

Peek-a-book bookstore

系統需求規格書

Software Requirements Specification (SRS)

Version: 2.0

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1/11/2017

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Section 1 簡介 (Introduction)

1.1 目的 (Purpose)

The objective of this project is to implement the concepts of relational DBMS, SQL, and database design techniques learned in class. In addition to this, we are also learning how to be an effective team member in a software project.

1.2 系統名稱 (Identification)

Pick-a-Book e-commerce website will include a main system identifies as:

- Web base bookstore business system, *WBBS*.

Additionally, it will also include different subsystems that will be identified as:

- Account and member management subsystem, *AMMS*.
- Shopping cart management subsystem, *SCMS*.
- Books management subsystem, *BMS*.
- Trace and search management subsystem, *TSMS*.
- Bill and logistics management subsystem, *BLMS*.
- Financial management subsystem, *FMS*.

1.3 概觀 (Overview)

Our e-commerce website will have a web-based bookstore business system (WBBS). Beneath this system, there will be many different subsystems as listed above.

Peek-a-Book book store will have 4 users in total: admin, staff, member, and guest. Each user will be allowed and disallowed to use different subsystems; therefore, each user will have different limitations when it comes to accessing the database.

The admin will be allowed to add or delete admins to the database, and can also operate the financial part of the store; the staff can operate the financial part also, but additionally, will have to be in charge of the management of the store, the payments of the customers, and will also be given the freedom of tracking and searching the store's items for services purposes; the member will only be allowed trace and search products of the database, see their payments, and add items to their shopping carts; lastly, the guest user will be allowed to search items in the database only.

1.4 符號描述 (Notation Description)

System's name	System's notation
Web based bookstore business system, WBBS	1.0.n
Account and member management subsystem, AMMS	1.1.n
Shopping cart management subsystem, SCMS	1.2.n
Bookstore management subsystem. BMS	1.3.n
Trace and search management subsystem, TSMS	1.4.n
Bill and logistics management subsystem, BLMS	1.5.n
Financial management subsystem, FMS	1.6.n

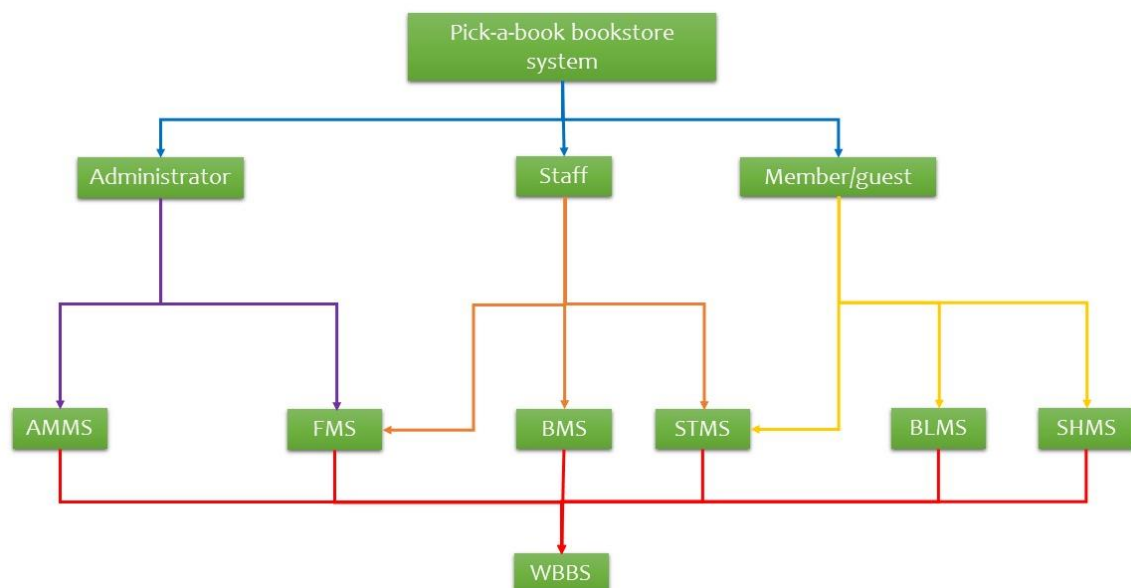
Section 2 系統(System)

