looking with search engine optimized capability and available 24 hours (Sharma, 2007). The system should also have a secure payment gateway to protect their customer credit card information, fast and keep track on orders and sales history easily as well as generate a comprehensive sales report (Sharma, 2007).

1.3   Problem Identification

"Fast food restaurant is a place that provides inexpensive food such as hamburger, fried chicken or milkshakes, and those foods are prepared and served quickly." (Fast Food, n.d.). In Malaysia, there are a lot of fast food restaurants such as Mc Donald's, Kentucky Fried Chicken (KFC), A&W, etc. Most of the people like to go for fast food because fast food restaurants are concerned about providing standard food and good services with affordable price to their customers within a short time. Fast food restaurants can be easily found in a city that mostly located at shopping complex or shop lots, airports and next to some petrol stations. Fast food restaurants consist of a wide range of customers from small kids to senior citizens.

Opening a restaurant is such a competitive business, especially in Malaysia, a country with multi-races and multi-types of food. One of the ways to stand out from the competitors is through improving the business process, where business process automation can assist business process improvement. Business process automation in a restaurant usually involved the use of IT system (partial or fully computerized system) such as ordering system to simplify ordering and payment process, speed up food delivery, providing real-time ordering status to the kitchen and generate useful reports to management for decision making.

Bhatnagar (Bhatnagar, 2006) reported that self-service ordering system is able to help in providing quick service in the restaurant. Such system has been applied on many fast food restaurants in modern countries such as America, Japan, England and other countries. In Malaysia, there are a lot of fast food restaurants operating currently. Majority of these restaurants does not have the customer self-ordering system, although the system really helps to increase staffs working efficiency and handling restaurants customers' orders. The absent of customer self-ordering system in the fast food restaurant eliminate a good opportunity of automating the business process. As a result, current problematic issues occurred in the fast food restaurant are still remained.

Currently, the ordering and payment process in most of the fast food restaurant is insufficient. During peak hours, customers will normally make a long queue to purchase their meal, where the queue contains dining and takeaway customers. Ordering staff will ask whether the customer prefers to dining or takeaway. Then the ordering staff will record the customer orders based on the customer needs.

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Sometimes several minutes are required to complete an order because of awaiting the customer decision. Reconfirmation of orders with the customers also takes time.

Furthermore, cash payment processes which involve receiving, recalculating and returning balance will extend customer waiting time too. This will lead to a longer queue since more and more customers will arrive at the restaurant to purchase food time to time. As a result, some irritated customers might leave the restaurant or start complaining. If ordering and payment process is automated, it can help to speed up ordering as well as simplified payment process. In fact, Raj (Raj, 2008) stated that business process automation makes business operation faster and easier.

Normally, fast food restaurants have maximum volume of orders during peak hours. The situation becomes more critical for those restaurants, which need to handle a large amount of delivery orders. To overcome this issue, more staffs will be hired, however that is not a good solution because it will increase the restaurants' operation cost. On top of it, front-end staffs carry out "multitasking", they need to take orders, collect payments, promoting new products (if any) and at the same time deliver food based on the orders. Usually, the staffs will feel pressure when they need to be rush for completing a lot of things in one time. As a result, they cannot concentrate on their work and may make mistakes in taking or delivering orders.

Inefficient staffs will make customers feel disappointed and dissatisfied. Staffs can be more efficiently by eliminating some of their tasks with the help IT system. As a result, staffs have extra time to focus on deliver food either on shop orders, drive-through orders or even delivery orders. Moudry (Moudry, n.d.) mentioned that by

automating processes that are currently being implemented manually, individuals can work more efficiently and can take on new or additional workloads.

Fast food restaurants are always concerned with preparing freshly cook food to remain the taste and kitchen staffs play an important role on it. Kitchen staffs cannot over or under estimate the amount of food needed to be prepared. This is because once the food was cold it will run off taste, and late food makes a customer unsatisfied. Therefore, they must be accurately estimated and pre-prepared the food. Kitchen staffs are mostly estimating based on their experience only. This is not a secure way because customers' preference may be different every day. IT system helps to keep tracks on customers' orders. The accuracy of staffs' estimation will increase with the present of overall ordering information from the system. In fact, Sareyka (Sareyka, 2010) mentioned that the system allows kitchen staff to keep track of all customers' orders and the process time.

As a conclusion, the ordering process at the fast food restaurant in Malaysia currently is not automated yet. This will slow down the ordering and payment process; staffs are unable to work efficiently and effectively caused by too much of tasks to be handled. In addition, kitchen staff cannot keep track on customer orders to carry out accurate estimation during food preparation. The situations mentioned might cause unsatisfactory from customer and so the restaurant business will also be affected.

1.4   Proposed System

Based on the problems identified in current ordering process, it is important to automate the ordering process in the fast food restaurant. Therefore, the CSOSFR is

proposed as a solution for eliminate the problems identified previously. The customer self-ordering system is a web-based information system is proposed. The proposed system consists of functions such as manage customers' orders, provide information about customer's orders, provides menu and promotion information as well as generate reports.

This system will develop based on client and server architecture where each of the clients is connected using Wireless Local Area Network (WLAN). JavaScript and Hypertext Preprocessor (PHP) are used to program the system. On the other hand, HyperText Markup Language (HTML) and Cascading Style Sheet (CSS) are used to present the layout of the system. In terms of data storing, MySQL server has been chosen as the database of the system.

SDLC is the methodology used to produce the customer-self ordering system. SDLC is a methodology used by system developers to produce or alter information systems or software. It divides the development process into several stages or processes. After the completion of one stage, it will logically move to another stage. Sometimes moving back to the previous stages is necessary due to failure that occurs in current stage.

In some cases, SDLC is defined into eight stages (Turban, Rainer & Potter, 2003):-

- Investigation
- Analysis
- Design
- Programming

- Testing

- Implementation

- Operation

- Support

Some simplified the cycle into five stages (Stair & Reynolds, 2008):-

- System Investigation

- System Analysis

- System Design

- Implementation

- System Maintenance

This project will use SDLC with five stages include as shown in the following figure.
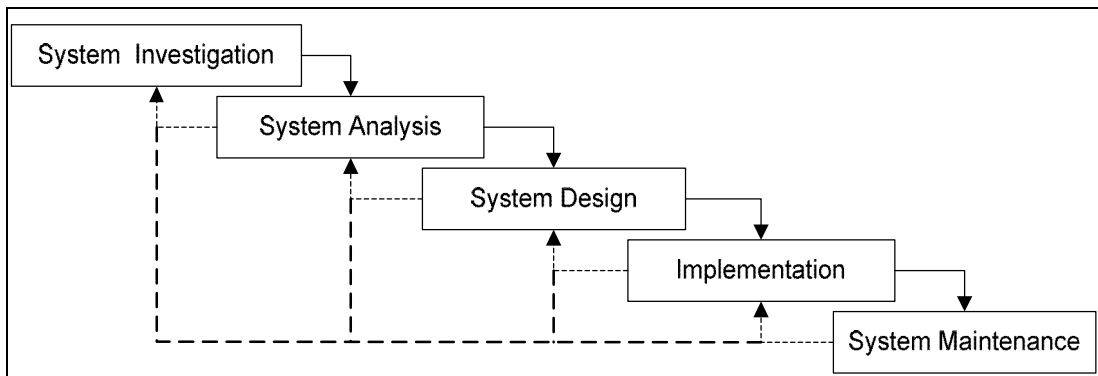
Figure 1.1 Software Development Life Cycle (SDLC) (Stair & Reynolds, 2008)

With the implemented of this system, better services can be offered to customers so that their satisfaction also will increase at the same time.

1.5   Objective and Scope

CSOSFR can be produced with the achievement of the following objectives.

i.   To review the problems occur in current ordering process at the fast food restaurant in Malaysia.

ii.   To identify major problem of current ordering process occurs in the fast food restaurant.

iii. To produce the overall design of the proposed system.

iv.   To develop prototype for the system based on the identified requirements and design.

v.   To test the system for validating its functionality and detecting defects.

The proposed system is developed to manage ordering activities in fast food restaurants. It helps to record customer submitted orders. Menu is also included in the system to inform customers about food that is provided by restaurant. The staffs can view and prepare ordered based on submitted order records. The system is purposely used to improve work effectiveness and efficiency of ordering and delivery process in the fast food restaurant as well as increase customers' satisfaction. The system should cover the following functions in order to support the restaurant business process for achieving the objectives.

i.   Tools that allow the customer to make order, view order, make changes before submitting their order and allow customer make payment through pre-payment card during the process of submitting their order.

ii.   Interface that displays promotion and menu.

iii. Interface that shows customers' orders' detail to front-end and kitchen staffs for delivering customers' orders.

iv. Tools that allow the management to modify the food information such as price, add a new menu and many others as well as tools for managing user, system menu and promotion records

v. Tools that generate reports that can use for decision making.

1.6 Organisation of Report

In order to reach the goals, it is important to have a plan for producing the project report. The overall of this report contains five chapters, and each chapter can be further navigated into several sub topics.

The first chapter is the introduction of the reports. This chapter contains the result of system investigation. It describes the overview of the project, literature survey and problem identified for the current system. Besides that, this chapter also explains about the proposed system, the objective and scope of the project as well as the project plan.

The second chapter discusses the requirements of this system. It contains the requirement model of the proposed system and detail descriptions of those requirements.

The third chapter covers all about design, architecture design, data design and interface design of the system. In addition, the test plan that consists of strategy for verifying and testing the propose system is also a part of this chapter.

The fourth chapter shows all the implementation and results of the project. It also consists of a user and installation guide to assist others the way to use the proposed system.

In the last chapter, it contains a summary of the project and the future plan which normally describe about possible elements that can be included into the system in the future for system enhancement.

1.7   Project Plan

CSOSFR is developed to improve the ordering process in the restaurant with the aim of remaining customers' loyalty and satisfaction, improving workplace efficiency as well as gaining restaurant profit in a long term.

This project is an individual project, whereby only one person is responsible for completing all the project tasks as well as project monitoring and managing the project. This project is carried out based on the SDLC. Each of the project tasks is represented by a process in SDLC. Therefore, the project consists of five tasks, system investigation, system analysis, system design, system implementation and system maintenance.

During system investigation, the current business process problem – ordering process in the fast food restaurant is identified. Then, the business opportunities and the system for the proposed system will be defined. Next, the system scope is determined the included or excluded element in the proposed system is clarified. After determine system scope, the Gantt Chart is produce for illustrating the project schedule which

includes project tasks and the timeline for each of the tasks. With the Gantt Chart, the duration for completing the project can be estimated. Project plan is created at the end of this stage as the deliverables.

