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| **Project Title: Online Ordering Mobile Application** |  |
| **Staffordshire University**  **BSc (Hons) Computer Science**  **Final Year Project Proposal**  **Course: 153-29010**  **Project Supervisor: Samson Ng**  **Prepared by: Ng Ka Chon**  **Student ID: 53161847**  **Proposal submission date: 03/10/2016** |  |

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# Background

Eating is one of the most important part of our lives and most of us, as we ate around 3 to 4 meals a day. Science cooking is not a skill that most people are proficient at and people usually want to eat at their own place, food delivering service in very popular in the Hong Kong. Although most of the restaurant in Hong Kong provide food delivering service, they usually do not implement an electronic system to handle orders. It is time-consuming, easy to make mistake and not convenience. Instead most of the restaurant still rely on phone call to handle orders.

There is a famous mobile application for find restoration called “OpenRice” [1] but does not provide food ordering services. “Takeaway.com - Order Food” [2] ( do provide food order services which allow user to order food online with their mobile devices and allow online payment using credit card and PayPal but it's main business wasn’t based in Hong Kong. “Foodpanda”, meanwhile, do provide food order services in Hong Kong but it does not provide as much restaurants as “OpenRice” did.

The main aim of this project is to develop an online ordering system for restaurants in Hong Kong to improve the efficiency and accuracy of food ordering service and reduce the words needed for user to find restaurant that provide food delivery service.

# Problem Identification

* Inefficient Order Handling

The order handling the process of the most restaurant in Hong Kong usually involve a restaurant’s staff who wait for phone calls and after he/she received a phone call, he/she then pass the order information to the kitchen and prepare the dishes for delivery. The process is inefficient and error-prone and this process can be automated by using a computer application.

* Printed Manual

The major problem of the current food ordering process is that a printed manual is needed for the contact information as well as the food that can be ordered since most of the restaurant in Hong Kong do not have their own web-site for storing this kind of information. In addition, the customer must keep the printed manual for ordering foods which are very inconvenient. There are also other disadvantages when using the current approach including printed manual are easily out-of-date. Also whenever restaurant's staff want to make changes to the menu, they need to print another set of menu and give it to their customers. Customers who never visits the restaurant physically will not get the latest version of the menu which makes it difficult to update their menu. Using printed menu is difficult for the restaurant to attract new customer and not environmental friendly.

* Difficult to discover new restaurant/attract new customers

People's appetite change from time to time and peter like to try new food all the time. Currently, discover a new restaurant which provides food delivering service around their places require online researching, asking friends and family and walking around different places. It would be time-consuming for the customer to discover a new restaurant and it would be so much better if there is an application that could provide find out all the nearby restaurant and provide notification when there is a new restaurant opened.

* Difficult to combine multiple orders into a single order

Let’s say if a department head wants to buy lunch for all the team members in his/her department, usually in this kind of situation, a printed manual of a specific restaurant will be passed around each team member for viewing and deciding what kind of food they want. Then a member of the team will collect all the orders from different member and start ordering with a phone call. Although this is not a very complicated task, it wasted a lot of time before everyone can get their meal.

* Lack of food customization option

Today's consumer is more educated and knows that nutrition is an important part of their life. They care about how their foods were made and what goes into it. Some of the consumers might want their food to have less salt and sugar and other requirements (e.g. vegetarians) might want to remove cheese from their food or make it very spicy. Customization is a new food services trend and currently the existing ordering platform does not provide customization.

# Project Objectives

1. Provide a tools for user to search different restaurant which provide food delivering services around them.
2. Provide an intermediate platform for customer and restaurant to create and accept orders.
3. Provide a tools for restaurant to create and maintain an online menu of theirs.
4. Enabling restaurant’s staff to handle orders more efficiently and accurately.
5. Omit the need of keeping a printed menu for ordering food.

# Scope

1. Build a mobile application to allow user order food from a restaurant.
2. Implement registration process for the mobile application which allows user to create account with their Google+ account and Facebook account.
3. Implement a search function which searches nearby restaurant which provides food delivering service base on their current location.
4. Implement a function which allows users to view their transaction history.
5. Implement a function which allows merge orders from different users.
6. Build a desktop application to allow restaurant’s staff to view the current orders.
7. Implement a function which allows restaurant’s staff to add/remove items from the online menu.
8. Add a reporting function which allows restaurant’s management staff to view transaction history.
9. Implement login feature for the desktop application to enforce security.

# Deliverables

1. Project Management
   1. Project Proposal
   2. Project meeting logs
   3. Project email records
   4. Requirement Specification
2. Development
   1. System Design Specification
   2. Coding Standards and Naming Conventions
   3. Data Dictionary
   4. Final Software Product
   5. Use Case Diagrams
   6. Source Code
3. Other
   1. Test Plan
   2. User Manual
   3. Implementation Plan
   4. Contingency Plan

# Critical Success Factors

1. The project can be completed on schedule.
2. The functional and user acceptance tests are passed.
3. The server can handle client requests stably and without performance issues.
4. The reporting system can provide comprehensive and accurate information about the ordering data.
5. The procedure in the contingency play can quickly resume the system within an hour.
6. The project document is accurate and consistent.

