CSE 220: Data Structures Lab (Spring '13)

BRAC University

Department of Computer Science and Engineering

CSE220: Data Structure

Lab 01

Task 1

Write a Java program that will keep the records of BRAC University Books.

Book **Class**

The program should contain a “Book” class with the following fields:

Name

Id

Author

Publisher

Book **Records Class**

You need to write a “BookRecord” class. In the “BookRecord” class, you have to declare an array “BookArray” of the instance of the “Book” class. The “BookRecord” class contains the following methods that can manipulate the “BookArray” with the instances of the Book class:

AddRecord: The *AddRecord* method adds a new Book record to the BookArray at the next available empty index of the array. If the array is full, then you should resize the array and add the new record.

PrintRecord: The *PrintRecord* method sorts the BookArray in alphabetical order according to their names. If there is a tie (i.e., if multiple Books have the same name), then sort them according to their id’s. After sorting, this method prints the contents (Name,Id, Author, Publisher) of the BookArray, each record in a line.

DeleteRecord: The *DeleteRecord* method asks the users to enter the Id number of a Book to be deleted. Then, delete that record and reports (by printing a message) the success and failure of the deletion. After completion of a deletion, your program will show a message “ID #### is deleted”. If the given Id does not exist, your program will show a message “ID #### does not exist”. Once, a record is deleted, the DeleteRecord method also shift left all records that are to the right of the deleted record.

Edit Record: The *EditRecord* method asks the user to enter a Book Id and edits its corresponding information (name, publisher). If the given Id does not exist, your program will show a message “ID #### does not exist”. EditRecord method should be able to edit one or more information of that Book.

Tester Class

Your program should have a “TesterClass” containing the main method. In the main method, your program should print the following message:

Enter 1 to Add a Record

Enter 2 to Print the Records

Enter 3 to Delete a Record

Enter 4 to Edit a Record

If the user chooses 1, then the program will add a new Book record to the BookArray. If the user chooses 2, then the program will print the Book list in alphabetical order. If the user chooses 3, then the program will delete the records of the given Id. If the user chooses 4, then the program will edit the records of the given Id.

Upon the completion of one operation (choosing one option among 1 – 4), your command line menu will ask the user whether s/he wants to continue the program. If the user press **"Y"/"y",** then the user will be given menu 1 – 4 again. Otherwise the user will quit the program.

Task 2

Write a java program that reads a text file 'Book.**txt'** containing Books information with name, id ,author and publisher (one line contains information of one Book). Then, your program reads these data and save them in an array of Book Class. The Book Class contains name, id and author and publisher as its fields. Finally, your program reads each entry from the array and the write the data in the new file '**Object.txt'**.

You should take the input and output file name from the command line. If the file names are not passed from the command line, prompt the user for the file name.

- Handle the specific exceptions '***FileNotFoundException'*** with proper massages.
- Do the program using ***FileInputStream***/***FileOutputStream*** classes.

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