Software Report

Café-book Management Software

Requirement Report

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Contents

1/ INTRODUCTION

1.1 Purpose of the Requirements Document

The purpose of this document is:

- To state the requirements for the Café-book Management System
- To show the analysis of the requirements

1.2 Product Scope

The product is a software application for computers using Windows operating system and used for people who work at a café-book to manage the store.

1.3 Glossary

This subsection contains definitions of all the terms, acronyms, and abbreviations used in the document. Terms and concepts from the application domain are defined.

- Café-book (or book coffee): an establishment which primary serves coffee and books.

1.4 References

IEEE/ANSI 830-1998

1.5 Overview

This document contains the following information:

- General description of product
- Functional & Non-functional requirements

2 / GENERAL DESCRIPTION

The system is designed to be a facility for managing café-book and has many potential applications, such as managing orders, menu and books, job scheduling and assignment for staffs, managing VIP guests, staffs and stocks, assigning sale-off information and generate monthly reports.

This system is intended to support staffs and managers who work or manage the café-shop, aims to increase the workload of staffs who work in this kind of store.

2.1 Product Perspective

The café-book management system will require users to have access to internet on their personal/workstation computer. The users of the system do not need to invest in any other software to get the most out of the software system, but their computer must be Microsoft Windows based & have .NET framework 4.5 or later installed. Most of features are built-in and does not require any other software to function.

System interfaces: Computer must be windows based.

Database connection to the Microsoft Azure server.

User interfaces: All user interfaces occur through an application screen.

Hardware interfaces: There is no other hardware interface to this system.

Software interfaces: There is no other software interface to this system.

2.2 Product Functions

Our system functions are divided into 7 main categories:

Order Management
- Any staffs can view/search orders (list + details)
- Cashiers can create orders
- Cashier can cancel orders that are created in less than 5 minutes
- Cashier can update orders (status)
- Manager can add promotion information

Menu Management

- Any staffs can view/search menu (list + details)
- Warehouse manager can add a menu item
- Warehouse manager can update a menu item
- Warehouse manager can delete a menu item

Book Management

- Any staffs can view/search books (list + details)
- Warehouse managers can add books
- Warehouse managers can update books (status/information)
- Warehouse managers can delete a book
- Any staffs can view wishlist
- Cashier can add an item wishlist
- Cashier can update an item in wishlist

- Cashier can delete an item in wishlist

VIP Guest Management

- Any staffs can view a VIP guest (list + basic information)
- Any staffs can search for guests
- Manager can edit VIP guest benefits
- Cashier can add a VIP guest
- Cashier can update a VIP guest information

Staff Management

- Any staffs can view their own information
- Any staffs can see the store's schedule
- Manager can view any staffs' information
- Manager can update a staff' information
- Manager can create schedule for a staff

Stock Management

- Any staffs can view stock information
- Warehouse manager can create stock bills (for update ingredient' quantity)
- Warehouse manager can add/update ingredient information

Transaction Management

- Any staff can view/search for a specific order
- Manager can view generated reports

2.3 User Characteristics

There are 5 types of users in this system. 4 out of 5 types of users in the system are authorized users, which are: regular staff, manager, warehouse manager and cashier. The last type of users is non-authorized users.

Non-authorized users can't use any functions of the system; they can only see the welcome & the login screen. After successfully log in to the system, non-authorized users will become authorized users, and their authorization level vary based on their roles.

Most users will be the regular staff type. These users are able to view and search for data, such as: view & search order details, food & drink in menu, books, view VIP guest basic information or search for a specific guest in the database, view their own information as well as their job schedule, view & search for stock items, and transaction history. They can't update or delete the data in the system. All others authorized user types will have the authorization that regular staffs have.

Another type of authorized user is warehouse manager. Since they are specialized in managing stocks and store 's facility, they have more additional privileges than regular staffs in the system, such as: create, update information or delete a menu item, add and update books information, create stock bills for managing stock and cancel stock bills.

The next type of authorized user is cashier. Since they interact with customers, get the data from customers, they have some additional permissions specialize in managing customers, such as: create and cancel order, add, update or delete a book in wishlist,

which is a list of desired books that customers want to have in store, add VIP guest basic information or edit VIP guest information.

The last type of authorization user is manager. Their specialities are managing the café-book and managing staffs, they have some additional permission as well, such as: create, delete or change promotion information, view any staff 's information, search for a specific staff, create schedule for other staffs, managing staff 's accounts and retrieve monthly report.

2.5   General Constraints

There are some constraints which the system must abide by during development. The system must be developed within these bounds. They are important to be aware of during the implementation of the software system.

