

Case – Library Database System

A university library has need for a database system handling their books and DVDs. The database part of the Book Borrowing Database system (BBD system), as they chose to call it, should be developed by you. The library has a number of employees, one of whom is designated as the manager of the library and is responsible for supervising employees and the general day-to-day management of the library.

The system does not require users to identify themselves to search for item according to certain criteria or to check the availability of a particular item (book/DVD). However, to loan items, to check their respective loan account status, and to place reservations on items that are already on loan, users must first identify themselves to the system. A single receipt is printed for each user check-out session; details for each item: the title, the unique identifier of the item, the date the item was borrowed, date the item has to be returned. At the start of each week, the system sends reminder emails to all borrowers that have overdue items.

Generally, a library stocks a number of copies of each book title and each DVD. Each item has a physical location and have attributes like: author, ISBN, a classification that is used for “keyword” searches e.g. “database”, “database systems”, “database management” etc. Book publishers are maintained, but not DVD publishers. Books and DVDs have physically attached barcodes which are used for the identification of items that are checked out (a barcode scanner will be used). In case the item does not scan then it should be also possible to enter the barcode for the item manually. All course literature also has a reference copy, that is not allowed to leave the library and therefore not possible to borrow, in other words reference literature.

All searches will be made via the new BBD system (either by staff or by customers). To find an item, searches can be performed based on the book/DVD title, the author/artist's name, ISBN, the category of the book/DVD, or the publisher's name. The results of the search are displayed in summary format.

It should be possible to check (at least once per week) whether a copy of a borrowed book has become overdue. If so, a notice will be sent to the borrower and later fines for overdue items. A borrower can reserve an item (book, journal, DVD, etc). The reservation should be cancelled when the borrower checks out the item. The library staff handles the purchase of new items. If something is popular more than two copies are purchased. The library staff also handles items that people don't inquire for. The books are in the system and in stock in the basement for five years before thrown away.

Rules for library loans:

- Each user has a maximum number of items allowed to be on loan at a specific point in time. The limit is dependent on the category of the member, e.g. researchers can borrow as many as 20 items, teachers are limited to 10, and students are limited to 5 items.
- Different categories of items have different loan periods. Standard books are allowed a loan period of 2 months, Course literature a period of 1 month, Reference literature cannot be borrowed, DVDs have a loan period of 2 weeks.