Throughout the system analysis, an in-depth study of end-user information is conducted, for producing functional requirement of the proposed system. Data about the existing ordering system is collected through several fact-finding techniques such as observation, website visit and document review, at the beginning of this stage. The data collected facilitates information required during detail analysis. A study on the current system is performed based on the collected data. As a result, user requirements of the proposed system are determined. At the end of this stage, requirement specification is produced as deliverable.

During system design stage, there are several things need to be determined, the hardware and software specification and the detail designed of the proposed system. The architecture used in the system is determined. This is followed by designing the data where a data model is produced. Then, the physical layout of the input and output screen of the proposed system is created, during the input, and output designing process. Detail design and test plan are deliverables for this process.

System implementation activities focus on constructing the new system based on the design produced in system design stage. System implementation involves programs coding with an appropriate programming language. Then, various levels of testing such as unit testing, integration testing and system testing are conducted by using testing techniques such as black-box or white-box testing. After that, the new system

is installed and can go live. At the end of this stage, user manual is documented as the deliverable of the project.

System maintenance phase will take place right after the system implementation. System maintenance is a process of refining the system to ensure that the system able to meet the business needs continuously. It focuses on monitoring and enhancing the working system when necessary. System maintenance involves corrective action to solve system errors after it goes live. In this project, system maintenance only involves conducting a brief review about the proposed system with a suggestion of possible future enhancement due to the time constraint. The project review and a list of future enhancement elements is the deliverables.

This project takes 25 weeks to be completed. Towards the end of each phase, there is a milestone where key deliverable and approval are necessary before the project can proceed to another stage. The project timelines are demonstrated in Gantt Chart in APPENDIX A.

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APPENDICES

APPENDIX A

GANTT CHART

Task Name	Duration	Start	Finish
System Investigation	**10 days**	**Mon 9/13/10**	**Fri 9/24/10**
Problem Identification	2 days	Mon 9/13/10	Tue 9/14/10
Define Objective and Scope	3 days	Wed 9/15/10	Fri 9/17/10
Project Plan	5 days	Mon 9/20/10	Fri 9/24/10
System Analysis	**10 days**	**Mon 9/27/10**	**Fri 10/8/10**
System Overall Description	5 days	Mon 9/27/10	Fri 10/1/10
Specify Requirement	5 days	Mon 10/4/10	Fri 10/8/10
System Design	**20 days**	**Mon 10/11/10**	**Fri 11/5/10**
Design System Architechture	5 days	Mon 10/11/10	Fri 10/15/10
Data Design	5 days	Mon 10/18/10	Fri 10/22/10
Interface Design	5 days	Mon 10/25/10	Fri 10/29/10
Develop Test Plan	5 days	Mon 11/1/10	Fri 11/5/10
System Implementation	**45 days**	**Mon 11/8/10**	**Fri 1/7/11**
Coding	30 days	Mon 11/8/10	Fri 12/17/10
Testing	7 days	Mon 12/20/10	Tue 12/28/10
Develop User Manual	5 days	Wed 12/29/10	Tue 1/4/11
Develop Installation Guide	3 days	Wed 1/5/11	Fri 1/7/11
System Maintenance	**10 days**	**Mon 1/10/11**	**Fri 1/21/11**
Review	5 days	Mon 1/10/11	Fri 1/14/11
Future Plan	5 days	Mon 1/17/11	Fri 1/21/11
Documentation Review & Correction	**25 days**	**Mon 1/24/11**	**Fri 2/25/11**
Documentation Review	15 days	Mon 1/24/11	Fri 2/11/11
Ducumentation Correction	10 days	Mon 2/14/11	Fri 2/25/11

