
In this project you will design and implement a database application. You will work in groups of three students. The project is carried out in several main steps:

1. Conceptual design using the E-R model, Translation of the E-R model into the relational model.
2. Refinement of the design (into at least 3NF schemes, preferably BCNF or 4NF schemas). Specification (in SQL) of selected queries and transactions.
3. Implementation: Creation of database tables, data entry, design and implementation of queries and transactions, and Web-based interface design.
4. Demonstration.

Your final report should contain (1) The final ER design, (2) The final relational design, including listing of all tables (schemas), keys, and data dependencies, (3) Data (current at demo time), (4) Queries and application programs. (5) You should also indicate, for each member of the group, which parts/tasks were implemented by that member.

Each team will demonstrate their project online. All members of the team should be present at the time of demonstration.

Your system should be easy to use. I should be able to check your project by going to the home page of your system.

THE PROBLEM:

You are to design and implement a simple database system for an online bookstore “471 Books”. The bookstore maintains a catalog of books. Customers should be able to search the catalog in a variety of ways, and buy books online. The operation should also perform billing and accounting. Additional capabilities are desirable, such as recommending titles based on users profiles and history.

These are some of the queries and transactions your system should provide:

Customer Queries and Transactions:

1. Search by title.
2. Search by author.
3. Search by topic.
4. Given a title (or selected from a search result) display summary or detailed information on the title, authors, publisher, publication date, price, and availability.
5. Given a title (or selected from a search result) purchase one or more copies.
6. Given customer id or name, display titles purchased by the customer and their status.
7. Additional capabilities (optional) such as: Displaying account information for a given customer, displaying when a title is expected to become available, etc...

Administration Queries and Transactions:

1. Given a title, list number of copies available.
3. Enter information about a new title or a new copy.
5. Additional transactions (optional) such as: Determining “hot” titles (for example to carry more copies), determining titles that are not selling (to remove from store), etc...