2.1 系統描述 (System Description)

The database system of the bookstore is going to be designed in order to facilitate the database access to the administrator as well as the staff members. It also has the objective of making the customer's shopping experience more pleasant. The database system will consist of the following parts:

- Account and member management subsystem (AMMS): letting members, the staff and the administrator sign in, and letting the guests sign up as a new member.
- Financial management subsystem (FMS): allows the administrator and the staff members to supervise the financial records of the bookstore.
- Books management subsystem (BMS): contains the books that can be bought by the members/guests; staff members can add or delete books that could be bought.
- Search and trace management subsystem (STMS): contains the book's records, allowing the members, guests, and staff to find books and their availability.
- Bill and logistics management subsystem (BLMS): keeps a record of the buyer's bill/payment, and order.
- Shopping cart management subsystem (SHMS): where the buyers add the books they want to buy and check in.

2.1.1 系統架構圖 (System Context Diagram)



2.2 操作概念 (Operational Concepts)

• Scenario 1: Anonymous Operational Concepts

When any users go into the **Web-based bookstore business system (WBBS)**, they can see the interface of the Web. The Web provides many kind of books for users to choose. Through the **search and trace management subsystem (STMS)**, they can search for the book they are interested and trace the book they want to buy. Moreover, they can put the books in the **shopping cart management subsystem (SHMS)** to check those books they have chosen.

• Scenario 2: Administrator Operational Concepts

Users can log in as the administrator through the **account and member management subsystem (AMMS)** to modify the permissions of any kind of users and maintain the **WBBS**. Besides, the administrator can watch the financial report of the whole system in the **financial management subsystem (FMS)**.

• Scenario 3: Staff Operational Concepts

Users can log in as the staff through the **account and member management subsystem (AMMS)**. As the staff, they can watch the financial report and operate the financial part as the administrator. Additionally, they use the **books management subsystem (BMS)** to determine which books to be their products and the **bill and logistics management subsystem (BLMS)** to check or manage the order and the payment of the customers. Also, to check the items in the store, the **search and trace management subsystem (STMS)** is important for staff.

• Scenario 4: Member Operational Concepts

If the users have their own account, they can log in as the members through the **AMMS**. Differing from guest, they can do something like the customers, such as search and trace the products (in the **STMS**), pay and view the books they have bought through the **bill and logistics management subsystem (BLMS)**, and add the items in the shopping cart (in the **SHMS**).

• Scenario 5: Guest Operational Concepts

When users open the Peek-a-Book bookstore, they are the guests simply. The guests can view and search the products in the **STMS**, but they cannot use the **SHMS**. If they want to be the members, they need to add the account through the **AMMS**.

2.3 設計限制 (Design, Data, and Implementation Constrains)

Requirement Number	Priority Order	Requirement Description
IC-001	1	Use MYSQL as DBMS
IC-002	1	Use PHP to design the web
IC-003	1	Use Javascript to do the ajax design

2.4 技術限制 (Technological Limitations)

Requirement Number	Priority Order	Requirement Description
TL-001	1	Logistics system (cooperate with convenience store)
TL-002	2	Mobile authentication (verity through mobile messages)

2.5 介面需求 (Interface Requirements)

2.5.1 使用者介面需求 (User Interfaces Requirements)

2.5.1.1 會員(member)

Requirements No.	Requirements Description
UIR001	Add/delete books on tracking list
UIR002	Add/delete books on shopping cart
UIR003	Add books form tracking list to shopping cart
UIR004	Select the payment method and delivery method of Checkout
UIR005	Inquiry order record
UIR006	Notice the out of stock book arrival