- System is to be developed for distributed use as a windows-based application for computers.
- System is to be developed in C#, using Visual Studio.
- Data must be stored in an online database for quick queries, storage & synchronization across multiple computers in a system.
- Passwords must be sent & stored in encrypted form.
- Each user has their own authorization based on their roles. A specific user can't have permissions that is not necessary for his/her role.

2.5   Assumptions & Dependencies

- System will be installed on a machine running Windows operating system with internet connection.
- Only staffs are authorized to use the system.
- Users are familiar in using window-based application.
- Database server working normally.
- Customer only have 5 minutes to cancel orders
- Only VIP guests can borrow books
- Stock managers don't embezzle
- Each human character in the system must have different civilian ID
- All book information in the store must have different name (you can have multiple books with the same name but the information of these books are all the same)
- All ingredients & menu items in the system must have different names.

3/ SPECIFIC REQUIREMENTS
3.1   Problem Statements

Smart book-coffee is a management system for staffs to manage the book-coffee shop with these following functions:

- **Order management:**

    All check-outs will be done at reception counter.

    Drinks/dishes, borrow and return books is ordered at reception counter.

The app exports menu with drinks/dishes and books that are available at that time and bills.

After ordering, the app confirms an order again and displays on the screen.

Each bill will be saved independently with these categories below:

- Bill code (automatically generated)

    Structure: <Transaction code><Date created><order number>

    <Transaction code>: a 6-letter string in form of AAAABC, in which

    AAAA: types of bill: DIOR: Dish Order

    BBST: Book borrowed in store

    BBAH: Book borrowed at home

    BROS: Book returned on schedule

    BROD: Book return overdue

    B: customer: V: VIP customer

    R: Regular customer

    C: checking vouchers Y: voucher

    N: no voucher

    <Date created>: DDMMYY

    <Oder number>: 4-digit number

- Drinks/Dishes (for dishes/drink orders)
- Books & codes (for book orders)
- Price (each item & total)
- Customer's total payment & change
- Name of in charge cashier
- Date that bill is created & exported
- Customer's information (if VIP)
- Waiting number (input by cashier)
- Codes of borrowed and returned books (for return book order)
- Promotion codes (optional)
- Previous borrow order (for return book order)
- Bills' status

There will be *3 types of bills*: Drinks/Dishes and Borrowed/Return books.

After being created, bills will be automatically moved to the "queue" in the "Order" tab and displayed as *"Processing"*. Other staffs can view bills that are being in the "queue" but don't have the right to create or cancel any bill. Staffs can also use the search function to search for "Processing" order based on customer' ID, order ID or waiting number.

When customers have their order completed, cashier will update the bill from *"Processing"* into *"Completed"* and move it to *Sold* folder in *Transaction History* or

Borrowed or Returned folder in case of books. Customers can have cashier cancel their bill within 5 minutes from ordering. The cashier will delete the order from the database by the cancel function

Vouchers can be applied when the shop has *promotions*. The shop also has promotion using vouchers, which means customers can have vouchers from anywhere and bring them to the shop to get discounts (not for books).

Shop manager is in charge of launching promotions on the app in form of: *Promotion types (discount x%, buy A get B, buy 2 get 1.) and the number of vouchers*. After completing the form, the system will automatically create a PDF file (with vouchers), print it (staffs will be in charge of printing it, the app doesn't interact with printer) and save the voucher codes (random 5 character (digits or letters)) to the system for future use.

Books borrowed at home **ONLY** applies for VIP guests (see more in VIP Guest Management).

- **Menu Management:**

Staffs can use the app to view lists and details of drinks/dishes served in that day as well as search for items in menu based on name. The app will display information of drinks/dishes such as: name, ingredients, price, status (available/unavailable) and notes.

With every bill created, ingredients are automatically updated by the system and show notifications to warehouse manager whether any drinks/dishes are out of stock.

Moreover, the warehouse manager is also in charge of adding or updating, deleting menu whenever the shop needs to. Items that are temporarily out of service or officially out of service will not be displayed on menu.

- **Book Management:**

Staffs can use the app to view book lists, details as well as search for books required by customers to see information or check whether they are available or not.

The app will display: Book code, title, author, publish date, publisher, price, status (available/borrowed) and the location where that book is placed in shop. Each book has a distinct code even if they are the same.

Customers can recommend the shop to update new books by talking to the cashier or manager, then they will add them into a Wishlist folder.

Cashiers also have the right to add, edit and delete Wishlist while other staffs can only search and view this Wishlist.

Warehouse manager is in charge of adding and updating books' information when new books are imported.

