

FILE ORGANIZATION LAB PROJECT

A librarian has 500 books all numbered from 0 to 499 as key numbers and a bookshelf that has 30 shelves. Each shelf can contain 5 books. He/She wants to keep a ledger on his computer. He/She needs you!!!!

So you will use bucket hashing to index the books. You have to control two files.(you may use sequential or random access as you wish) First file contains the index data, the example is shown below: (you may select any hashing function possible)

Shelf number	B1	B2	B3	B4	B5
1	31	45	58	NULL	NULL
2	63			
3				
..					
30				

Example given only for your information, the results may be wrong!!!!

The second file will hold author and book name for example: (each line shows the appropriate shelf number and each line has 5 author name and book name,if there isn't any book in one slot of the shelf it must be shown as NULL in the right place of the file.)

Author name	Book Name	Author name	Book Name	Author name	Book Name...
Tolkien	The Hobbit	Jack London	Call of the Wild	NULL	NULL
.....

In the example above there is only 2 books on the shelf the others are marked NULL.

The keys must be inserted from the keyboard by the user and your program must place it into the index file and must ask the books author name and book name to user and register it into the second file named as **books**. Index file name is up to you. If the files weren't created , your application must create it. If the file is present it will add the new inserts.

Also there must be a search step for users to find any books place,name and author name by giving anyone of the book datas(book number, name or author name)

Important Note: As you see there is 500 books but 150 slots to insert. If 5 slots for any shelf is taken and there is a 6th book to insert, you will not insert it and alert the user that there is no place.

So your application must have 4 menu items:

1-Insert a book

2-Search a book

3-List all the bookshelf

4-Exit

Listing all the bookshelf will list all books by book name inserted like this:

<u>Shelf number</u>	<u>B1</u>	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>
1	Hobbit	Call of the Wild	NULL	NULL	NULL
.....				
30				

The format and rules:

- 1) Every student will do his assignment alone. (even if they are siblings....)
- 2) You name your c file as your student number.c (ex:1306120001.c)
- 3) You will send as attachment the c file ,index file ,books file crunched as zip or rar file named "student number-Student name.zip" The zip or rar file contains for example : 1306120001.c, index.dat,books.dat files.
- 4) Project must be sent before the deadline.
- 5) Score will be diminished if you don't follow the rules. You will get **0** if you don't follow rule number 1, you will also get 0 if you pass the deadline.
- 6) **The deadline is 3 May 23:59.**

Good Luck.....

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