2.5.1.2 非會員(non member)

Requirements No.	Requirements Description
NUIR001	To be a member
NUIR002	Browse books data
NUIR003	Inquiry books data

2.5.2 外部介面需求 (External Interface Requirements)

Requirements No.	Requirements Description
EIR001	On/off book on the shelves
EIR002	Supervise order data

2.5.3 內部介面需求 (Internal Interface Requirements)

Requirements No.	Requirements Description
IIR001	Supervise all member

2.6 功能性需求 (Functional Requirements)

Requirements No.	Requirements Description
FR001	Use form to present all data sheet data
FR002	Add/revise/inquire/delete data
FR003	Data sheet can be re-elected
FR004	Send verification e-mail
FR005	Add track list
FR006	Add shopping cart
FR007	Checkout system
FR008	Send order mail
FR009	Track out of stock book

2.7 非功能性需求 (Non-Functional Requirements)

2.7.1 效能需求 (Performance Requirements)

Requirements No.	Requirements Description
PR 001	Datasheet Design (Normalization, performance & Space)
PR 002	The loading time for a page should not more than 5 seconds
PR 003	The loading time of searching should not more than 3 seconds
PR 004	Website/Database Error Alert

2.7.2 測試需求 (Test Requirements)

Requirements No.	Requirements Description
TR 001	Testing function of all Subsystem
TR 002	Testing Users' GUI
TR 003	Testing in all Platform

2.8 其他需求 (Other Requirements)

2.8.1 環境需求 (Environmental Requirement)

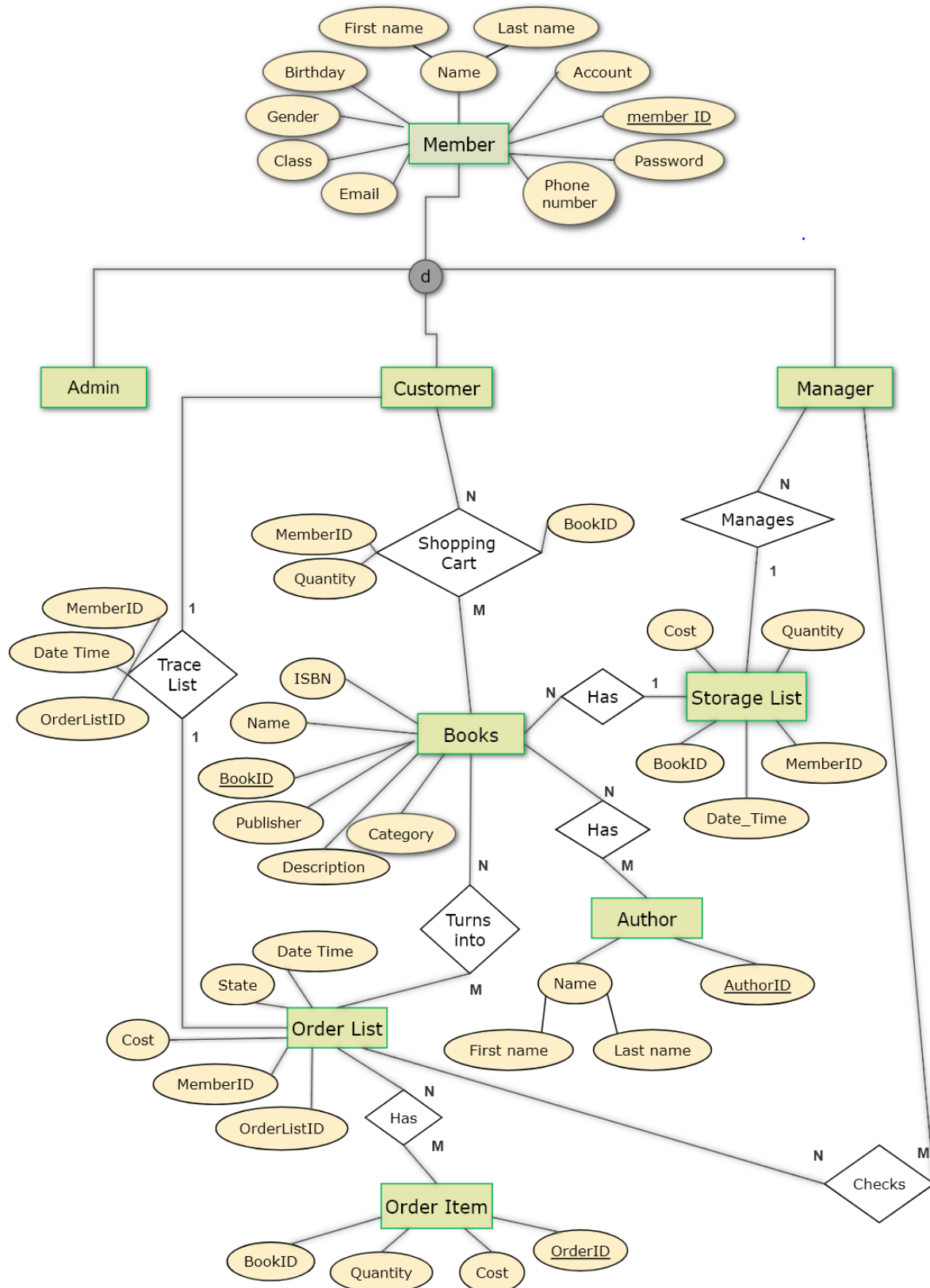
Requirements No.	Requirements Description
ER 001	MySQL Environment Setup
ER 002	PHP Coding Environment Setup
ER 003	Website Server Setup
ER 004	Database Server Setup

