COMP 2404 -- Tutorial #2

Simple C++ Classes

Learning Outcomes

After this tutorial, you will be able to:

- create a simple C++ class with data and behaviour
- write a class constructor
- pass parameters by reference

Instructions

1. You will begin with the code you saved from Tutorial #1.

2. Create a new `Library` class. You will need both a header file and a source file for this class. The class will contain two data members:
   - an array of `Book` objects
   - the current number of books in the array

   Since the book array is moving from the `main.cc` file, you will also move the constant array size definition (`MAX_ARR_SIZE`) into the `Library` header file.

3. Write the following functions for the `Library` class:
   - a constructor that initializes the data member(s) that require initialization; think about what these might be
   - an `addBook(Book&)` function that adds the given book parameter to the back of the book array
     - terminology: the *back* of a collection is its end; the *front* of a collection is its beginning
   - a `print()` function that prints out all the books in the array to the screen

4. Change the program so that the `main()` function:
   - doesn't declare a book array anymore; instead, it will declare a `Library` object
   - uses the `Library` object and its functions, instead of manipulating the book array directly
   - creates temporary `Book` objects to be added to the library
     - the Book class's `setBook()` function should no longer be used and should be removed
   - adds the new book to the library using functions implemented in step #3

5. Update the Makefile so that the new `Library` class gets compiled and linked into the executable, as we saw in the course material section on Makefiles.

6. Build and run the program. Check that the book information is correct when the library is printed out at the end of the program.

7. Package together the tutorial code into a tar file. Start up a browser in the VM, log into cuLearn, and go to the tutorial page. Select the tutorial 2 submission link, and upload your new tar file.

8. Save your work to a permanent location, like a memory stick or your Z-drive.