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Design Document

Requirements:

A Great Reads book is the system (A class control logic part) that allows user to have their book and shelf, to share their review. Firstly, it reads the file from computer. And then user will have a menu which has options that add or remove books and shelves, add review, show the book or shelf information, and move book on or off the shelves. After system ends, all information (ArrayLists) will save back to file by report system.

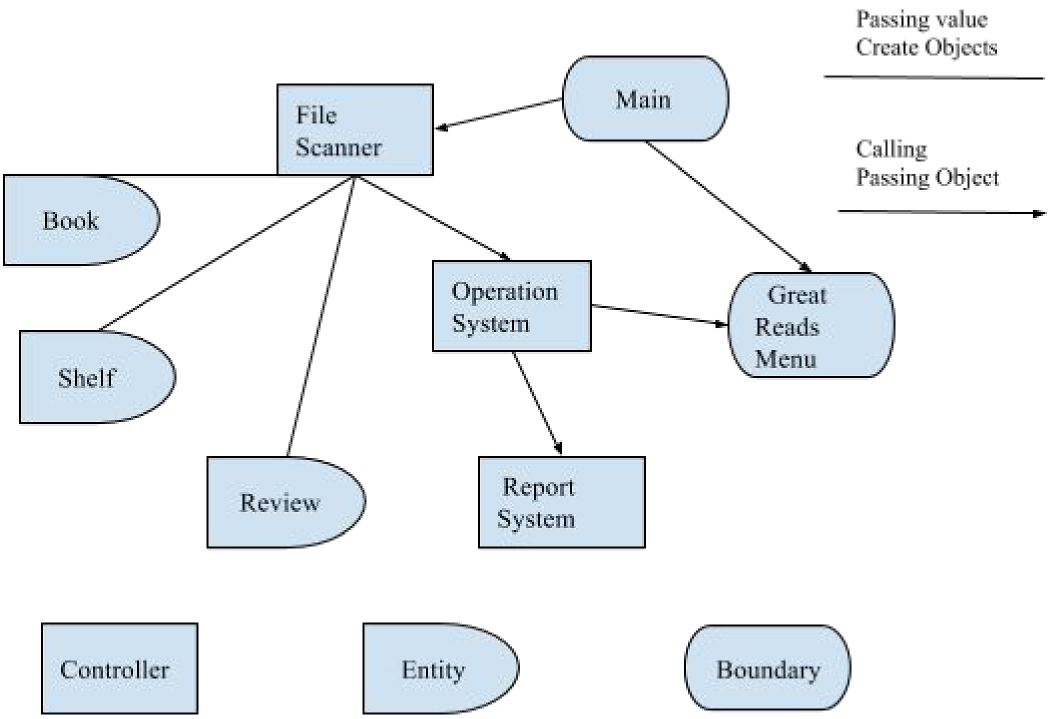
Color codes: Nouns (either rejected, or name changes), Obvious Classes, Behaviors

Design:

How this program run:

- 1. Main send file to the FileScanner
- 2. FileScanner read the file and store information into Entity classes
- 3. Book and Shelf object will hold List of information
- 4. OperationSystem will accept those objects and do the logic part
- 5. GreatReadsMenu will present menu for user to do their action and passing user choice to OperationSystem
- 6. After client quit, then write all information from OperationSystem into file

-Main: Passing file name into FileScanner
-Book: Hold list of shelves it is on
-Shelf: Hold list of books it has
-Review: An entity that Book will hold it
-FileScanner: Read from file and passing value into entity class to get object back And then send it to OperationSystem
-GreatReadsMenu: Ask user to enter choice and send them to OperationSystem
-OperationSystem: Get data and user choice to control the program
-ReportSystem: Get data from OperationSystem and save back to the file



Testing:

1. User input: to check input mismatch
    a. they cannot enter the number not in the option
    b. they cannot add the same book and shelf
    c. they cannot enter empty when they are required to enter something
    d. they cannot enter year outside of 1450-2100
    e. they cannot move book to the shelf that has this book, or remove book from shelf does not have this book
2. Reading file: to check null pointer
    a. if user do not enter file name use default file
    b. if there is no default file, create a file as default
3. OperationSystem: to check logical part
    a. display information if there is no book or shelf or review in the system
4. Entity:
    a. to check if parameter in the equals() is the type of object I am expecting for
    b. to check if parameter in the compareTo() is the type of object I am expecting for

Conclusions:

In the program, the speed of iterating the lists can be boosted, writing file and reading file could be done by BufferFileOutputStream and BufferFileInputStream. For the Collection object use, it is necessary to think which container is more efficient.

From this assignment, I have deeper understanding of OO design and also learned that it is good way to keep code simple.