Data Structures Assignment-2 (Date of Announcement 11/09 and Submission 27/09)

Develop a simple database to store the book details and perform various operations like book issue/renew etc, of a small library.

Library Details

a) Books (all books are single authored ones)

b) Users – faculty, staff, students

Book record format:

- bookid, bookname, publisher, edition, author, issued_to, date_of_issue

User record format:

- uid, uname, utype, gender, contact

Operations on Books

- issuance of a given book
- renewal of a given book
- books that are overdue (should display the bookids and the total number of books overdue).
- check status of a given book (available ? or issued, If so to whom?)
- deleting a given book (no further issuance is possible)

(optional operation) popular book (that is the domain of the most frequently issued book)

Book and User details have to be maintained in separate (unordered) files, and the details can be added directly to the respective files.

However when application is started, in order to carrying out the operations mentioned above, the program should read the ***required*** data about the books into an appropriate search tree. At the time of closing of application, for making the changes made to remain permanent, it should write back the data in the search tree into appropriate files.

Input commands:

for issuing book:

ISSUE BOOKID, USERID, example ISSUE DSA01, UG201210011

note: it should generate error if the book is already issued, or book in not for issuance; otherwise success message.

for renewing book:

RENEW BOOKID, USERID, example RENEW DSA03, UG201210013

for overdue books:

SHOW OVERDUE

to check a specific book:

CHECK BOOKID example CHECK MAT01

to delete a book:

DELETE BOOKID example DELETE CHEM01

to close the application

QUIT

Note: You need to print appropriate output/error messages upon execution of the command.

- If command is executed successully, then print SUCCESS followed by a short message
- If command fails, the print ERROR and a short message

Either success or error message to be precise and length should be maximum 60 characters. Further all the commands will be execute in batch mode. That you to read the all the commands from a file and exit the program on reading QUIT command.

Testing the program: You will be given

a) two input data files, (users.db and books.db) as per the format mentioned at the beginning.

b) command file (command.txt) containing arbitary number of commands having QUIT as a last command

Then the output should be written to (output.txt)