Hacettepe University
Department of Computer Engineering
Bil137 Programming Laboratory

Subject	**:** File I / O, Structs, Linked List
Programming Language	**:** C
Submission Date	**:** 28/12/2010
Deadline	**:** 11/01/2011
Advisiors	**:** R.A Ali Seydi Keçeli, Dr. Sevil Şen, Dr. Erkut Erdem
Experiment number	**:** 4

AIM

With this experiment you will read data from a data file with a defined format, execute defined commands that are taken from a command file and store data to the data file again. You will practice with linked list, structs and file I/O.

Experiment

In this experiment you are expected to develop a simple console based "Music Store Automation". Your application will take input commands from an input file. Full path of the input file will be given as program argument. Inventory data will be stored in another text file. The full path of this file will be given as argument too. Your application prints the outputs of the commands into an output file. Names of these files will be given as argument with the following order: <input_file> <data_file> <output_file>

Your application should support the following features:

Load: When your program starts, it should look for a file whose name is given as an argument from the command prompt. If it is found, all records should be read in according to the format explained below. If it cannot be found, your program should initialize an empty inventory. **All entries should be read and stored in a single or double link list. Any other solutions will not be accepted.**

Save data: This operation should be carried out automatically just before your program terminates. All data in your inventory should be saved to the same file (If you run your program several times, each run should input the previous output, without an error.)

A - Adding a new entry (Add a new Music CD to your inventory)

Add new entry by reading the attributes from the input-file. A music cd have 6 attributes. These are the name of the album (max 50 characater), publish year, count, singer (max 50 character) , price and id. Id will be unique for each entry.

R - Removing an entry

Remove the entry with the given id

S - Searching for an entry by name

A search can be conducted either by the **name** data (multiple items may be listed). If an entry is found, you have to output all the details (name, singer, id etc)

L – List

List all the items in the inventory. List each item on one line (print a header row at the top). List will be ordered by name.

E - Edit entry

Change the values of a record with the given id. Order of the attributes can vary. Id attribute will be un editable.

R- Sell Music CD

Change the count of this cd. First read the id of the cd and decrease its count. If count of the cd is zero give an error message. ("Not avalible"). Price of a sold CD will be added to cash.

Q- Quit

Save all data and end program. Before quiting prints the name of the best seller album and total cash gained to the output file.

Some details:

Input file will be error free. But there can be semantical errors like removing a nonexsiting entry. Sample files are given below:

Input File Format

Add <ATTRIBUTE>:<VALUE> <ATTRIBUTE>:<VALUE> …
Edit id:<ID> <ATTRIBUTE>:<NEW_VALUE>
Remove <ID>
List
Search "<text>"
Sell <ID>
Quit

Note: For add command the order of the attributes can vary.

Sample Input File :

Add id:12 name:"Sandik" singer:"Muslum Gurses" year:2009 count:5 price:20
Add id:15 singer:"Tarkan" name:"Adimi Kalbine Yaz" year: 2010 count: 10 price: 20
Add id:20 name:"Fear of the Dark" singer:"Iron Maiden" year:1992 count:20 price:15

Add id:25 name:"Dark Side of the moon" singer:"Almora" year1987 count:5 price:10
Remove id:12
List
Edit id: 15 singer:"Tarkan Tevetoglu"
Search "San"
Search "ark"
Sell 20
List
Quit

Sample OutPut File

New CD added id: 12 name:"Sandik"
New CD added id: 15 name:"Adimi Kalbine Yaz"
New CD added id: 20 name:"Fear of the Dark"
CD removed id: 12
List (12 is removed)

Id	Price	Name	Singer	Year	Count
15	20	Adimi Kalbine Yaz	Tarkan	2010	10
25	10	Dark Side of the Moon	Almora	1984	5
20	20	Fear of the Dark	Iron Maiden	1992	20

Edit CD id: 15

Id	Price	Name	Singer	Year	Count
15	20	Adimi Kalbine Yaz	Tarkan Tevetoglu	2010	10

List

Id	Price	Name	Singer	Year	Count
15	20	Adimi Kalbine Yaz	Tarkan Tevetoglu	2010	10
25	10	Dark Side of the Moon	Almora	1984	5
20	20	Fear of the Dark	Iron Maiden	1992	20

Search "San"
No entry Found
Search "ark"

Id	Price	Name	Singer	Year	Count
25	10	Dark Side of the Moon	Almora	1984	5
20	20	Fear of the Dark	Iron Maiden	1992	20

CD sold id: 20
List

Id	Price	Name	Singer	Year	Count
15	20	Adimi Kalbine Yaz	Tarkan Tevetoglu	2010	10
25	10	Dark Side of the Moon	Almora	1984	5
20	20	Fear of the Dark	Iron Maiden	1992	19

Quit
Cash: 20
Best Seller: Fear of the Dark

Data File

Input file format (each input line consists of the following fields):
<id>; <price>; <name>; <singer>; <year>; <count>

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15;20;Adimi Kalbine Yaz; Tarkan Tevetoglu;2010; 10
12;20;Sandik;Muslum Gurses;2009;5
20;15;Fear of the Dark;Iron Maiden;1992; 20
```

The inventory will be filled using data in the file of which format is given above. Note that input file may include whitespace (space or tab) characters. Just remove extra whitespaces, leaving only one space character between fields. There can be empty lines in the data file.

You should use a linked list to keep your data records.

SUBMISSION

- 1 The experiment code will be tested in CodeBlocks
- 2 Your submission will be in the format below
- < StudentID>
- |-- report
  report.pdf
- |-- source
  CD.c
  CD.cbp
  orther .h and .c files
- You have to use “Online Experiment Submission System”.

http://submit.cs.hacettepe.edu.tr. Other type of submissions especially by e-mail WILL

NOT BE ACCEPTED.

- Submission deadline is 11.01.2011, 23.59 pm.
- Do not forget to sign the **"submission paper"** after you submit your experiment.
- Respect the office hours of your advisor (Tuesday 9:00-12:00 and Monday9:00-12:00).

Office: 217

REFERENCES

- http://www.exforsys.com/content/category/17/277/364/
- http://www.lysator.liu.se/c/bwk-tutor.html
- http://www.iu.hio.no/~mark/CTutorial/CTutorial.html
- http://www.acm.uiuc.edu/webmonkeys/book/c_guide/2.12.html

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