2.8.2 安裝需求 (Installation Requirement)

Requirements No.	Requirements Description
IR 001	MySQL Installation
IR 002	PHP Coding Software Installation

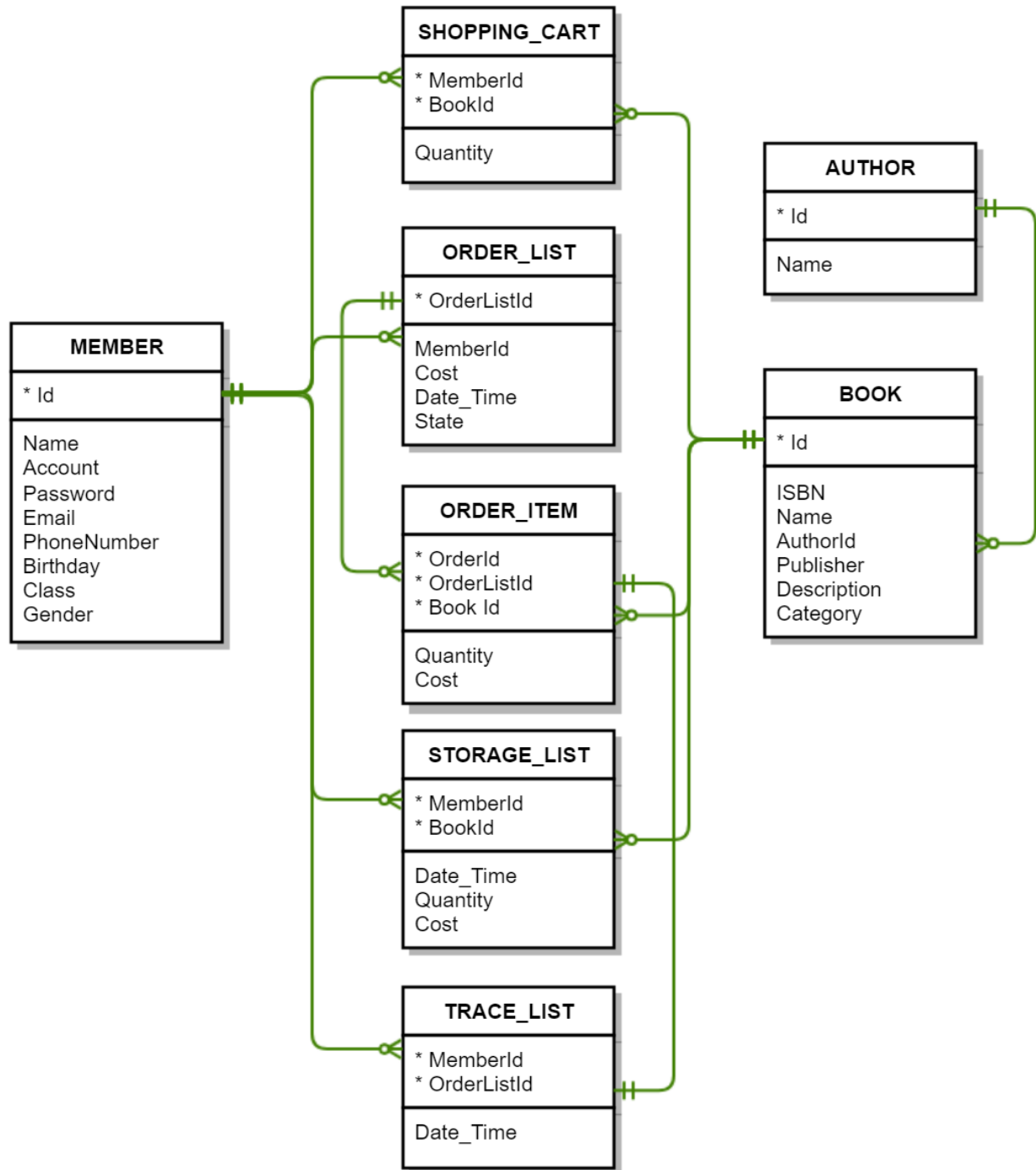
Section 3 資料庫概念設計(Conceptual Design of the Database)

