

**Hong Kong Institute of Vocational Education
Department of Information Technology (Tsing Yi)
HD in Software Engineering
ITP4522 Software Project Management &
Quality Assurance (SPMQA) (2021/2022)**

**Case Study
Summary for the SPMQA project for Tsing Yi Campus**

Introduction

The purpose of this Case Study is to provide students with an outline scenario business-oriented project in the module ITP4522 Software Project Management & Quality Assurance (SPMQA) of the full-time Higher Diploma courses in Software Engineering. This assignment has adapted the scenario of the Project-Based Learning (PBL) joint case study with ITP4915M (System Development Project) and ITP4510 (Data Structures & Algorithms) with minor adjustments.

Clarification of the Scope of the documents

Both modules, ITP4915M and ITP4522, are required to submit the document of Requirements Specification and the document of Design Specification, but the viewpoints and platforms are different.

The documents of ITP4522 should be from the project manager/solution provider point of view. The solutions could be constructed on any architecture, not limited to a client-server architecture. The documents for ITP4522 are written from project management and communication perspective. The documents of ITP4915M should be from a client-server architecture development point of view. For example, the Design Specification should provide more system-level information in ITP4522, but the Design Specification should provide more program level information in ITP4915M. Furthermore, the scenario has minor differences, double underlined in the summarised case study scenario below.

Case Study Scenario

Your project group has assigned a software development project for 'Better Limited' (The same company as the ITP4915 project).

Profile of the Better Limited

- Better Limited is an electronic appliance retail store. The head office is in Kowloon with a 6000 sq/feet warehouse.
- There are two retail stores located at Kowloon Bay and Tsuen Wan. There are two managers on duty in each store: the Accounting Manager and the Purchase manager.
- The Company currently employs approximately 90 employees under five departments: Retail Sales (at retail stores), Accounting, Purchase, Inventory, and Technical Support.
- Better Limited plans to expand the business to the Greater Bay Area, and the management system must be computerised urgently.

Operations Overview

Sales and Delivery

- When sales representatives close a deal with their customers, payment will be processed directly if the item is available at the store. The payment receipt is currently handwritten to the customer, and a carbon copy is filed in the store.
- When the sold item is out of stock (i.e. unavailable), the sales manager will call the Inventory Department at the warehouse and request delivery to the store.
- For unavailable items over \$5000, the customer needs to pay at least 20% of the sold price as a deposit. The payment will be completed later when stock is available.
- Receipts of completed orders will be sent to Accounting Department on the first day of each month. For incomplete orders, deposit receipts are kept in the deposit folder of the store until the payment is completed.
- For items that need to be delivered to the customers, the Sales representative will arrange a delivery with the Inventory Department. The availability of delivery personnel will be checked before delivery is scheduled.
- For items that require installation service, the Sales Representative will arrange installation service with Technical Support Department. Like the delivery, the availability of the workman should be checked before the booking.
- The items should be delivered at least 2 hours before the commencement of the installation service.
- Sales representatives frequently work on the sales data to check if the store inventory ties with the sales records.
- The sales representative informs the managers if the store stock level is too low.

- There is an exception for displayed items; Sales representatives should note clearly in the payment receipt that the item is a 'displayed item', along with the serial numbers of displayed items.
- As there are two different hardcopy records of item prices in each store. Sales Representatives are now required to check the price for both stores before selling items.
- Three copies of a Sales Delivery Note are written when a delivery request is received. One copy is kept with the Inventory department, and two other copies will be delivered together with the item. When the clients receive the item, they must sign on the Sales Delivery Note, which the delivery team will keep one copy, and the other is for the clients.

Store Management

- Managers will decide the number of goods required and send the delivery request to the Inventory Department.
- The managers are responsible for updating the retail price, re-order level, minimum re-order amount, and marking phasing out items if necessary. Managers are accountable for ensuring identical items have the same retail price in both stores.