Book status will be automatically updated by the system while books are being borrowed or returned.

- **VIP Guest Management:**

Customers can become VIP members (3 bills within 15 days) to have these benefits:

- o Borrow books (for home-reading)

Customers MUST pay a deposit fee equals to 50% of the price. After 7 days, books are considered as overdue. Days of overdue is also counted.

Return fee = deposit fee – number of overdue days * overdue fee (Overdue fee depends on price of that book)

Price	Overdue fee
< 300.000đ	2.000đ
300.000đ – 700.000đ	4.000đ
> 700.000đ	7.000đ

- o Get discount on each bill (5%)
- o Get promotion on special occasions and holidays.
- o Get 1 voucher if check-out every 5 times.

(Shop manager can change these rules based on the shop's needs)

Customers want to maintain as VIP members MUST satisfy the condition that is having at least 1 order above X VND in the next 10 days.

Customers can go to reception counter to register an account. They need to provide name, phone number, address, Civilian ID number, gender and occupation. Then, they will receive a member card with ID (this ID is stored in the system along with register date, VIP status and VIP days left). Cashier will be in charge of input information into the system.

Staffs can view customers' information or search for a specific customer based on his/her basic information but ONLY cashiers can update that information when customers ask to.

- **Staff Management:**

Staffs can search for their own basic information and working shifts.

Shop manager can search for employees' information or update employees' information (if needed) based on name, civilian ID, phone number, address or view working shifts as well as organize working shifts for each staff.

Staff lists can be added, updated but NOT deleted.

The app displays staffs' information including name, gender, main occupation, civilian ID number, address, phone number, total working hours, present positon and salary, status (working/not working/quitting) and notes.

Staff who does not have shift on that day or leave early or sudden sickness is considered as "Not working".

Staff who works on that day is considered as "Working".

Staff who does not have shift on that day but come to work will be added to list and considered as "Working".

- **Stock Management:**

Stock receiving/delivering has their own type of bills that are different from selling bills. Each bill MUST have these information:

- o Code (STOCKSddmmyy<ordering number>)
- o Types of items
- o Quantities
- o Price
- o Manufacturer
- o Name of warehouse manager (created the bill)
- o Total payment

Warehouse managers are in charge of updating this information or cancelling if there are any mistakes happen.

For each item (ingredients, books), the warehouse manager must add the item into the system before creating order.

Warehouse managers will be in charge of adding or updating ingredient in the system. Ingredient' information included name & description.

Stock receiving/delivering bills are exported and moved to Stock folder in Transaction History. After that, the items in stocks will be automatically updated.

Staffs can view or search for the items in the warehouse.