APPENDIX B

SEQUENCE DIAGRAMS
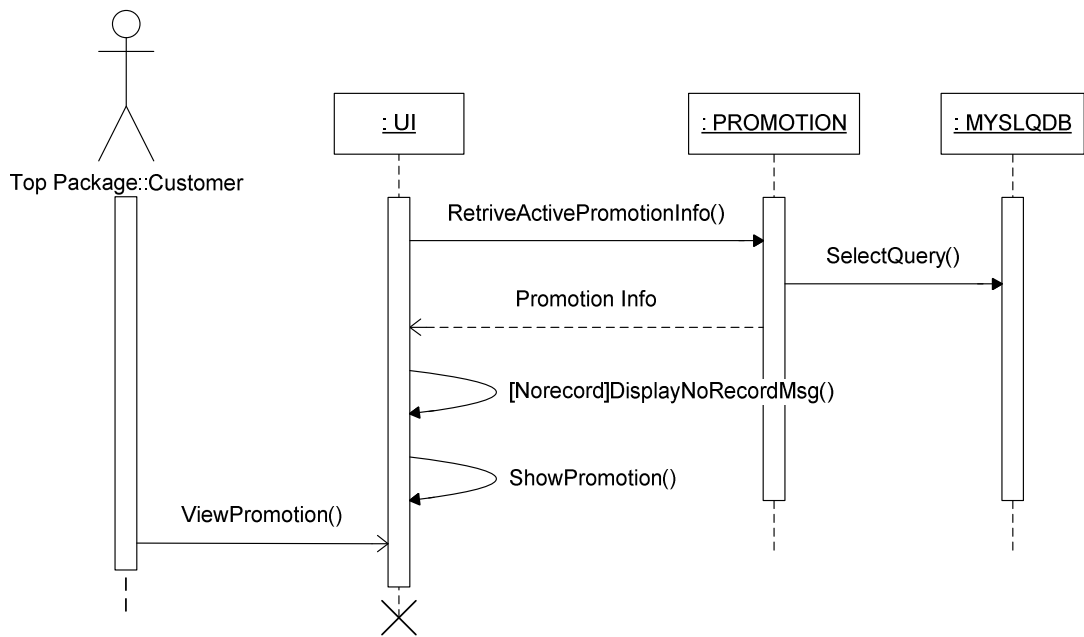
Figure B1 Sequence diagram for View Promotion
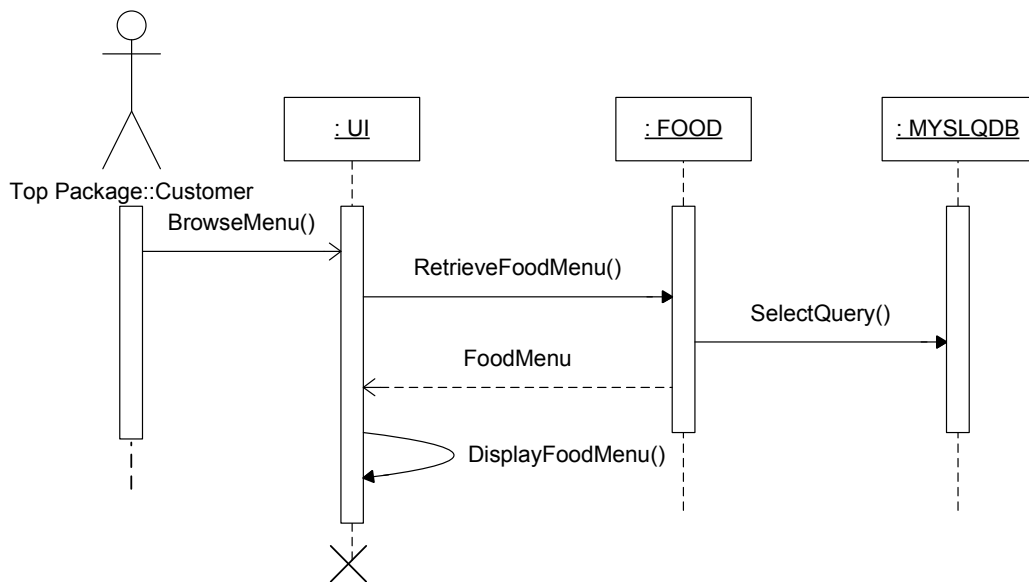
Figure B2 Sequence diagram for Browse Menu
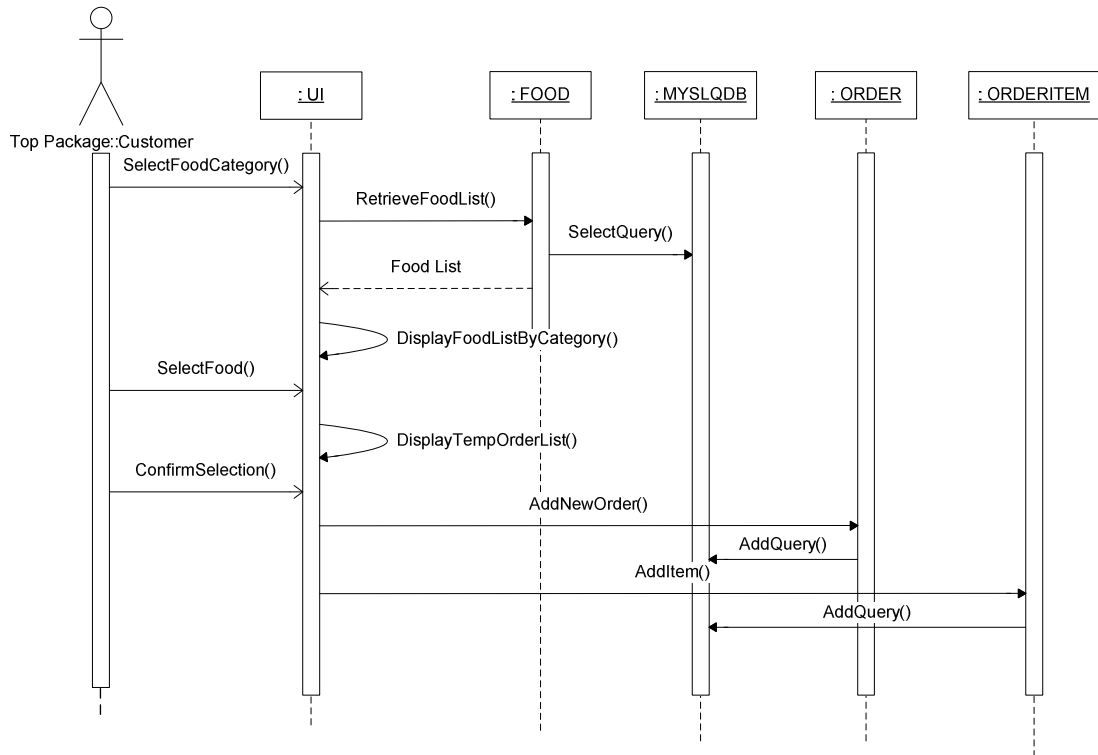
Figure B3 Sequence diagram for Make Order
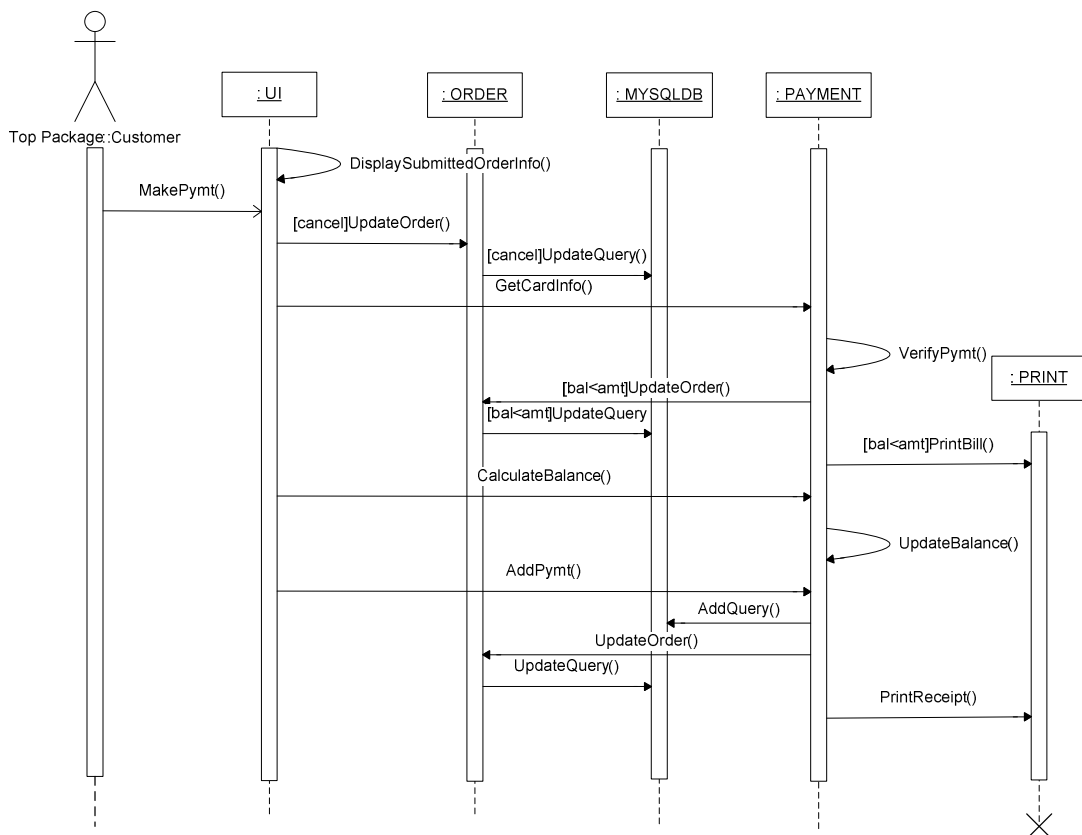
Figure B4 Sequence diagram for Settle Payment by Customer
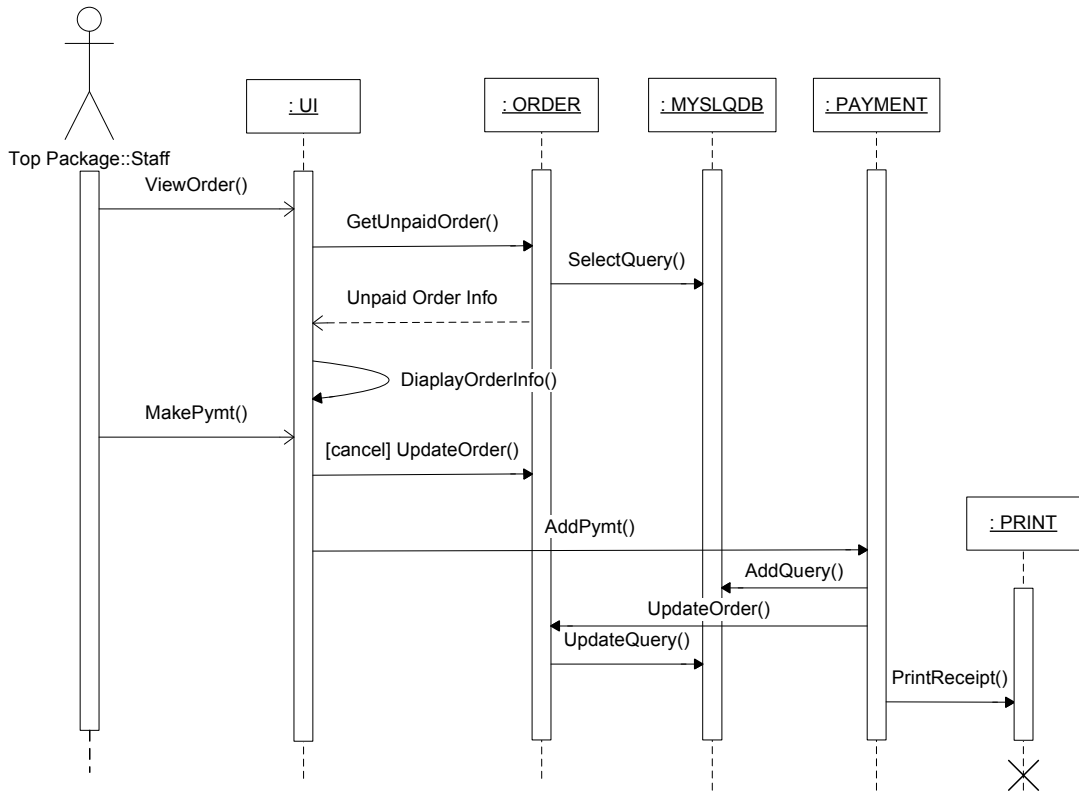
Figure B5 Sequence diagram for Settle Payment by Staff
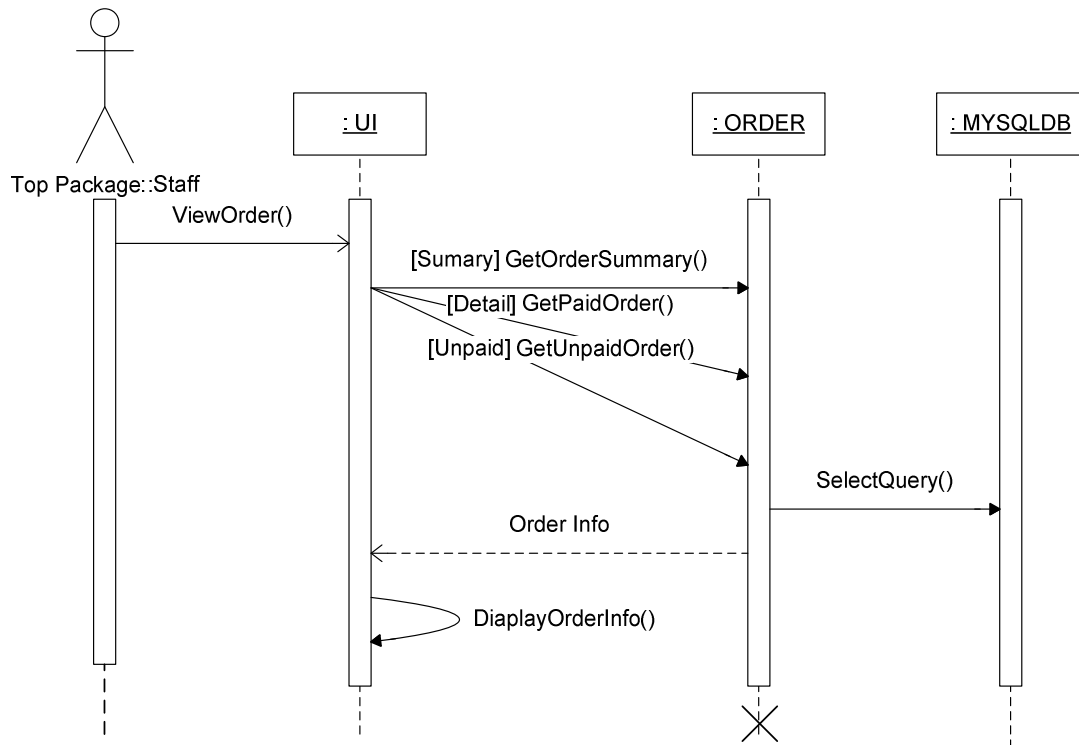
Figure B6 Sequence diagram for View Order
