ITU COMPUTER ENGINEERING DEPARTMENT

BLG 233E DATA STRUCTURES

HOMEWORK -1

Due Date : 13th of October, 2015 .

Your homework is to write a program whose main structure is just like the phone book example. The program will be able to do some operations by using the record of books which exists in a library. The record of each book has the format which is given below:

```
struct book_record {
        char authorName [20], authorSurname [20], title[20];
        int ISBN, location;
        char bookType[10];
};
```

(The location will be an integer that has 4 digits).

You should firstly create an empty file. Your program will use some commands that adds, deletes, updates and searches a record.

The main menu of your program must be the same with the console which is given below:

```
Please select the operation to perform and enter the operation code
(P) Print the whole catalogue,
(A) Search the catalogue by author,
(T) Search the catalogue by book title,
(I) Insert a new book record,
(U) Update an existing book record,
(R) Remove a book record,
(E) Exit the program.
Your selection is:
```

The explanations of the commands that your program must include are given below:

Commands:

P: Prints all the records which exists in the catalogue.
A: Searches the records by author. (In this command, the user must enter the author after the program asks the name of the author then the program should print the records that belongs to the related author.)

T: Searches the records by type. (In this command, the user must enter the type of the book after the program asks the type then the program should print the records whose type is the given type by the user.)
I: Inserts the record which is entered by the user.
R: Removes the record which is entered by the user. (In this command, the user must enter the ISBN of the book after the program asks the ISBN then the program should delete the record whose ISBN is given by the user.)
U: Updates the record which is entered by the user. (In this command, the user must enter the ISBN of the book after the program asks the ISBN then the program should update the record whose ISBN is given by the user.)
E: Exists the program.

Note: If you have any question about the homework, contact with research assistant:
Kübra ADALI via email (kubraadali@itu.edu.tr) or in Research Lab 2.

Grade Distribution:
Your homework will be graded according to the distribution which is given below:

1. **Report: (20 pts)** Explain the issues that are given below:

    - ✓ How you do your homework,
    - ✓ Which data structure you use,
    - ✓ Why you use this data structure,
    - ✓ Which part of your code does the function of each of the command given above.
    - ✓ The screenshot of the console of your program

2. **Code: (80 pts)** The distribution of grades on each command is given below:
   P: 7 pst, A: 15 pts, T: 15 pts, I: 15 pts, U:15 pts, R: 7 pts, E: 6 pts.

Submission Procedure:

1. Make sure you write your name and number to all of the files of your project in the following format:

```
/*
* @Author
* Student Name: !! enter here !!
* Student ID : !! enter here !!
* Date:
*/
```

2. Use comments wherever necessary in your code to explain what you did.
3. Compile the code in SSH before you send your homework.
4. After you make sure that everything is compiled smoothly, archive all files into a zip file. Submit this file through www.ninova.itu.edu.tr. Ninova enables you to change your submission before the submission deadline. Do not miss submission deadline, the homeworks sent via e-mail will not be graded.

Academic dishonesty including but not limited to cheating, plagiarism and collaboration is unacceptable and subject to disciplinary actions. Any student found guilty will receive F as his/her final grade for the course.