3.1 Entity-Relationship (ER) Model



Section 4 邏輯資料庫綱要 (Logical Database Schema)

4.1 Schema of the Database



MEMBER				
Description: saves permission member account's personal information and account password				
Attribute	Domain Type	Key	Nullable	Description
Id	Integer	primary	Not null	Member ID(ID>=0)
Name	Text		Not null	Member Name
Account	Text	Unique	Not null	Member Account
Password	Text		Not null	Member Password
Email	Text		Not null	Member Email
PhoneNumber	Text			Member Phone Number
Birthday	Date			Member Birthday
Gender	Text			Member Gender
Class	Integer		Not null	Member privilege class (0 <= Class <=3) 0 Visitors 1 Ordinary Member 2 Staff Member 3 Admin

ORDER_LIST				
Description : saves the items ordered by the members				
Attribute	Domain Type	Key	Nullable	Description
OrderListId	Integer	Primary	Not null	Order_list ID
MemberID	Integer	Foreign	Not null	MemberID Reference(MEMBER)
Cost	Integer		Not null	Order total cost
Date_Time	Datetime		Not null	Finish Order time
State	Text		Not null	Order status , Processing or finish Process

BOOK				
Description: The basic information of the books.				
Attribute	Domain type	Key	Nullable	Note
BookId	Integer	Primary	Not null	The number of the book
ISBN	Text	Primary	Not null	
Name	Text		Not null	
AuthorId	Text		Not null	
Publisher	Text		Nullable	
Description	Text		Nullable	
Category	Text		Not null	

AUTHOR				
Description: Contains the book author's basic information.				
Attribute	Domain type	Key	Nullable	Note
Id	Integer	Primary	Not null	The Id number of the author Order ≥ 0
Name	Text		Not null	Author's name

ORDER_ITEM				
Description: The information of the item detailed in each order.				
Attribute	Domain type	Key	Nullable	Note
OrderId	Integer	Primary Foreign	Not null	The number of the order Order > 0
OrderListId	Integer	Primary Foreign	Not null	Id number of the orederlist
BookId	Integer	Primary Foreign	Not null	The number of the book
Quantity	Integer		Not null	Quantity > 0
Cost	Integer		Not null	Cost > 0

SHOPPING_CART

Description: Saves the information of the books added to the shopping cart by the customer/member.