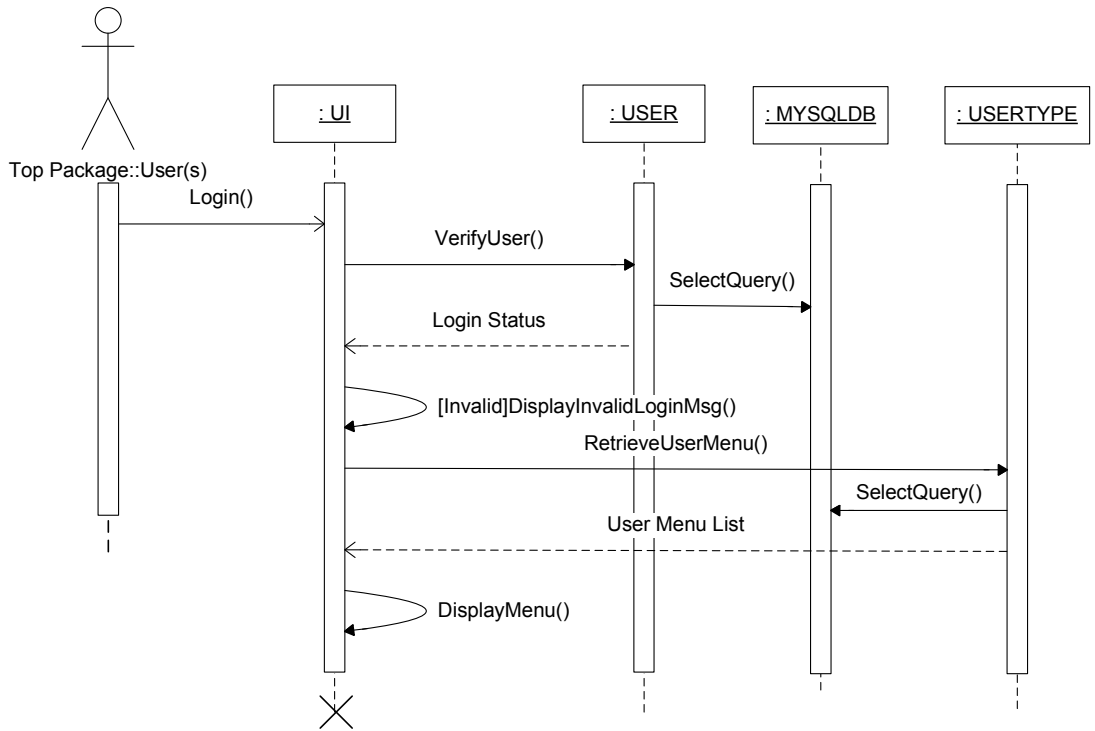
Figure B7 Sequence diagram for Login
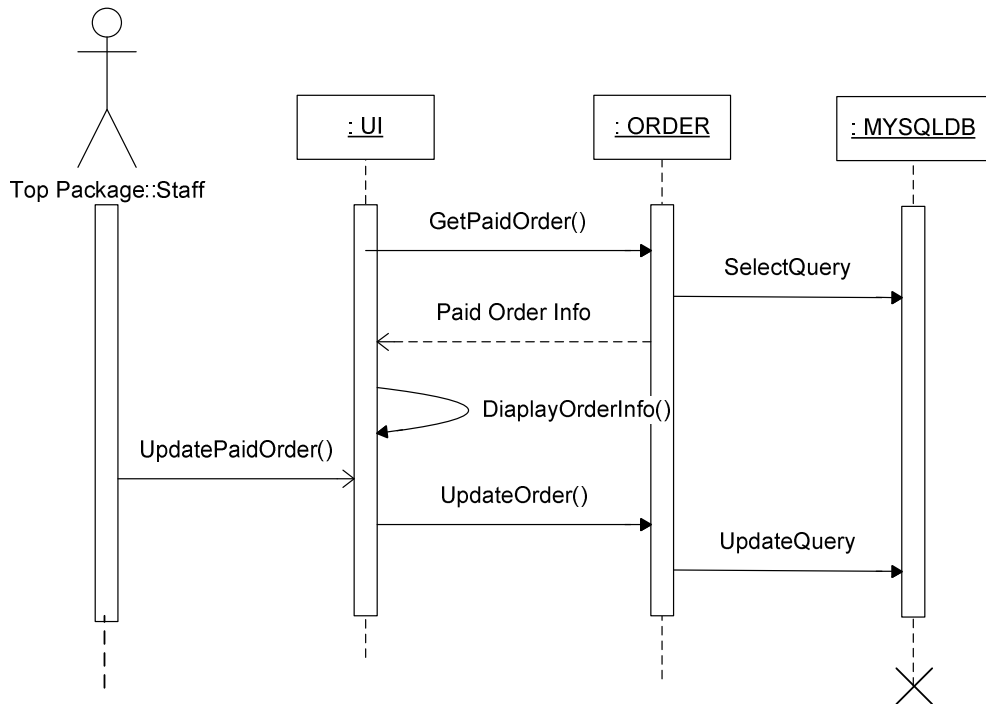
Figure B8 Sequence diagram for Update Order
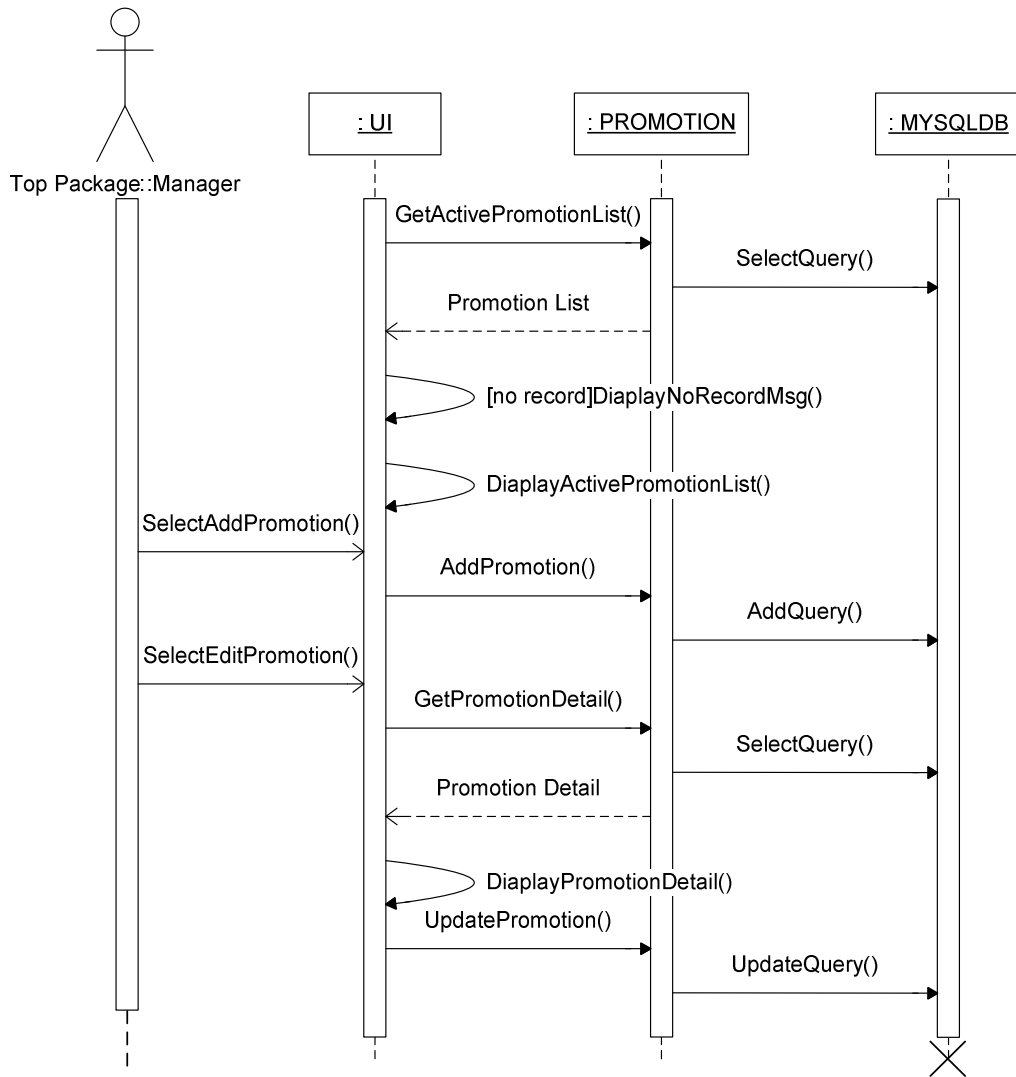
Figure B9 Sequence diagram for Add Promotion
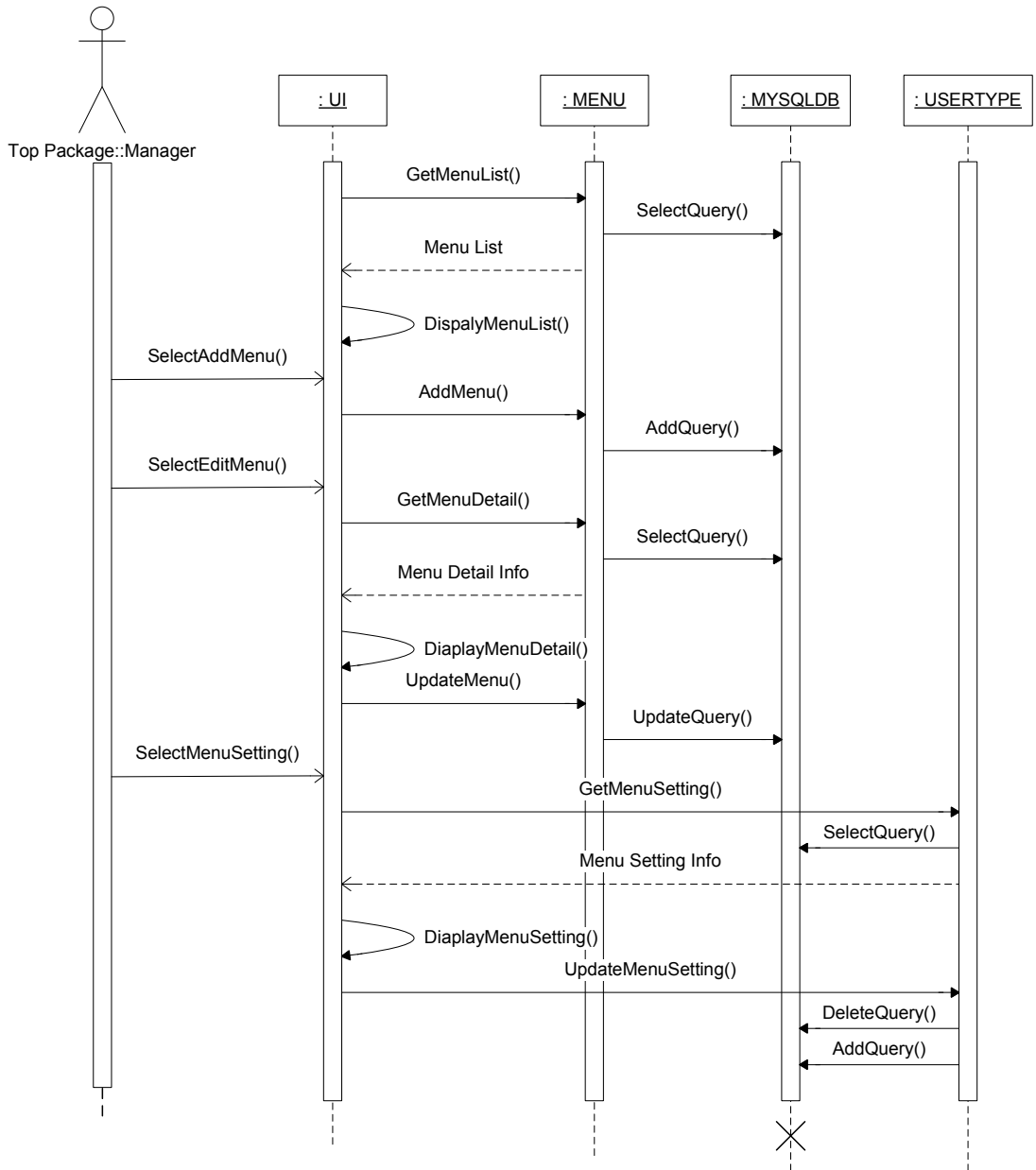
Figure B10 Sequence diagram for Manage Menu
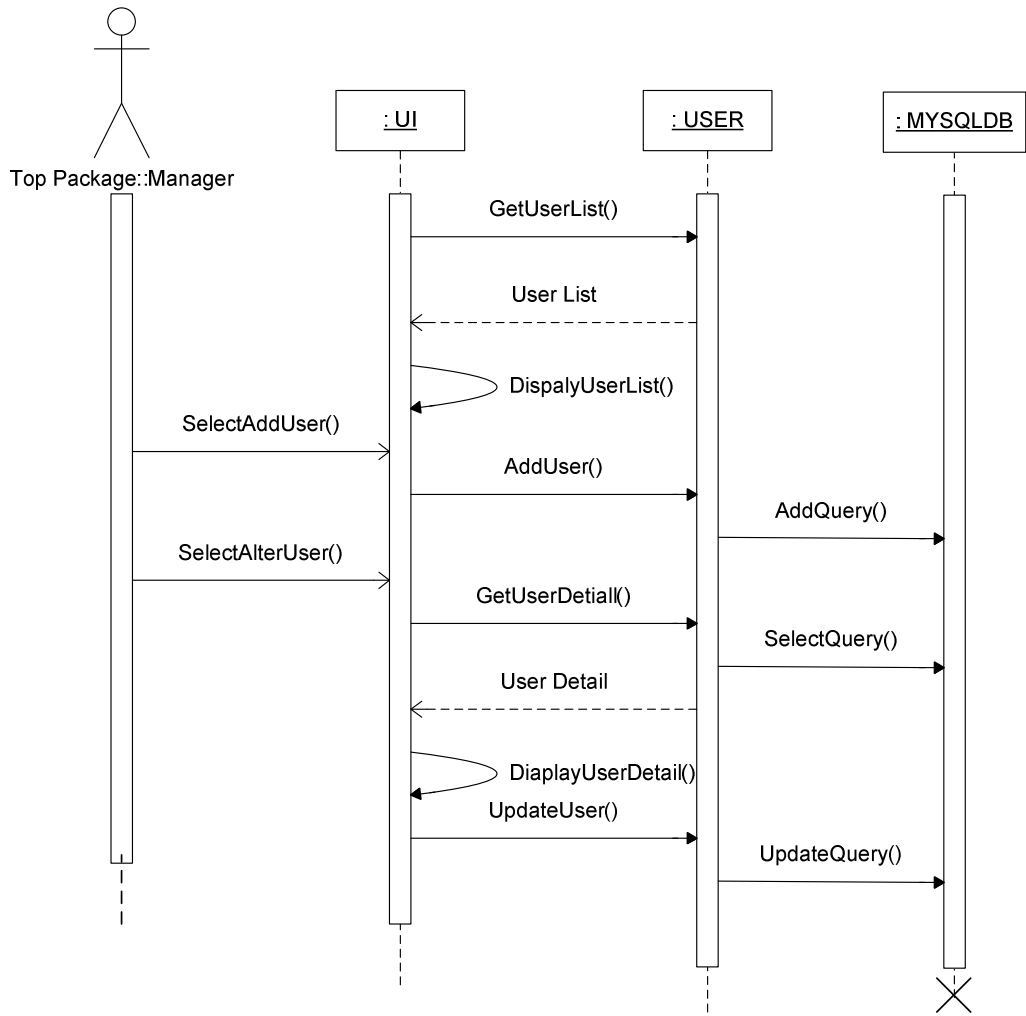
Figure B11 Sequence diagram for Manage User
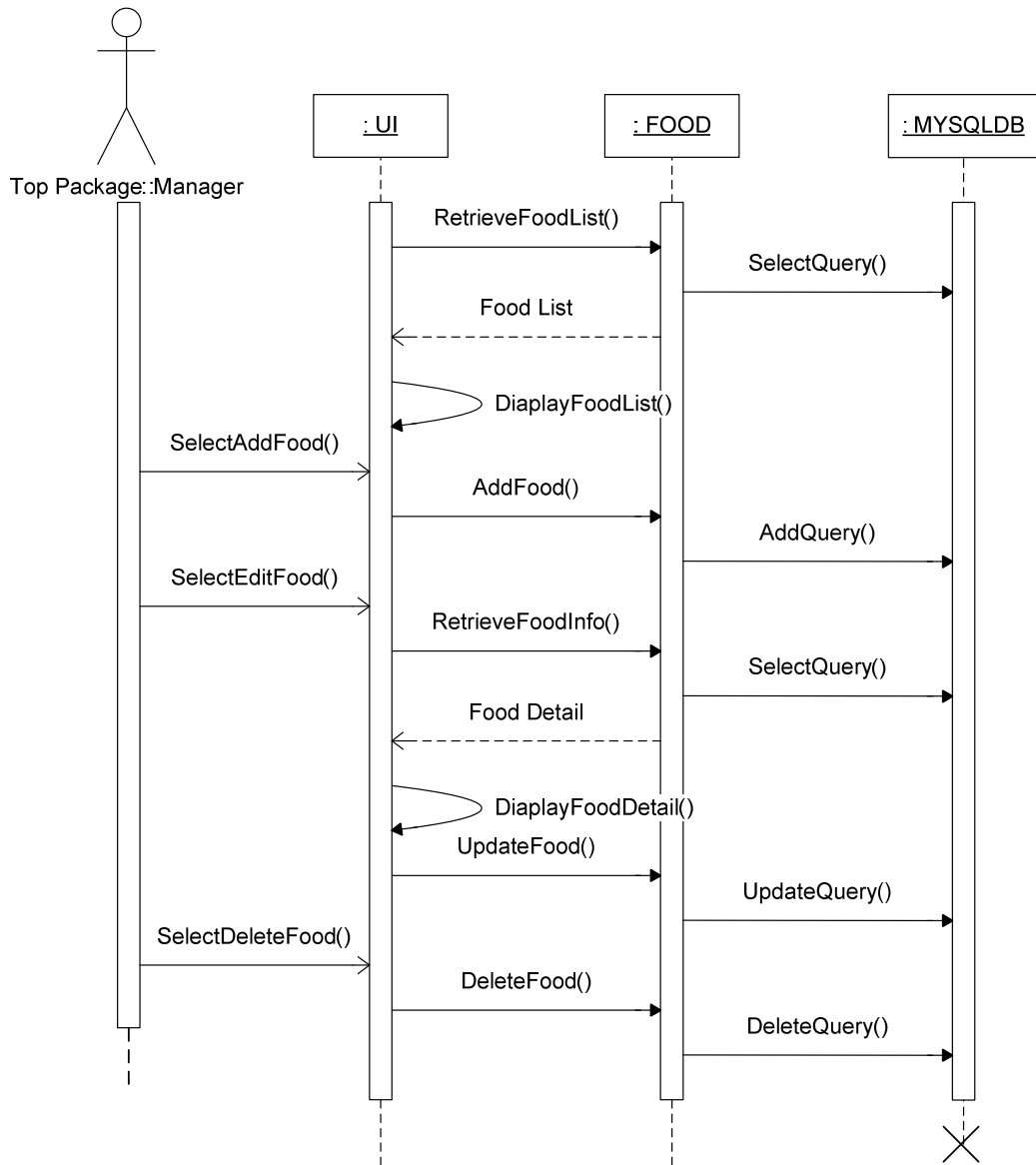
Figure B12 Sequence diagram for Manage Food
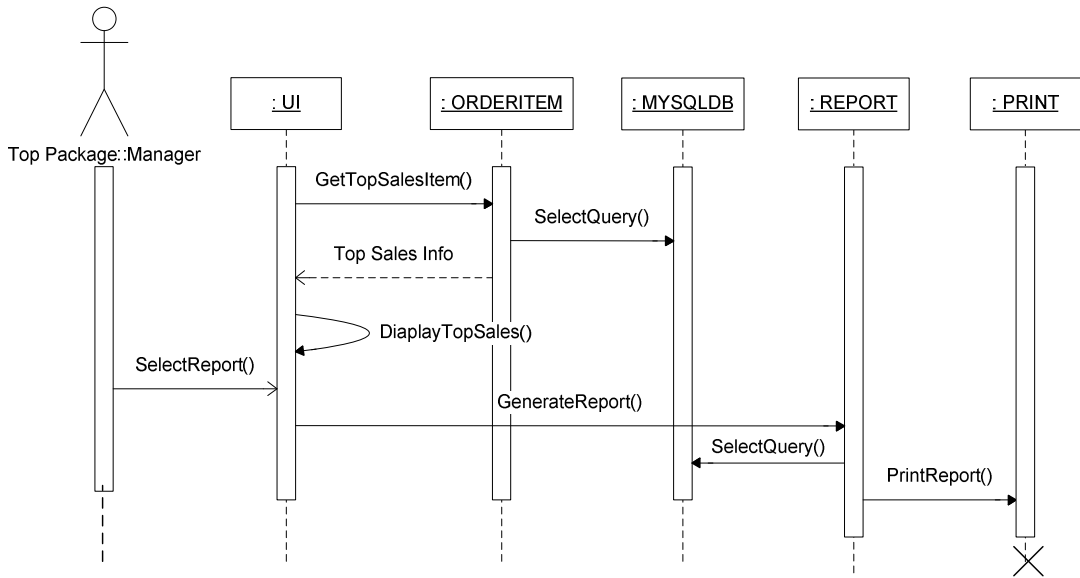
Figure B13 Sequence diagram for Generate Report