- **Transaction Management:**

Orders (all the information of the shop activities) that are completed are save in Sold, Cancelled, Borrowed, Returned, and Stock folders.
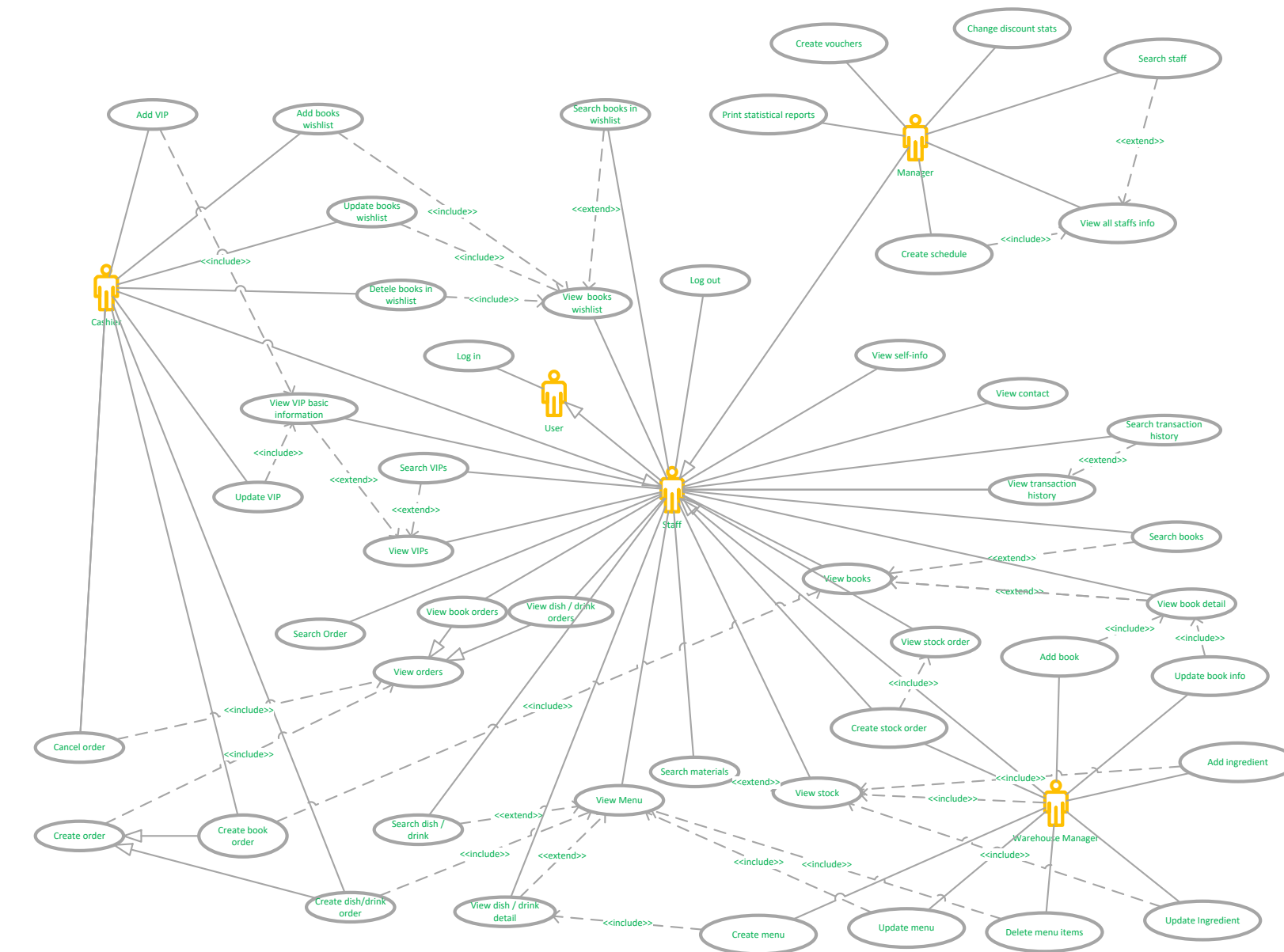
Staffs can search for bills based on date, time, name of in charge staffs, manufacturers, codes, customers' names or table number. Managers can also print this information and do some statistics on transactions, stock receiving/delivering, customers, etc. (updated later).

3.2 Functions

System functional requirements are specified by use cases and specific requirements. The use case helps understand system behaviors.

(See more about use case specification in our project folder in "Requirement\Use-case Modelling\Specification" folder)

Below is the system use-case diagram to help understanding of the system function:

Requirement Report

3.3 System Functional Requirements

Based on the previous problem statement, we state the following functional requirement for the system:

- **Create orders**

The system shall assist users with "cashier" role to create orders for customers. (All check-outs will be done at the reception counter, where cashier works)

There are 2 kind of orders: Dish/drink order and borrow/return book order.

An order will be saved with information input from the cashier and self-generated information, such as:

Bill code (automatically generated)
Drinks/Dishes (for dishes/drink orders)
Books (codes) (for book orders)
Price (each item & total) (generated based on products & discount)
Customer's total payment & change
Name of in charge cashier (get from the database)
Date that bill is created & exported (get current day)
Customer's ID (if VIP) (input by cashier)
Waiting number (customers will be called using this number when staffs complete the order)
Shop's default information (name, address and contact)
Codes of borrowed and returned books (for return book order)
Previous borrow order (for return book order)
Promotion codes (optional)
Bills' status (system generated)

The cashier can't create add both dishes/drinks, borrow books & return books in the same order (all need to be created separately for easier management)

When create a dish/drink order, the system allows the cashier to obtain and choose dish/drink via a menu but the menu only show available dish/drink

When create a book order, the system allows the cashier to obtain and choose book via a book list, but the system only display sufficient book based on the order type.

After creation, the order will be brought into the waiting queue (still serving) as "processing" status in the "Order" tab.

For borrow book order, only VIP guests (has information on the system) can borrow books.

Price will be applied when the cashier creates different type of order:

For borrow book order, a 50% fee will be applied

For return book order, a return fee will be applied (the cashier give back to the customer) = deposit fee – number of overdue days * overdue fee

Price	Overdue fee
< 300.000đ	2.000đ
300.000đ – 700.000đ	4.000đ
> 700.000đ	7.000đ

For VIP customer, a 5% discount will be discounted and more if on holidays (customize by managers)

A discount will be applied if a voucher is input (only 1 per order & only for dish/drink order)

- **View/Search orders**

The system shall display the orders that are created but not yet finished (with the status of "Processing") (for others staffs can see and do their job).