Attribute	Domain type	Key	Nullable	Note
MemberId	Integer	Primary Foreign	Not null	Member's number ID MemberId >= 0
BookId	Integer	Primary Foreign	Not null	The number of the book
Quantity	Integer		Not null	Quantity > 0

TRACE_LIST

Description: Stores the members' tracking information about the books ordered.

Attribute	Domain type	Key	Nullable	Note
MemberId	Integer	Primary Foreign	Not null	Member's number ID MemberId >= 0
OrderListId	Integer	Primary Foreign	Not null	The number of the book
Date_Time	Datetime		Not null	Tracking time

STORAGE_LIST

Description: Stores the information of the books stocked by the manager.

Attribute	Domain type	Key	Nullable	Note
MemberId	Integer	Primary Foreign	Not null	Member's number ID MemberId >= 0
BookId	Integer	Primary Foreign	Not null	The number of the book
Date_Time	Datetime		Not null	Tracking time
Quantity	Integer		Not null	Quantity > 0
Cost	Integer		Not null	Cost > 0

Glossary

E-commerce	Buying and selling of goods and services, or the transmitting of funds or data, over the internet.
Logistics	The planning, implementation, and coordination of the details of a business or other operation.
DBMS	System software for creating and managing databases, providing users and programmers a systematic way to create, retrieve, update and manage data.
Environment	Computer interface from which various tasks can be performed.
GUI	Human-computer that uses windows, icons and menus and which can be manipulated with the mouse and keyboard.
Stock	Have or keep a supply of (a particular product or type or product) available for sale.

References

Elmasri, Ramez, and Shamkant B. Navathe. *Fundamentals of Database Systems*. Global ed., Pearson Education, 2016.

Professor Chien-Hung Liu. “Lectures”, “Project description.” *Database Systems*, National Taipei University of Technology, 2017, www.cc.ntut.edu.tw/~cliu/courses/db/db.htm.

“What is e-Commerce (Electronic commerce or EC)?” SearchCIO, searchcio.techtarget.com/definition/e-commerce.

“Logistics.” Dictionary.com, Dictionary.com, www.dictionary.com/browse/logistics.

“What is database management system (DBMS)?” SearchSQLServer, searchsqlserver.techtarget.com/definition/database-management-system.

“Environment.” Merriam-Webster, Merriam-Webster, www.merriam-webster.com/dictionary/environment.

GUI Definition, www.linfo.org/gui.html.

Pilon, Annie. “How to Start a Used Book Store Online or Off.” Small Business Trends, 20 June 2016, smallbiztrends.com/2016/06/how-to-start-a-used-book-store.html.

Definition of the word stock.” Dictionary.com, Dictionary.com, www.dictionary.com/browse/stock.

Appendix

How to Start a Used Book Store Online or Off

Collect Inventory: Even with an online shop, you still need to collect inventory. You likely won't need as much as you would with a physical bookstore, since you don't need to fill actual shelves. But you should still have a decent amount for customers to choose from.

Consider a Specific Niche: If you want to stand out, consider choosing a specific niche so that you'll have a better chance of building brand loyalty with specific customers, rather than trying to compete with Amazon. You can build your whole site and experience specifically to appeal to one type of consumer.

Purchase a Domain and Hosting: An online store needs a name, website and host. There are plenty of options to choose from for both domain and hosting providers. So consider your needs and compare prices and features to find the best options.

Be Descriptive: Your item descriptions serve as another opportunity to give people all the information they might need to make a purchase. Make sure you list all of the general information along with details like the year and publisher, if available.