APPENDIX C

VIEWPOINT AT KLCC'S FAST FOOD RESTAURANT

DURING PICK HOUR

Figure C1 Kentucky Fried Chicken

Figure C2 Subway

Figure C3 Mc Donald's

Figure C4 Burger King

APPENDIX D

SAMPLE OF RECEIPT IN FAST FOOD RESTAURANT

```
=====================================
=
Golden Arches Restaurants Sdn Bhd
(65351-M)
McDonald's JJ Maluri (#036)
Tel No. : 03-9282-8703

              TAX INVOICE


#ORD 54 -REG 12- 22/08/2010 13:02:40
QTY ITEM                        TOTAL
   1 MCokeLight                  2.35
   1 VLMNuggets                  3.60

Take-Out Total (incl Tax)       6.25
Cash Tendered                  10.00
Change                          3.75

TOTAL INCLUDES Tax OF           0.30
Thank You and Please Come Again.
=====================================
=
```

Figure D1 Receipt Sample from Mc Donald's at Jaya Jusco Maluri

```
          REPRINT AT 25 Aug 10 12:13:44
                KFC AMPANG PARK
                Tel: 603-21643475
                www.kfc.com.my
2 COUNTER2                          8 JAMALIA
---------------------------------------------
Chk 26
              25 Aug 10 12:11:55
--------------------------------------
1  SNACK CMB DRK OE E           9.75
   CASH                        11.00      \

   Total item sold:                1
   Sub Total                     9.75
   Govt Tax                      0.49
   Total:                       10.24
                                 0.01
                                10.25
   Payment                      11.00
   Change Due                    0.75
------8 CLOSED 25 Aug 10 12:13:44-------
                Thank You
             Please Come Again

        KFC (PENINSULAR MALAYSIA)
            Sdn. Bhd.(026388T)
```

Figure D2 Receipt Sample from KFC at Ampang Park

```
        MALAYSIA AIRPORTS (NIAGA) SDN BHD
                  (281310-V)
             Marrybrown @ LCCT
         LCPC 09(A), Public Concourse
          Low Cost Carrier Terminal,
            KL International Airport,
         64000 KLIA, Selangor, MALAYSIA.


        ----------------------------------
        Bill No.: 002-122591        Dine In
        Date: 2010/06/28 12:35:28
        ----------------------------------
        Value Meal 13           2    RM10.90
         :Chicken Porridge       2
         :Pepsi (Reg)            2
                              ------------------
                  Grand Total RM10.90
                              ==============
          Price inclusive of 5% Govt Tax


                       CASH       RM100.90
                       Change     RM90.00

                  Thank You for visiting
            Malaysia Airports (Niaga) Sdn Bhd
                   Marrybrown @ LCCT

        2010/06/28 12:36:05  JAUYAH       002-122
```

Figure D3 Receipt Sample from Marrybrown at Low Cost Carrier Terminal,

Kuala Lumpur International Airport

APPENDIX E

TEST CASE TEMPLATE

Test Case Identifier				
Case	**Requirement**	**Author**	**Date**	**Version**
Environment needs				
Pre condition **Post condition**				
Input Specification				
Output Specification				
Test Procedure				

APPENDIX F

CSOSFR TEST CASES

Test Case Identifier				
CSOSFR_TC_102				
Case	**Requirement**	**Author**	**Date**	**Version**
CSOSFR_TC_10_01-02	view promotion	Chik Soon Wai	01.11.10	1.0

Environment needs
- Reliable PC (client) installed web browser with network connection.
- Reliable PC (server) installed CSOSFR and WAMP Server.