Purchasing and Inventory

- The inventory Clerk will monitor the stock level in the warehouse. If a non-phasing out item reaches a certain inventory level, the Inventory Clerk will send a re-order request to the Purchase Department for approval. After the request is approved, a Purchase Order will be generated by the purchasing department and sent to the Accounting Department. Note that a purchase order may have more than one item.
- The purchase order will be sent to the supplier, and another copy of the purchase order will be sent to the Inventory for checking with the goods inwards later.
- When a Good Inwards Clerk in the Inventory Department receives the goods with a delivery note from the supplier, the clerk will check the goods received with the corresponding Purchasing Delivery Note and Purchase Order. If the items and the corresponding quantity are correct, the stock book will be updated, and goods will be moved into the warehouse. Goods Received Note will be generated, and one copy will be sent to the Purchase Department and the other copy sent to the Accounting Department.

- Defect Items from the customers are returned to the Inventory Department. Two copies of the Goods Returned Note are prepared. One copy is kept in Inventory, and the other is sent to the Accounting Department.
- The stock book is updated accordingly for all the tasks mentioned above.

Accounting

- Every month, the accounting department receives payment receipts from the two retail stores, purchase orders and invoices from the Purchase Department and suppliers.
- Data is used to analyse the sales activities and generate reports.
- For the defective items, Accounting Department will ask the Inventory Department to send them back to the supplier after informing them.
- All documents are filed at the source and the destination. In other words, currently, a record may have more than one copy filed in different departments, sections, and locations.

Technical Support

- After Technical Support Department receives the request from the Sales Representative, the manager will arrange for a worker to install the item for the customer. All the duty records are currently recorded on paper.

Record of user interview

Sale Department

Computer printed receipts and the in-store computerised system can improve the store's efficiency and image. Staff must log in with a password before using the system to ensure the system's security.

As new stores will be opened in the Greater Bay Area soon, both English, Traditional Chinese and Simplified Chinese user interfaces are expected, especially for the functions used by the staff in the retail store.

Inventory Department

According to their experience, a maximum of five appointments can be made for each delivery session. There are THREE delivery sessions:

From Monday to Saturday, excluding public holidays.

Morning (9:00am – 12:00nn)

Afternoon (1:00pm – 5:00pm)

Evening (6:00pm – 10:00pm)

Accounting Department

Data inconsistency problems occurred as the same documents were put in a different department. The problem happened when an amendment was made. They hope the new system could avoid this problem.

CEO

Reduce the cost, especially when the information is exchanged within the company. Except for the documents to the customer, information should be viewable and traceable in the new computer system.

Due to business development in the Greater Bay Area, the system should handle the order from the GBA with digital payment. As digital payment is popular in China, commonly seen

digital payment formats (such as Alipay, WeChat Pay etc.) must be aligned with the ordering system.

The company is planning to have an online store in future. The new computerised system must be compatible with the new online store.

Information Technology Officer

The company uses standalone PCs and electronic spreadsheets to manage the delivery services. Since the PCs are not inter-connected, data between different offices cannot be readily shared. A new server should be purchased for the new proposed system.

Android device is expected to be used for the delivery team and technical support team.

Assignment work:

Students are required to form groups of 2 students for this assignment. Each group produces the following deliverables:

1. Requirements Specification
 - Planning phase: Work plan including study background, feasibility analysis and proposal/solution, planning including budgeting, staffing and schedule. (10%)
 - Analysis phase: System proposal including current problems and the proposed solutions, system requirements, existing and proposed system. (30%)
2. Design Specification
 - Design phase: Design specification including detailed design of the system, structure chart, user interface design and process design. (30%)
3. Test Plan
 - Implementation phase: A draft of a test plan including types of tests conducted with sample test cases for every different kind of test. (10%)
 - Migration plan with conversion strategy and system support arrangements. (10%)
4. Each group will give a 10-minute presentation at the end of the semester to present the findings design and outline the testing method of the system. Each group should present their work in an equal proportion of the time. (10%)

Deadline for submission:

- Requirements Specification: on or before 17:00 on 17th February 2022 (Thursday)
- Design Specification: 17:00 on 24th March 2022 (Thursday)

- Test Plan: 23:59 on 6th April 2022 (Wednesday)
- Demonstration: 10-minute presentation per group from 7th to 13th April 2022.

Marks Allocation:

- Requirements Specification (40%)
- Design Specification (30%)
- Test Plan (20%)
- Presentation (10%)