Assignment Description

Underground Books is a quaint little bookshop in your town still implementing manual inventory system for the books. As a long-time employee proficient in C++ programming, you propose a transition towards digital book inventory system. Write an application in C++ to keep track of the bookshop inventory. The inventory records information in the text file consists of the following data: ISBN Code, author, title, publisher, year published, quantity, price and location. The details of the location include rack and level number. Gather the inventory data on at least 20 books and prepare them in the text file. As each inventory record is read from the file, insert it into a list by using **nested array of structures**.

After building the list, display a menu with the following options:

(a)   **Add book record -** Add book inventory information into the text file.

(b)   **Delete book record** – Delete book inventory information from the text file.

(c)   **Edit book record** – Ask user for book ID or author and title. Then search for the book inventory information in the list using the input data; the information should be updated if available.

(d)   **List** – Display the book inventory information. Each display should contain an appropriate heading and column captions.

(e)   **Search for books** – Search for the availability of a particular book in the list using the book ID, author, or title.

(f)   **Exit** – Stop the program. The program will write the updated data in the list to the file.

Advanced Questions:

Task 1: Maintaining categories of books
Modify the storage structures of book inventory records of your program so that it can store the category/genres information of the particular book.

Task 2: Add an additional item to your menu: Advanced Search
Search for guest record(s) in the *list* using the **book ID, author** or **title** and print the full details for the record(s). It can match word(s)/number within a string/number, and also print multiple results. This is best explained by the following examples:

- If the ISBN code "***978080**7092156*", "***978080**3970533*", and "***978080**4143097*" are in the *list*, then searching for "*978080*" must print all three records (because the number "*978080*" occurs in all three ISBN Codes).

- If the full name "**Dan Ariely**" is stored inside the *list*, searching for either "**Dan**" or "**Ariely**" should return the record.

Note that you may need to use `strstr()` which allows you to locate substring.

Prepare the necessary data file(s) for building the data structure(s) needed in your application according to the format as shown in Appendix A below. You may give additional assumptions for your application.

<u>**Additional Information**</u>

To make your program more robust and avoid problems at run time, do as much status/error checking as you could in your program. You may also add on more features in your program for enhancement.

Assessment and Submission

This is a group assignment. Form a group of 2 or 3 members, preferably from same programme as yours. Prepare a report (preferable using word processing software and export to portable document format) to answer the questions given above.

Your **REPORT SHOULD CONTAIN** the following:
1. design of the application (structure chart and flowcharts/pseudocode)
2. print out of the C++ program.
3. sample output(s) (Alt+Prnt Scrn) of your program.
4. sample of input data and test cases

Do remember to print the assignment marking sheet and attach as the **FIRST PAGE** of your report. There will be a link created in WBLE subject page for you to submit softcopy of your **report**, **C++ program file(s)** and **input text file(s)**. You are required to upload the soft copy of your works by the deadline. Late submission will not be entertained.

This practical assignment will contribute 20% of your final mark. Refer to the marking sheet for the mark allocations for the report and C++ program. The report will be marked for *correctness*, *completeness*, *presentation style*, and *relevant use of diagrams/tables/graphs*, etc. And the C++ program will be marked for *correctness*, *completeness*, *program style*, *adequate testing* and *documentation/comments*. It's your responsibility to understand the requirements of the tasks and prepare well for your submission. You will not receive full mark if you do not submit the report and C++ program that is a reasonable attempt and compiles without error. You might be asked questions about the work you submit to ensure that you understand them.

Plagiarism

It is important that your solutions to the practical assignment be your own work. It is perfectly acceptable to seek help and advice when completing the practical assignment, but this must not be taken to the point where what is submitted is in part someone else's work.

Appendix A

Input text file sample

```
9781785785719,Yasha Levine,Surveillance Valley,Icon Books,2019,57.95,3,1,1

9780241976630,John Maeda,How to Speak Machine,Portfolio UK,2019,89.95,2,1,1

9781119055808,Andre De Vries,R For Dummies,John Wiley,2015,107.77,4,1,2

9780062018205,Dan Ariely,Predictably Irrational,Harper Collins,2010,39.90,2,1,1

9780008327613,John Waish,The Globalist,Harper Collins,2019,109.90,2,1,1

9780525538349,John Doerr,Measure What Matters,Penguin LCC,2018,86.95,2,1,2

9780807092156,Viktor Frankl,Man's Search for Meaning,Random House,2019,49.90,3,1,3
```