Pre-condition
- Login with customer user type.

Post condition
- Simple order guide and active promotion is displayed on screen.

Input Specification

CSOSFR_TC_102_01: Choose promotion option from system menu / login as customer.

CSOSFR_TC_102_02: Click on simple order guide.

Output Specification

CSOSFR_TC_102_01: If active promotion record exists: Display header and simple order guide and all active promotion records.

If active promotion record not exists: Display header, simple order guide and "No promotion along this period!" message.

CSOSFR_TC_102_02: Animated order guide will display on the pop-up window.

Test Procedure

The procedure using CSOSFR as stated in user guidance.

Figure F1 Test Case for View Promotion

Test Case Identifier				
CSOSFR_TC_103				
Case	**Requirement**	**Author**	**Date**	**Version**
CSOSFR_TC_103_01-03	Food Menu	Chik Soon Wai	01.11.10	1.0

Environment needs
- Reliable PC (client) installed web browser with network connection.
- Reliable PC (server) installed CSOSFR and WAMP Server.

Pre-condition
- Login with customer user type.

Post condition
- Food menu display on screen based on category.

Input Specification

CSOSFR_TC_103_01: Choose food menu option from system menu.

CSOSFR_TC_103_02: Point the mouse pointer to a particular food in the food menu.

CSOSFR_TC_103_03: Click on a particular food in the food menu.

Output Specification

CSOSFR_TC_103_01: Display all available food and food price.

CSOSFR_TC_103_02: Display food description in tooltip.

CSOSFR_TC_103_03: Display food image and food description in pop-up window.

Test Procedure

The procedure using CSOSFR as stated in user guidance.

Figure F2 Test Case for Food Menu

Test Case Identifier				
CSOSFR_TC_104				
Case	**Requirement**	**Author**	**Date**	**Version**
CSOSFR_TC_104_01-19	Make order	Chik Soon Wai	01.11.10	1.0

Environment needs

- Reliable PC (client) installed web browser with network connection.
- Reliable PC (server) installed CSOSFR and WAMP Server.

Pre-condition

- Login with customer user type.

Post condition

- User will be directed to payment page.

Input Specification

CSOSFR_TC_104_01: Choose make order option from system menu.

CSOSFR_TC_104_02: Choose dessert option from system menu.

CSOSFR_TC_104_03: Choose drink option from system menu.

CSOSFR_TC_104_04: Choose food option from system menu.

CSOSFR_TC_104_05: Choose set meal order option from system menu.

CSOSFR_TC_104_06: Point the mouse pointer to a particular food name.

CSOSFR_TC_104_07: Check several foods in same page and click add.

CSOSFR_TC_104_08: Check several foods in different pages and click add.

CSOSFR_TC_104_09: Check several foods in same category and click add.

CSOSFR_TC_104_10: Check several foods in different category and click add.

CSOSFR_TC_104_11: Add a chosen food again.

CSOSFR_TC_104_12: Click on the quantity, change the food quantity, click confirm.

CSOSFR_TC_104_13: Click on the quantity, change the food quantity(s) to 0 and click confirm.

CSOSFR_TC_104_14: Add food, select more than one notes from list, click confirm

CSOSFR_TC_104_15: Add food, click cross sign (X) image next to the textbox, and click confirm.

CSOSFR_TC_104_16: Add food, choose dining option.

CSOSFR_TC_104_17: Add food, choose take away option.

CSOSFR_TC_104_18: Click confirm button without adding any food.

CSOSFR_TC_104_19: Click clear button after adding food.

Figure F3 Test Case for Make Order

Output Specification

CSOSFR_TC_104_01: Display all categories of food with image, name and price.

CSOSFR_TC_104_02: Display all food option in dessert category includes image, name and price.

CSOSFR_TC_104_03: Display all food option in drink category includes image, name and price.

CSOSFR_TC_104_04: Display all food option in food category includes image, name and price.

CSOSFR_TC_104_05: Display all food option in food category includes image, name and price.

CSOSFR_TC_104_06: Food description display in tooltip.

CSOSFR_TC_104_07: Checked food display in temporary order list.

CSOSFR_TC_104_08: Checked food display in temporary order list.

CSOSFR_TC_104_09: Checked food display in temporary order list.

CSOSFR_TC_104_10: Checked food display in temporary order list.

CSOSFR_TC_104_11: Chosen food only display once in temporary order list.

CSOSFR_TC_104_12: Proceed to card payment form. Food will be recorded as an order according to the quantity selected and then show in bill/receipt after the payment process proceed.

CSOSFR_TC_104_13: Proceed to card payment page. Food with quantity of 0 will be taken out from order and will not show in bill/receipt after the payment process proceed.

CSOSFR_TC_104_14: Selected note will be displayed in textbox. Note is recorded after make order process complete. Note will be displayed in view order page.

CSOSFR_TC_104_15: Textbox is blanked. No note is recorded after make order process complete. No note will be displayed in view order page.

CSOSFR_TC_104_16: Dining option is recorded after make order process completed. Dining will be displayed in view order page.

CSOSFR_TC_104_17: Take away option is recorded after make order process completed. Take away will be displayed in view order page.

CSOSFR_TC_104_18: "Sorry, no order is selected." message is displayed on screen.

CSOSFR_TC_104_19: Temporary order list is cleared.

Test Procedure

The procedure using CSOSFR as stated in user guidance.

Figure F3, continued

Test Case Identifier				
CSOSFR_TC_105				
Case	**Requirement**	**Author**	**Date**	**Versi**
CSOSFR_TC_105_01-06	Settle Payment (customer)	Chik Soon Wai	01.11.10	**on** 1.0

Environment needs
- Reliable PC (client) installed web browser with network connection.
- Reliable PC (server) installed CSOSFR and WAMP Server.

Pre-condition
- Login with customer user type.
- A temporary order list is confirmed by user.

Post condition
- Bill or receipt will be generated.

Input Specification

CSOSFR_TC_105_01: Click scan button.

CSOSFR_TC_105_02: Click pay button after clicking scan button.

CSOSFR_TC_105_03: Click pay button without click on scan button.

CSOSFR_TC_105_04: Click cancel button.

CSOSFR_TC_105_05: Click print button at bill page.

CSOSFR_TC_105_06: Click print button at receipt page.

Output Specification

CSOSFR_TC_105_01: Card number show in textbox.

CSOSFR_TC_105_02: If card not exist, show bill page and "Invalid Card!!" message

If card not enough credit, show bill page and "Card not enough credit!!" message.

If card has enough credit, show receipt.

If problem occur when retrieve order records, "No Order Record!!" will show in bill/receipt page.

If problem occur when retrieve payment records, "No Payment Record!!" will show in receipt page.

CSOSFR_TC_105_03: Show bill page and "Invalid Card!!" message.

CSOSFR_TC_105_04: Order will be cancelled, show promotion page.

CSOSFR_TC_105_05: Prompt Print dialog, click ok button to print.

CSOSFR_TC_105_06: Prompt Print dialog, click ok button to print.

Test Procedure

The procedure using CSOSFR as stated in user guidance.

Figure F4 Test Case for Settle Payment by Card (Customer)

Test Case Identifier				
CSOSFR_TC_106				
Case	**Requirement**	**Author**	**Date**	**Version**
CSOSFR_TC_106_01	Logout	Chik Soon Wai	01.11.10	1.0
Environment needs • Reliable PC (client) installed web browser with network connection. • Reliable PC (server) installed CSOSFR and WAMP Server.				
Pre-condition • Login with any user type. **Post condition** • Logout display on screen.				
Input Specification CSOSFR_TC_106_01: Choose logout option from system menu.				
Output Specification CSOSFR_TC_106_01: Logout page display on screen about 3 seconds.				
Test Procedure The procedure using CSOSFR as stated in user guidance.				

Figure F5 Test Case for Logout

Test Case Identifier				
CSOSFR_TC_107				
Case	**Requirement**	**Author**	**Date**	**Version**
CSOSFR_TC_107_01-06	View Order	Chik Soon Wai	01.11.10	1.0

Environment needs

- Reliable PC (client) installed web browser with network connection.
- Reliable PC (server) installed CSOSFR and WAMP Server.

Pre-condition

- Login with staff user type.

Post condition

- Order information will display according to the selected option.

Input Specification

CSOSFR_TC_107_01: Choose summary order option.

CSOSFR_TC_107_02: Choose paid order option.

CSOSFR_TC_107_03: Choose unpaid order option.

CSOSFR_TC_107_04: Click pencil image at the right bottom of a paid order record.

CSOSFR_TC_107_05: Click dollar sign ($) image at the right bottom of an unpaid order record.

CSOSFR_TC_107_06: Click cross sign (X) image at the right bottom of an unpaid order record.

Output Specification

CSOSFR_TC_107_01: Display total quantity required to prepare for each type of food.

CSOSFR_TC_107_02: Display list of order with ordered food detail that required to be prepared for all pending paid orders.

CSOSFR_TC_107_03: Display list of order with ordered food detail for all unpaid orders.

CSOSFR_TC_107_04: Order disappears from the paid order list. The value of total quantity required to prepare for each type of food in summary of order will be updated.

CSOSFR_TC_107_05: Proceed to cash payment page.

CSOSFR_TC_107_06: Order disappears from the unpaid order list. The unpaid order is cancelled.

Test Procedure

The procedure using CSOSFR as stated in user guidance.