The system also support search for orders in history based on order ID, customer's ID or waiting number.

- **View/Search transaction history**

The system supports display completed order(store in history)

The system also support search for transaction history based on date, time, name of in charge staffs, manufacturers, codes, customers' names or table number

- **Print statistical reports**

Manager can also use the system to print statistical report based on transaction history (update later)

- **Cancel orders**

The system assist users with "cashier" role to cancel the orders that are not finished if some mistakes were made.

Cashier can only cancel orders within 5 minutes after orders were made.

The order will be deleted

- **Update orders**

The system assist users with "cashier" role to update orders that are in queue status from "processing" to "completed" to remove that order from the queue and store in transaction history.

- **Create vouchers**

The system allows managers to create vouchers for promotion in 3 form:

  o Discount x%
  o Buy A get B
  o Buy x products get y

The voucher information will be stored in the database for future use.

- **View menu**

The system assist users to view a menu of product in the store.

The system also allows users to click on a menu to see the menu details (name, ingredients, price, status & description)

- **Search menu item**

The system assist users to search for a specific menu item by name.

- **Out-of-stock notification**

The system can detect whether ingredients are not enough and displays a warning message to users with role "warehouse manager" to inform the stock status

- **Add menu item**

The system assist users with "warehouse management" role to add a product into the menu.

- **Update menu item**

The system assist users with "warehouse management" role to update a product in the menu.

- **Delete menu item**

The system assist users with "warehouse management" role to delete a product

The deleted product is not completely deleted out of the database, but saved somewhere else for future use

- **View book list/details**

The system assist users to view a list of book the store owned or view a book details by clicking on a book item (Book code, title, author, publish date, publisher, price, status and location)

- **Search book**

The system assist users to search for a specific book based on stored information (Book code, title, author, publish date, publisher, price)

- **Add/Update book**

The system assist users with the "warehouse management" role to add or update a book information & status

(Can only update status to "unavailable" or "available", the "borrowed" status is system generated and a book with "borrowed" status can't be updated to "available").

- **View/Add/Edit/Delete book wishlist**

The system assist users with the "cashier" role to add, edit or delete a book into/out of the book wishlist, which is a list of book that customers want the store to have.

Any staffs can view wishlist.

- **View/Search VIP guest list/details**

  The system allows staffs to view a list of VIP guest, see basic information of a guest in the list or search for a specific guest based on his/her information (name, phone number, address, Civilian ID number, gender, occupation, VIP ID register date, VIP status)

- **Add VIP guest**

  The system permits cashier to create a VIP guest (with preconditions: 3 bill within 15 days)

  These fields are required: name, phone number, address, Civilian ID number, gender, occupation.

- **Edit VIP guest information**

  The system permits cashier to change a VIP guest information (if necessary)

  If a VIP guest can't maintain his/her VIP status (at least 1 order above x VND for each 10 days), the status will be removed (but the information still stored). If that guest wants to reobtain the status again, he/she must bring 3 bills and the system will support the cashier to edit the VIP status.

- **Edit VIP benefits**

  The system permits managers to change some of the VIP benefits, such as:
  - Discount rate on each bill
  - Promotion on holiday
  - Days required for vouchers

- **View/Search staff information/schedule**

  The system permits staffs to view their own basic information and working shifts of the store.

  Only managers can see information of any staffs in the store or search for staffs based on name, civilian ID, phone number, address

- **Create/Edit schedule**

  The system allows manager to create schedules for other staffs.

  Only 1 schedule is stored for all staffs (schedule is stored based on working shift)

- **Create/Cancel stock bill**

  The system allows warehouse managers to create a stock bill when he/she restocks or cancel a stock bill if any mistake was made.

  When a warehouse manager wants to create a new stock bill (add new items such as ingredients, books), he/she must add a new ingredients/books into the system first.

- **View/Search stock items**

The system allows users to view a list of available items in the stock or search for an item by name. (only for ingredients, not books since we have functions for books)

- **Add/Update/Delete ingredients**

The system allows warehouse manager to view, update or delete an ingredient

The ingredient' information included name & description

Warehouse manager can only delete an ingredient when there is no food with that ingredient in the system.

3.4 System Non-functional Requirement

Based on the previous problem statement, we state the following non-functional requirement for the system:

- **Automatically update**
  Whether an order is made, the system shall update the status/amount/information of related items immediately before any other events take place without user 's help.
- **Usability**
  The system should be usable by non-experts with a maximum of 2 hours of training.