Company “Your Best Reading”
Application design

Use Case

The Company “Your Best Readings” requires a data intensive application that can help to support some of the services involved in an Online Bookstore and improve the books sells by automatizing the information they actually have on a spreadsheet.

In order to sell the books, the store has registered information regarding its customers such as: first name, last name, email, phone and address.

In order to place orders with publishers and maintain their book inventory, “Your best Readings” also has stored on its spreadsheet some publisher’s information like name, phone, address, url, and the books it publishes

The Book store requires to have a report of the book it sells, so the spreadsheet contains: the book ISBN, year of publication, title, price, publisher, authors, and the list of warehouses it can be find.

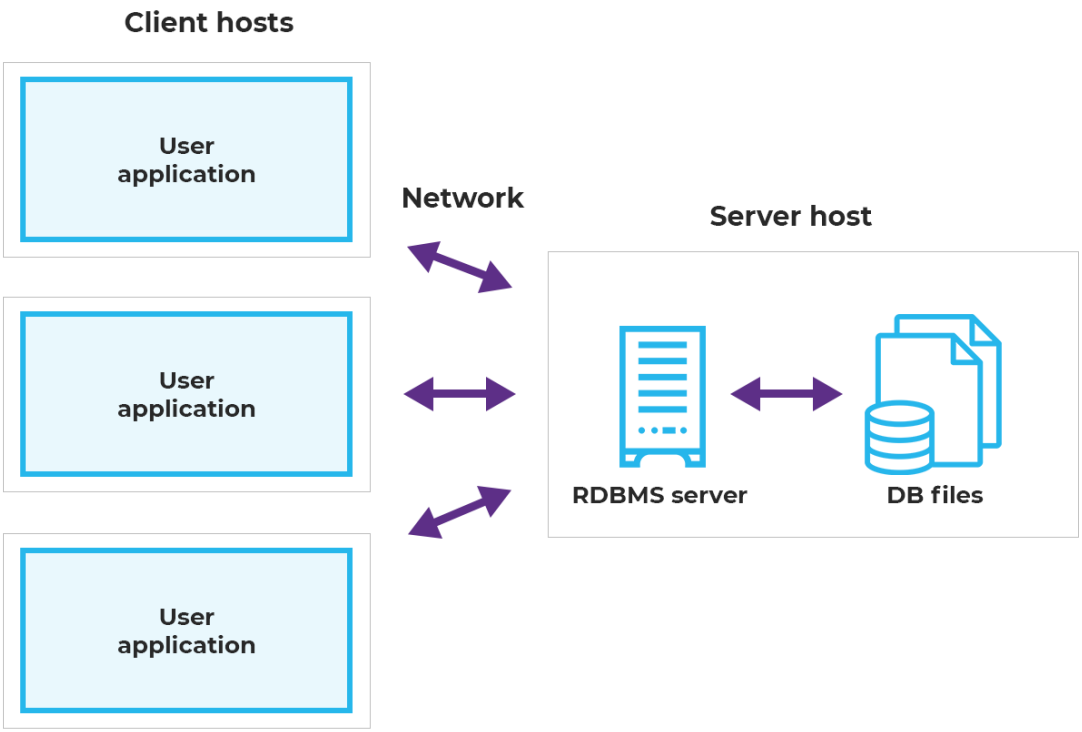
As a customer can have several shopping baskets, each shopping basket belongs to one customer, where each shopping basket can contain several books, and a customer can place the book he desires to buy on a shopping basket.

As all the information has been stored on a spreadsheet they do not have control of the book sales. Sometimes, a customer buys books but they don’t know which books or how much s(he) has paid. Then, the company is not making profits because it does not control what is sold against what is paid.
There is no control of the books inventory in the warehouse.
They have enough budget to hire people that can help them to manage information in order to maintain sales and inventory synchronized.

Solution

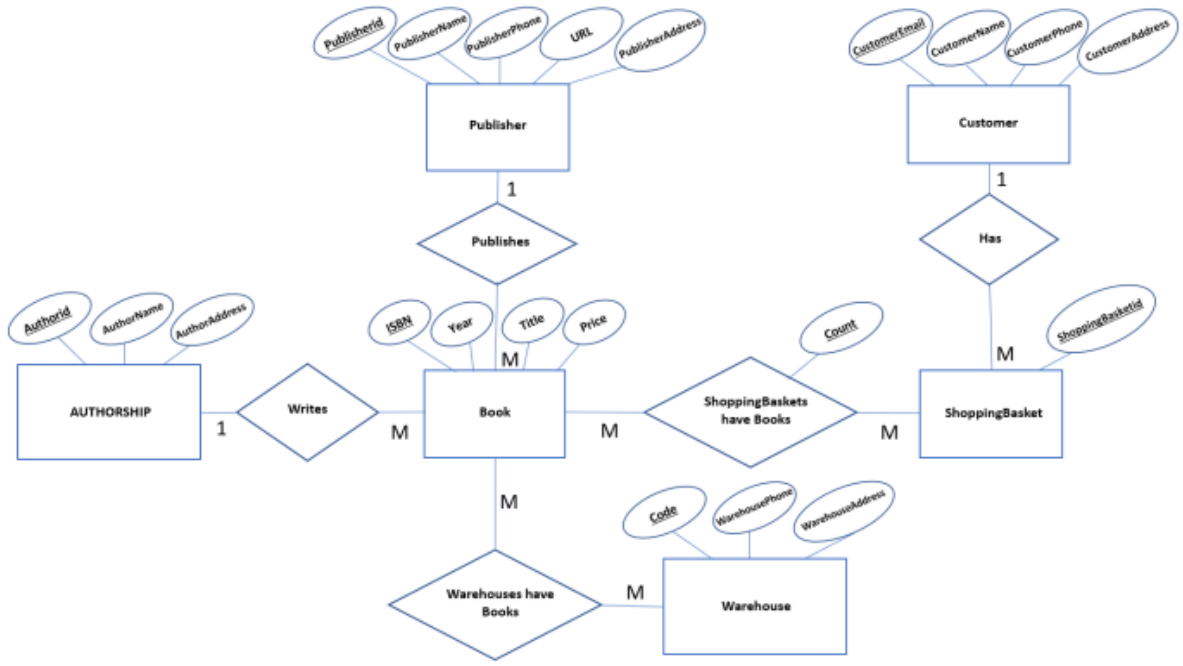
1. Typical architecture according to the type of information system

Since our objective is to “manage information in order to maintain sales and inventory synchronized”, thus an OLTP system should be designed. This have no Analytical requirements or high performance requirements.



2. Kind of database to implement and its design

A relational Database can help with OLTP transactions for an online bookstore. Here is the ER diagram:



3. Typical database operations expected

ACID transactions (Insert, Update, Delete)

4. According to the proposed solution, how to implement that as books are sold the inventory is deregistered and the amount of the sale corresponds to the merchandise sold?

The system can perform following operations:

1. Customer is registered and book sold to a customer. Book is removed from inventory
2. Set the amount of sale

5. How does it support scalability

As system grows, we can improve hardware capabilities - more RAM, more CPU, faster HDD. However, if hardware reaches its physical limits. There are other options: For instance, creating a clustering, swinging, and dispatching infrastructure to support Multi Parallel. If we have to further scale to different regions and making it a distributed application, then must consider NoSQL system.

6. How does it support maintainability

The maintainability is given by conceptual, logical, and physical design to obtain a normalized data model for possible future changes.

7. How does it support security and reliability

Any relational database supports security and reliability tools.