Figure F6 Test Case for View Order

Test Case Identifier				
CSOSFR_TC_108				
Case	**Requirement**	**Author**	**Date**	**Version**
CSOSFR_TC_108_01-08	Settle Payment (staff)	Chik Soon Wai	01.11.10	1.0

Environment needs
- Reliable PC (client) installed web browser with network connection.
- Reliable PC (server) installed CSOSFR and WAMP Server.

Pre-condition
- Login with staff user type.
- Click on dollar sign ($) image on display unpaid order page.

Post condition
- Receipt will be generated.

Input Specification

CSOSFR_TC_108_01: Enter cash received amount that is more than total amount, click pay button.

CSOSFR_TC_108_02: Enter cash received amount that is less than total amount, click pay button.

CSOSFR_TC_108_03: Enter cash received amount with text, click pay button.

CSOSFR_TC_108_04: Only enter change amount, click pay button.

CSOSFR_TC_108_05: Only enter change amount with text, click pay button.

CSOSFR_TC_108_06: Click pay button without enter any data, click pay button.

CSOSFR_TC_108_07: Click back button.

CSOSFR_TC_105_08: Click print button at receipt page.

Output Specification

CSOSFR_TC_108_01: Change amount shows in the change textbox. Show the receipt page when payment process proceed.

If problem occur when retrieve order records, "No Order Record!!" will show in bill/receipt page.

If problem occur when retrieve payment records, "No Payment Record!!" will show in receipt page.

CSOSFR_TC_108_02: Alert user the payment received amount is less.

CSOSFR_TC_108_03: Alert user to enter only numeric figure.

CSOSFR_TC_108_04: Alert user to enter cash received amount.

CSOSFR_TC_108_05: Alert user to enter cash received amount and alert user to enter only numeric figure.

CSOSFR_TC_108_06: Alert user to enter cash received amount and change amount.

CSOSFR_TC_108_07: Show unpaid order.

CSOSFR_TC_108_08: Prompt Print dialog, click ok button to print.

Test Procedure

The procedure using CSOSFR as stated in user guidance.

Figure F7 Test Case for Settle Payment by Cash (Staff)

Test Case Identifier				
CSOSFR_TC_109				
Case	**Requirement**	**Author**	**Date**	**Version**
CSOSFR_TC_109_01-06	Add Promotion	Chik Soon Wai	01.11.10	1.0

Environment needs
- Reliable PC (client) installed web browser with network connection.
- Reliable PC (server) installed CSOSFR and WAMP Server.

Pre-condition
- Login with manager user type.

Post condition
- Existing promotion records display on screen.

Input Specification

CSOSFR_TC_109_01: Choose add promotion option from system menu.

CSOSFR_TC_109_02: Enter keyword and choose all option, click search button.

CSOSFR_TC_109_03: Enter keyword and choose id option, click search button.

CSOSFR_TC_109_04: Enter keyword and choose name/title option, click search button.

CSOSFR_TC_109_05: Click add sign (+) image / add link of the right bottom.

CSOSFR_TC_109_05a: Click save button without enters any data.

CSOSFR_TC_109_05b: Click save button without enters title.

CSOSFR_TC_109_05c: Click save button without enters description.

CSOSFR_TC_109_05d: Click save button without enters postdate.

CSOSFR_TC_109_05e: Click save button without enters effective date.

CSOSFR_TC_109_05f: Enter data and click clear button.

CSOSFR_TC_109_05g: Enter data and click save button.

CSOSFR_TC_109_06: Click pencil image / edit link of the right for any records.

CSOSFR_TC_109_06a: Clear title textbox, click save button.

CSOSFR_TC_109_06b: Clear description textbox, click save button.

CSOSFR_TC_109_06c: Clear postdate textbox, click save button.

CSOSFR_TC_109_06d: Clear effective date textbox, click save button.

CSOSFR_TC_109_06e: Modify data and click cancel button.

CSOSFR_TC_109_06f: Modify data and click save button.

Figure F8 Test Case for Add Promotion

Output Specification

CSOSFR_TC_109_01: Existing promotion records display on screen.

CSOSFR_TC_109_02: Display all promotion records if there are any match cases on promotion id or promotion title.

CSOSFR_TC_109_03: Display all promotion records if there are any match cases on promotion id.

CSOSFR_TC_109_04: Display all promotion records if there are any match cases on promotion title.

CSOSFR_TC_109_05: Proceed to add promotion form.

CSOSFR_TC_109_05a: Alert user to enter title, description and effective date.

CSOSFR_TC_109_05b: Alert user to enter title.

CSOSFR_TC_109_05c: Alert user to enter description.

CSOSFR_TC_109_05d: Alert user to enter postdate.

CSOSFR_TC_109_05e: Alert user to enter effective date.

CSOSFR_TC_109_05f: Title, description and effective date textboxes data are cleared whereas postdate textbox data resume to the default value.

CSOSFR_TC_109_05g: If promotion data is recorded without error, alert user the record is added successfully then show existing promotion records.

CSOSFR_TC_109_06: Proceed to edit promotion form and the data for the chosen record display in textboxes.

CSOSFR_TC_109_06a: Alert user to enter title.

CSOSFR_TC_109_06b: Alert user to enter description.

CSOSFR_TC_109_06c: Alert user to enter postdate.

CSOSFR_TC_109_06d: Alert user to enter effective date.

CSOSFR_TC_109_06e: Show existing promotion records.

CSOSFR_TC_109_06f: If the modified data is recorded without error, alert user the record is edited successfully then show existing promotion records.

Test Procedure

The procedure using CSOSFR as stated in user guidance.

<p style="text-align:center">Figure F8, continued</p>

Test Case Identifier				
CSOSFR_TC_1010				
Case	**Requirement**	**Author**	**Date**	**Version**
CSOSFR_TC_1010_01-07	Manage Menu	Chik Soon Wai	01.11.10	1.0

Environment needs

- Reliable PC (client) installed web browser with network connection.
- Reliable PC (server) installed CSOSFR and WAMP Server.

Pre-condition

- Login with manager user type.

Post condition

- Existing promotion records display on screen.

Input Specification

CSOSFR_TC_1010_01: Choose manage menu option from system menu.

CSOSFR_TC_1010_02: Enter keyword and choose all option, click search button.

CSOSFR_TC_1010_03: Enter keyword and choose id option, click search button.

CSOSFR_TC_1010_04: Enter keyword and choose name/title option, click search button.

CSOSFR_TC_1010_05: Click add sign (+) image / add link of the right bottom.

CSOSFR_TC_1010_05a: Click save button without enters any data.

CSOSFR_TC_1010_05b: Click save button without enters title.

CSOSFR_TC_1010_05c: Click save button without choosing menu type option.

CSOSFR_TC_1010_05d: Click save button without enters link.

CSOSFR_TC_1010_05e: Click save button without enters sequence.

CSOSFR_TC_1010_05f: Enter text in sequence textbox.

CSOSFR_TC_1010_05g: Enter data and click clear button.

CSOSFR_TC_1010_05h: Enter data and click save button.

CSOSFR_TC_1010_06: Click pencil image / edit link for any records.

CSOSFR_TC_1010_06a: Clear title textbox, click save button.

CSOSFR_TC_1010_06b: Clear link textbox, click save button.

CSOSFR_TC_1010_06c: Clear sequence textbox, click save button.

CSOSFR_TC_1010_06d: Modify data and click cancel button.

CSOSFR_TC_1010_06e: Modify data and click save button.

CSOSFR_TC_1010_07: Click pencil image / setting link for any records.

CSOSFR_TC_1010_07a: Check on certain user type and click save button.

CSOSFR_TC_1010_07b: Check on certain user type and click cancel button.

CSOSFR_TC_1010_07c: Uncheck all user type and click save button.

CSOSFR_TC_1010_07d: Uncheck several user type and click save button.

Output Specification

CSOSFR_TC_1010_01: Existing system menu records display on screen.

CSOSFR_TC_1010_02: Display all system menu records if there are any match cases on menu id or menu title.

Figure F9 Test Case for Manage Menu

Output Specification

CSOSFR_TC_1010_03: Display all system menu records if there are any match cases on menu id.

CSOSFR_TC_1010_04: Display all system menu records if there are any match cases on menu title.

CSOSFR_TC_1010_05: Proceed to add menu form.

CSOSFR_TC_1010_05a: Alert user to enter title, sequence as well as choosing menu type option.

CSOSFR_TC_1010_05b: Alert user to enter title.

CSOSFR_TC_1010_05c: Alert user to choose menu type option.

CSOSFR_TC_1010_05d: If system menu data is recorded without error, alert user the record is added successfully then show existing system menu records.

CSOSFR_TC_1010_05e: Alert user to enter sequence.

CSOSFR_TC_1010_05f: Alert to enter numeric data.

CSOSFR_TC_1010_05g: Title, link and sequence textboxes are cleared whereas menu type option is unselected.

CSOSFR_TC_1010_05h: If system menu data is recorded without error, alert user the record is added successfully then show existing system menu records.

CSOSFR_TC_1010_06: Proceed to edit system menu form and the data for the chosen record display in textboxes.

CSOSFR_TC_1010_06a: Alert user to enter title.

CSOSFR_TC_1010_06b: If the modified data is recorded without error, alert user the record is edited successfully then show existing system menu records.

CSOSFR_TC_1010_06c: Alert user to enter sequence.

CSOSFR_TC_1010_06d: Show existing system menu records.

CSOSFR_TC_1010_06e: If the modified data is recorded without error, alert user the record is edited successfully then show existing system menu records.

CSOSFR_TC_1010_07: Proceed to system menu setting form.

CSOSFR_TC_1010_07a: If the modified data is recorded without error, alert user the record is edited successfully then shows existing system menu records. Checked user type able to access that particular system menu.

CSOSFR_TC_1010_07b: Accessibility of that particular system menu by the user types is remained. Show existing system menu records.

CSOSFR_TC_1010_07c: If the modified data is recorded without error, alert user the record is edited successfully then shows existing system menu records. None of the user type is allowed to access that particular system menu.

CSOSFR_TC_1010_07d: If the modified data is recorded without error, alert user the record is edited successfully then shows existing system menu records. Unchecked user types are not allowed to access that particular system menu.

Test Procedure

The procedure using CSOSFR as stated in user guidance.

Figure F9, continued

Test Case Identifier				
CSOSFR_TC_1011				
Case	**Requirement**	**Author**	**Date**	**Version**
CSOSFR_TC_1011_01-06	Manage User	Chik Soon Wai	01.11.10	1.0

Environment needs
- Reliable PC (client) installed web browser with network connection.
- Reliable PC (server) installed CSOSFR and WAMP Server.

Pre-condition
- Login with manager user type.

Post condition
- Existing promotion records display on screen.

