

Library Checkout System Requirements

The software to be developed is to be used by the manager and desk clerks of a library that checks out various items. These items belong to two categories: books and DVDs. For items checked out frequently, the library will have several copies; in other cases, there may be only one copy of a given item.

As noted above, each item is either a book or a DVD. Each item has a title and a unique call number. Both kinds of items have a brief description (the title of a book; the title of a DVD followed by "(DVD)"). A book also has a principal author and a DVD also has a lead actor and a rating. The checkout periods for books and DVD's are different.

Each copy is associated with the item it is a copy of, and has a unique copy number within that item (e.g. the first copy of any item is copy 1 of that item, the second is copy 2 etc. Given the call number and copy number for a copy, it is possible to learn whether it is currently checked out and - if so - to whom and when it is due.

The library maintains a record for each patron that shows the patron's name, address and phone number. A new patron must provide this information before checking anything out for the first time, but thereafter the patron need only supply his or her phone number to enable the system to access the stored information. (The system assumes that the phone number uniquely identifies the patron.)

To check out one or more copies to a patron, the clerk enters the patron's phone number (or complete information for a first-time patron), and the call number and copy number for the copy(s) being rented. For each copy, the system will display the description and the date the item will be due (calculated from the current date and the checkout period for the item it is a copy of).

Copies (of any category) being returned can either be handed to a clerk, or they can be placed in a returns slot in the wall of the library if the library is closed. In either case, the clerk must enter the call number and copy number for each copy that has been returned into the system. Of course, the clerk does not need to enter a patron phone number for returns, since the system keeps a record of to whom the copy is checked out - in fact, the patron may not even be present if the copies are left in the return slot at night. If a copy is returned late, a late fine is assessed, to be collected the next time the patron tries to check out something.

If all copies of a given item are checked out, the system will allow a patron to make a reservation for that item, to be filled by the first copy of that item returned. (If more than one patron reserves an item, reservations will be filled on a "first-come, first-served" basis.)

The system must ultimately provide the following functions. Some functions (those marked M) can only be performed by the manager; others (marked C) are normally performed by a clerk. (The manager may also perform clerk functions if he/she chooses to do so.)

(Continues with detailed functional requirements - omitted for now)