Design Exercise – Inheritance, Abstract Classes, and Interfaces

You have been hired by your local library to help them design a system for tracking their materials.

Materials fall into two categories, Reference and Loanable. Reference materials cannot be loaned while loanable materials can be. All materials fall into several categories: Books, journals, CDs, DVDs, and artwork. Journals are the only category that is not loanable…All other materials may be loaned. Materials all have a location specified as a floor, section, and shelf. Artwork may not have a shelf.

Books have a title, an author or editor and a publisher. Journals have a title, an editor, a publisher, a volume and issue. CDs and DVDs all have a title, year, run time. CDs have an artist and DVDs have a director. Artwork has a title, artist, and medium.

For all loanable materials you must track whether the material is on site or checked out, the check out date and the expected return date and the number of renewals. Check out date, return date, and renewals may be changed.

This part of the system will fit in with a Patron system which will track patrons and how they borrow materials. You do not have to be concerned with patrons in this example.