

Database Project - Online Book Store

Objective:

Design and implement a database for an electronic marketplace to sell and buy books. Here multiple booksellers can sell books. Customers can search and buy books. Also, all standard features of an e-commerce site be implemented for this site too.

Let the website be called “bookeworm.com”

Application Users

1. Surfer – (Unlogged Users)
2. Buyers
3. Sellers

Use Cases – Unlogged Users

These are the users who just land on the website and just explore around without registering and logging in.

1. Search Book based on one or more of the parameters - Title, Category, Tags, Seller, Authors
2. View Book Details
3. Compare various price offerings for a given title from various sellers with average user ratings of sellers

Use Cases – Sellers

These are the users that sell books here.

1. Register
2. Modify self-details
3. Add new books and manage book details
4. View relevant reports (refer to SELLER-QUERIES down below)

Seller Registration

Sellers and Buyers are required to register on the site before doing any activity. On registration, they get a unique ID. Let ID be unique across the buyers and sellers. A seller needs to be an organization only and has a valid Tax Identifier Number. For sellers let us

say we capture the following details through the online registration form: Company Name, Company Address, Website address (optional), Contact Person (Name, Designation, Contact Number, email), Seller Type (Publisher or Seller).

Add new books and Manage book details

The following data are used to describe a book: ISBN, Title, edition, Price (MRP). Let selling of books in multiple currencies that are USD, GBP, EUR, and INR. A seller can specify the price in one or more currencies. There is also a possibility of selling a book for less than their price (MRP). The ISBN of a book uniquely identifies a title globally. A book can be sold by multiple sellers on the marketplace and can be sold at different prices.

Let books also be categorized. The category of books is in a hierarchical structure of categories. However, a title can belong to multiple categories. A seller can specify search tags to a book title. That can be used for searching books.

For every book title, there is always a publisher. Let our database maintain the following data of publishers too: Publisher-Name, Publisher-Address, Country. Note that not necessarily all publishers of whom books are sold here, are sellers too. Just to clarify Seller can be a publisher, a book-distributor, or any other organization. For this site therefore let publisher and seller be two different entities even if some publishers are sellers too.

Books also have authors. A book can be authored by more than one author. Let us say we record only Author names in the book database.

Another important concept that is in business practice in the books marketplace is “Book Reprint”. Reprint means a book that is already published, say by McGraw-Hill, USA, and has some ISBN and price in USD. The same book may be reprinted in India, let us by Tata McGraw-Hill. This edition would have its own ISBN and Price. Let us assume that the authors remain the same as in the original print. Let us also maintain a link between the original edition and its reprint.

Use Cases – Buyers

1. Register
2. Modify its details
3. Search Books
4. Add to Wish List, Manage Wish Lists (View/Edit/Delete)
5. Add to Cart, View/Edit/Clear Cart
6. Submit Order
7. Rate books and sellers (say on a scale of 1-5) and leave review comments

8. View relevant reports (refer to BUYER-QUERIES down below)

Buyer Registration

Buyers (let us also call them customers) also require registration. While registering they provide the following details: Customer Name, email, phone number, and address (optional).

Search Books

Customers can search books by title, author name, ISBN, etc. Can browse through the catalog in the categorized listing.

Maintain Wish Lists

Let the customers maintain wish lists; a customer can have multiple wish-lists. Let us record (store) names and lists of books in each list.

Customer should also be able to remove books from a list or remove list itself.

Maintain Shopping Cart

A customer should be able to add books to its shopping as they browse through the books. Anytime customer should be able to view the cart. Edit the cart. And so forth.

Submit Order

The customer concludes the shopping by placing an order. On completion of an order, the shopping cart is cleared. While completing an order, the customer should specify the shipping address with ZIP/PIN. Payments are often done by external payment gateways therefore let us keep the payment process out of the scope of our database. Only the things that we should store are the Payment Service name and payment acknowledgment reference number.

Let order tracking also be out of the scope of our database.

Once orders are delivered, let order status be updated to “DELIVERED”. Other order status can be “TO-SHIP” and “ON-TRANSIT”, “UN-DELIVERED”, “RETURNED”.

Let us not allow cancellation of orders once it has been dispatched. Necessary data for cancellation of un-dispatched orders and status of refund of such orders be also be accounted for.

Customer Rating and Review Comments

Customer can star-rate the titles, and sellers on a scale of 1 to 5. Customers can leave review comments on a title, or for the seller. Let our database capture all this.

Tentative list of reports (Queries)

For general users

1. Find books for one or more of the parameters - Title, Category, Tags, Seller, Authors
2. Compare various price offerings for a given title from various sellers with average user ratings of sellers

For Logged-In User [BUYER-QUERIES]

1. My Orders
2. My Shopping Cart
3. My Refund Status
4. My Wish-lists

For Seller [SELLER-QUERIES]

1. Daily/Weekly/Month/Annual Inventory and financial sales summaries on various combinations of the following parameters
 - a. Overall sales
 - b. Country-wise, category-wise, region-wise, publisher-wise, title-wise, seller-wise
2. Sales Register (date-wise log of sales)
3. List of Orders to be dispatched
4. List of Un-Delivered Orders
5. Financial statement with bookeworm.com
6. Total Payment that is to be received from bookeworm.com
7. Customers who have bought from them
8. Products that a customer bought from them
9. Customers who have given them poor rating
10. Cancellations summaries

For bookeworm.com Admin

1. Daily/Weekly/Month/Annual Inventory and financial sales summaries on various combinations of following parameters
 - a. Country wise, category-wise, region-wise, publisher-wise, title wise, seller wise
2. Money to be paid to sellers in total or for a particular seller
3. Financial ledger of a seller
4. Margin Earning reports on Daily/Weekly/Month/Annual basis
5. Customer feedbacks for a “Seller” or a “product”
6. Ranking reports of Sellers and Products
7. Seller wise Cancellation summaries
8. List of refunds (with refund details) to be made.
9. Titles that are in wish list of a user
10. All orders of a Customer
11. All titles bought by a Customer