
CS 112: Programming Language 1

Research Project

Implement the following problem:

Implement a library. The library already has a list of books included in it initially. This list is saved into a text file. Each book has an id (identification number), a name and a quantity. Implement this application by loading the list into an **array of structure** before dealing with it.

The **user menu** displays the following operations:

Note: Each operation in the menu should call a function.

- Insert a book (id, name, quantity). (Hint: Use the function **gets** to read an array of characters including spaces) (You should save changes into file at the end)
- Delete a book by id (you should save changes into file at the end)
- Search a book by id and display its name and quantity using linear search recursively. If not exist, display "Not found".
- Search a book by name and display its id and quantity using binary search. If not exist, display "Not found". (Hint: your data should be sorted before you start search, you can use **strcmp** function).
- Display all books sorted by name, and their corresponding ids and quantity.
- Display all books unsorted, their ids, names and quantity (as entered)

After each operation,

Ask the user if he wants to perform any additional operation

- If yes, let him choose another operation.
- If no, exit from the program

Regulations to accept your research project:

- No plagiarism between your codes and your colleagues or from the internet.
- Fulfil all the required in the document
- **If the research project is not accepted**
 - o You have one more chance to deliver another documentation (announced later), if not you will be failed in the course.

Due date of delivering the research project for all students:

- Starting on **31 May 2020** (the schedule will be announced by faculty)
- The form that you will deliver through it will be announced later.

What to deliver?

- **Each student** delivers a **document as pdf** and you upload with id+ name

(Ex: 2020002_احمد عبد الفتاح).

Deliverable Document should contains:

- Cover page
- Implementation code
- Screenshot of output screen for every option in user menu