Input Specification

CSOSFR_TC_1011_01: Choose manage user option from system menu.

CSOSFR_TC_1011_02: Enter keyword and choose all option, click search button.

CSOSFR_TC_1011_03: Enter keyword and choose id option, click search button.

CSOSFR_TC_1011_04: Enter keyword and choose user type option, click search button.

CSOSFR_TC_1011_05: Click add sign (+) image / add link of the right bottom.

CSOSFR_TC_1011_05a: Click save button without enters any data.

CSOSFR_TC_1011_05b: Click save button without enters user id.

CSOSFR_TC_1011_05c: Click save button without enters password.

CSOSFR_TC_1011_05d: Click save button without enters re-type password.

CSOSFR_TC_1011_05e: Click save button without choosing user type option.

CSOSFR_TC_1011_05g: Enter different value for re-type password and password, click save button.

CSOSFR_TC_1011_05h: Enter data and click clear button.

CSOSFR_TC_1011_05i: Enter data and click save button.

CSOSFR_TC_1011_06: Click pencil image / edit link for any records.

CSOSFR_TC_1011_06a: Clear password textbox, click save button.

CSOSFR_TC_1011_06b: Clear re-type password textbox, click save button.

CSOSFR_TC_1011_06c: Enter different value for re-type password and password, click save button.

CSOSFR_TC_1011_06d: Modify data and click cancel button.

CSOSFR_TC_1011_06e: Modify data and click save button.

Figure F10 Test Case for Manage User

Output Specification

CSOSFR_TC_1011_01: Existing system user records display on screen.

CSOSFR_TC_1011_02: Display all system user records if there are any match cases on user id or user type.

CSOSFR_TC_1011_03: Display all system user records if there are any match cases on user id.

CSOSFR_TC_1011_04: Display all system user records if there are any match cases on user type.

CSOSFR_TC_1011_05: Proceed to add user form.

CSOSFR_TC_1011_05a: Alert user to enter user id, password and re-type password as well as choose user type option. System also alert.

CSOSFR_TC_1011_05b: Alert user to enter user id.

CSOSFR_TC_1011_05c: Alert user to enter password and the re-type password mismatch with password.

CSOSFR_TC_1011_05d: Alert user to enter re-type password and the re-type password mismatch with password.

CSOSFR_TC_1011_05e: Alert user to select a user type option.

CSOSFR_TC_1011_05g: Alert user the re-type password mismatch with password

CSOSFR_TC_1011_05h: User id, password and re-type password data are cleared whereas user type is unselected.

CSOSFR_TC_1011_05i: If system user data is recorded without error, alert user the record is added successfully then show existing system user records.

CSOSFR_TC_1011_06: Proceed to edit user form and the data for the chosen record display in textboxes.

CSOSFR_TC_1011_06a: Alert user to enter password and the re-type password mismatch with password.

CSOSFR_TC_1011_06b: Alert user to enter re-type password and the re-type password mismatch with password.

CSOSFR_TC_1011_06c: Alert user the re-type password mismatch with password.

CSOSFR_TC_1011_06d: Show existing system user records.

CSOSFR_TC_1011_06e: If system user modified data is recorded without error, alert user the record is edited successfully then show existing system user records.

Test Procedure

The procedure using CSOSFR as stated in user guidance.

Figure F10, continued

Test Case Identifier				
CSOSFR_TC_1012				
Case	**Requirement**	**Author**	**Date**	**Version**
CSOSFR_TC_1012_01-08	Manage Food	Chik Soon Wai	01.11.10	1.0

Environment needs

- Reliable PC (client) installed web browser with network connection.
- Reliable PC (server) installed CSOSFR and WAMP Server.

Pre-condition

- Login with manager user type.

Post condition

- Existing promotion records display on screen.

Input Specification

CSOSFR_TC_1012_01: Choose manage food option from system menu.

CSOSFR_TC_1012_02: Enter keyword and choose all option, click search button.

CSOSFR_TC_1012_03: Enter keyword and choose id option, click search button.

CSOSFR_TC_1012_04: Enter keyword and choose name/title option, click search button.

CSOSFR_TC_1012_05: Enter keyword and choose category option, click search button.

CSOSFR_TC_1012_06: Click add sign (+) image / add link of the right bottom.

CSOSFR_TC_1012_06a: Click save button without enters any data.

CSOSFR_TC_1012_06b: Click save button without enters food name.

CSOSFR_TC_1012_06c: Click save button without enters description.

CSOSFR_TC_1012_06d: Click save button without enters unit price.

CSOSFR_TC_1012_06e: Click save button without choosing image.

CSOSFR_TC_1012_06g: Click save button without choosing category option.

CSOSFR_TC_1012_06h: Enter text in unit price textbox.

CSOSFR_TC_1012_06i: Enter data and click clear button.

CSOSFR_TC_1012_06j: Enter data and click save button.

CSOSFR_TC_1012_07: Click pencil image / edit link for any records.

CSOSFR_TC_1012_07a: Clear food name textbox, click save button.

CSOSFR_TC_1012_07b: Clear description textbox, click save button.

CSOSFR_TC_1012_07c: Clear unit price textbox, click save button.

CSOSFR_TC_1012_07d: Change image, click save button.

CSOSFR_TC_1012_07e: Modify data and click cancel button.

CSOSFR_TC_1012_07f: Modify data and click save button.

CSOSFR_TC_1012_08: Click cross sign(X) image / delete link for any records.

CSOSFR_TC_1012_08a: Click delete button.

CSOSFR_TC_1012_08b: Click cancel button.

Output Specification

CSOSFR_TC_1012_01: Existing food records display on screen.

CSOSFR_TC_1012_02: Display all food records if there are any match cases on food id or food name.

Figure F11 Test Case for Manage Food

Output Specification

CSOSFR_TC_1012_03: Display all food records if there are any match cases on food id.

CSOSFR_TC_1012_04: Display all food records if there are any match cases on food name.

CSOSFR_TC_1012_05: Display all food records if there are any match cases on food category.

CSOSFR_TC_1012_06: Proceed to add food form.

CSOSFR_TC_1012_06a: Alert user to enter food name, description and unit price as well as choosing category option.

CSOSFR_TC_1012_06b: Alert user to enter food name.

CSOSFR_TC_1012_06c: Alert user to enter food name description.

CSOSFR_TC_1012_06d: Alert user to enter unit price.

CSOSFR_TC_1012_06e: If system user data is recorded without error, alert user the record is added successfully then show existing food records. The food data is recorded with no image.

CSOSFR_TC_1012_06g: Alert user to select category option.

CSOSFR_TC_1012_06h: Alert user to enter a numeric data.

CSOSFR_TC_1012_06i: Food name, description, unit price and image cleared whereas category is unselected.

CSOSFR_TC_1012_06j: If image uploaded without error and food data is recorded without error, alert user the record is added successfully then show existing food records. If error occur when uploading, food data is not recorded and show error message

CSOSFR_TC_1012_07: Proceed to edit food form and the data for the chosen record display in textboxes.

CSOSFR_TC_1012_07a: Alert user to enter food name.

CSOSFR_TC_1012_07b: Alert user to enter description.

CSOSFR_TC_1012_07c: Alert user to enter unit price.

CSOSFR_TC_1012_07d: If image uploaded without error, and modified food data is recorded without error, alert user the record is edited successfully then show existing food records.

If error occurs when uploading, modified food data is not recorded and show error message.

CSOSFR_TC_1012_07e: Show existing food records.

CSOSFR_TC_1012_07f: Food modified data is recorded without error, alert user the record is edited successfully then show existing food records.

CSOSFR_TC_1012_08: Delete record confirmation message display on screen.

CSOSFR_TC_1012_08a: If selected food record is removed from existing food records without error, alert user the record is edited successfully then show existing food records.

CSOSFR_TC_1012_08b: Delete selected record action is not performed. Show existing food records.

Test Procedure

The procedure using CSOSFR as stated in user guidance.

Figure F11, continued

Test Case Identifier				
CSOSFR_TC_1013				
Case	**Requirement**	**Author**	**Date**	**Version**
CSOSFR_TC_1013_01-03	Generate Report	Chik Soon Wai	01.11.10	1.0

Environment needs
- Reliable PC (client) installed web browser with network connection.   - Reliable PC (server) installed CSOSFR and WAMP Server.

Pre-condition
Login with manager user type.
Post condition
Existing promotion records display on screen.

Input Specification
CSOSFR_TC_1013_01: Choose generate report option from system menu.
CSOSFR_TC_1013_02: Choose weekly report option, select date, and click generate button.
CSOSFR_TC_1013_02a: Click print button.
CSOSFR_TC_1013_02b: Click cancel button.
CSOSFR_TC_1013_03: Choose monthly report option, select month, and click generate button.
CSOSFR_TC_1013_03a: Click print button.
CSOSFR_TC_1013_03b: Click cancel button.

Output Specification
CSOSFR_TC_1013_01: Proceed to generate report page, top ten sales food show in bar chart.
CSOSFR_TC_1013_02: If sales records exist, sales report in for pass 7 days display in report page.
If sales records doesn't exist, "No Record!" message show on screen.
CSOSFR_TC_1013_02a: Prompt print dialog, click ok to print.
CSOSFR_TC_1013_02b: Proceed to generate report page.
CSOSFR_TC_1013_03: If sales records exist, sales report for selected month display in report page.
If sales records doesn't exist, "No Record!" message show on screen.
CSOSFR_TC_1013_03a: Prompt print dialog, click ok to print.
CSOSFR_TC_1013_03b: Proceed to generate report page.

Test Procedure
The procedure using CSOSFR as stated in user guidance.

Figure F12 Test Case for Generate Report

APPENDIX G

USER ACCEPTANCE SURVEY FORM

Customer Self-Ordering System in Fast Food Restaurant

User Acceptance Survey Form

Instruction: Please tick (✓) for your chosen answer.

Name   : _____

Gender : ☐ Male   ☐ Female

Age   : ☐ Below 20   ☐ 20-29   ☐ Above 30

Please answer the following questions based on your experience in using the system.

No	Question	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
1	The user is unable to access the system without login.					
2	The average loading time is within 5 sec.					
3	The system has a good interface design.					
4	The user knows how to use all functionalities of the system without any guide.					
5	The user can handle the system within a short period of time.					
6	The system performs its basic functionality eg. manage customer order, display orders, data management and generating reports, etc.					
7	The system is accessible with any commonly used Windows OS such as (Windows XP, Windows 7 and Windows Vista)					
8	The system can be accessed by using several types of commonly used browser such as IE, Firefox and Google Chrome.					
9	The system is accessible anytime as long as the network connection is available.					
10	The user will choose to use the system if the system is able to shorten the time of purchasing food in fast food restaurant.					

Comment (if any):

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Signature: _____   Date: _____