CS250 Intro to CSII
Array of Structs Lab

Implement a database of books using C++. The database will be read from a file called "books.txt" and there are at most 1000 books in the database. The data file is organized as follows for each book:

title (char [64])
author (char [64])
publisher (char [64])
price (double)

Each book attribute is on a line by itself in the data file.

1) Declare a struct BookInfo that is able to hold a title, author, publisher, and price.

2) Create an array in main capable of holding 1000 books.

3) Insert a book title, author, publisher, and price into the first element of the array.

4) Write a function that prints out a single book as below. The function will receive the array and a row number as parameters. Test your function.

> Title: Starting Out With C++
> Author: Tony Gaddis
> Publisher: Addison-Wesley
> Price: $150.00

5) Write a function that reads in a single book from the file into a struct. The function will receive the array, and the row number where the book will be placed. Test your function.

6) Write a function that reads in all of the books from the file into the array of books. This function will call the function in step 5. Test your function.

7) Write a function that will display all of the books in the array to the screen. Test your function.

8) Write a function that accepts the array of books and a price. Print all of the books in the database with a price less than or equal to the price passed in. Test your function.

9) A simple non-efficient sorting routine is given below. I would like you to write a sorting function that will sort your array of Books by price from lowest price to highest price. Test your function.

```
void bubbleSort (int values[], int size)
{
  bool bAnySwitches = true;
  int temp;

  while (bAnySwitches)
  {
    bAnySwitches = false;

    for (int i = 0; i < size - 1; ++i)
    {
      if (values[i] > values[i + 1])
      {
        temp = values[i];
        values[i] = values[i + 1];
        values[i + 1] = temp;
        bAnySwitches = true;
      }
    }
  }
}
```