# Development Environment

Hardware

1. Server
   1. CPU: Intel Xeon E3-1230 v3
   2. Memory: 32GB
   3. Storage: 3TB
2. Client
   1. CPU: Intel(R) Core(TM) i7-4790K CPU @4.00GHz
   2. Memory: 8GB
   3. Storage: 1TB
3. Mobile Phone
   1. LG Nexus 5X
   2. Samsung Note 7

Software

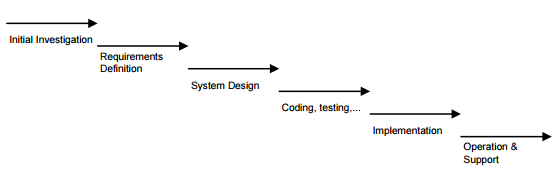
1. Operation System
   1. Windows Server 2016
   2. Windows 10
   3. Android 6.0 Marshmallow
2. Database
   1. Microsoft® SQL Server® 2016 Express
3. Development IDE
   1. Visual Studio Community 2015
   2. IntelliJ IDEA Community Edition
   3. Android Studio
4. Diagram Tool
   1. Draw.io
5. Version Control
   1. GitHub Desktop
6. Project Management
   1. Microsoft Project 2016
7. Text Editing
   1. Notepad++
   2. Sublime Text 3
   3. Google Document

# Developing Methodology

### 8.1 Methodology Consideration

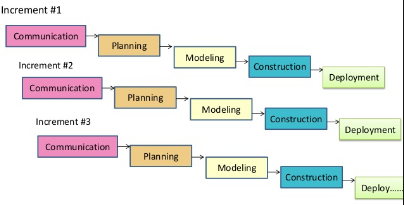
Development methodologies that can be used in this project include:

1. Waterfall



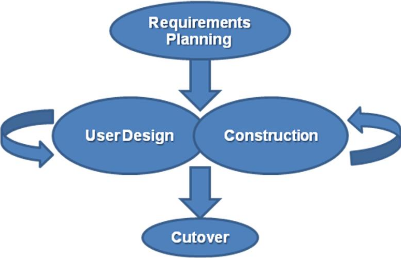
The waterfall development model is a sequential development process which the project is divided into sequential phases. It put emphasis on planning, time scheduling, budgeting and implementing of an entire system at one time. It also put emphasis on the use of extensive written documentation.

1. Incremental



The incremental development model is the combination of linear and iterative process which a series of waterfalls are performed and each waterfall is performed it order to complete a small part of the system.

1. Rapid application development (RAD)



Rapid application development is an iterative development process which its key principles are produce high-quality system quickly through the use of iterative prototyping, active user involvement, produce documentation necessary to facilitate future development and maintenance and put less emphasis on planning and more emphasis on process.

Rapid application development contains four distinct phases including

1. Requirements planning phase
2. User design phase
3. Construction phase
4. Cutover phase

### 8.2 Methodology Selected

Rapid application development is selected for this project.

Waterfall development model does not fit this project because it is inflexible and slow due to tight controls and significant structure and depends upon early identification of requirements which problems may not be discovered until the system is finished.

On the other hand, Incremental development model does not have the weakness like waterfall did. However, when utilizing a series of waterfall phases, there is usually a lack of overall consideration of the business problem and well-defined and complete interfaces are required because some modules will be completed before other modules. In addition, incremental development model is not suitable for small projects of short duration,

With the use of rapid application development, the operational version of the system is already available at early stages and it is much earlier than with Waterfall and Incremental. It also concentrates on the important of the system from user viewpoint and provide the ability to rapidly change the system design which lead to saving in time and effort.

# Project Schedule

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| **Activities** | **Date** |
| Project Seminar | 26 May 2016 |
| Submission of Initial Project Proposal/Interest Form | 5 Aug 2016 |
| Tentative Assignment of Supervisor and Second Assessor | 12 Sep 2016 |
| Submit Finalized Final Year Project Proposal | 3 Oct 2016 |
| Approval of Project Proposal | 14 Oct 2016 |
| Prepare necessary hardware and software | 15 Oct 2016 - 18 Oct 2016 |
| Requirement Specification | 20 Oct 2016 - 30 Oct 2016 |
| System Specification | 1 Nov 2016 - 12 Nov 2016 |
| Produce First Prototype | 15 Nov 2016 - 30 Nov 2016 - |
| Submit interim report | 3 Dec 2016 |
| Testing and Bug Fix | 5 Dec 2016 - 15 Dec 2016 |
| End-of-semester interview with second assessors | 23 Dec 2016 - 6 Jan 2017 |
| Produce second prototype | 7 Jan 2017 - 15 Jan 2017 |
| Testing and Bug Fix | 16 Jan 2017 - 20 Jan 2017 |
| Submit Draft Report to Supervisor for comment | Mid-February 2017 |
| Execute tests in Test Plan | 3 Feb 2017 - 10 Feb 2017 |
| Code Reviewing and Code Refactoring | 15 Feb 2017 - 20 Feb 2017 |
| Final Report | 31 March 2017 |
| Presentations and Demonstrations | 1. April – 5 May 2017 |

# References

[1] Google Android Market “OpenRice” [Online].

Available:<https://play.google.com/store/apps/details?id=com.openrice.android&hl=zh_HK> [Accessed: Sep-2016]

[2] Takeaway.com - Order Food

Available: https://play.google.com/store/apps/details?id=uk.takeaway.android&hl=zh\_HK [Accessed: Sep-2016]

[3] FoodPanda

Available: https://play.google.com/store/apps/details?id=com.global.foodpanda.android&hl=zh\_HK [Accessed: Sep-2016]