ECE 218
Lab #1
C++ Objects

Exercise #1

1. Design an object to represent a Person
   a. Include private attributes such *name*
   b. At minimum, add methods for
      i. Default Constructor
      ii. Getter and Setter for *name* attribute
      iii. Print method that takes a reference to an *ostream* as a parameter
2. Implement your Person object in C++ using a class
3. Test your object to make sure it works

Exercise #2

1. Design an object to represent a Book.
   a. Include private attributes such as *title(string)*, *author(Person)*, *language(string)*, *year(int)*
   b. At minimum, add methods for
      i. Default constructor
      ii. Alternate Constructor that sets the *title*, *author*, *publisher*, *year*
      iii. An *init* method that sets the *title*, *author*, *publisher*, *year*
      iv. Getters and Setters as needed
      v. Print method that takes a reference to an *ostream* as a parameter
2. Implement your Book in C++ using a class making all the attributes private
3. Test the methods to make sure they work

Exercise #3

1. Create an array of Books
2. Use the data from the given file to populate your array
   a. Write a function to read the data from a file
   b. Note that now your Book is a class, you have to use the *init* method to populate the attributes of the object
3. Write a function to print out the all the books in the array
4. Write a function to reverse your array of Books
5. Write a function to write out the reversed array to a new file
6. Test your functions
7. You can test the overall correctness by reading in the reversed file, reversing it, writing it out, and then comparing it to the original file.

Exercise #4

1. Design an object to represent a Library
    a. Include private attributes such as *name(string)*, *books(Book[])*, *owner(Person)*
        i. Note you can hard set the size of the Book[] to the number of books in the data file. You do not have to be able to dynamically change the size.
    b. At minimum, add methods for
        i. Default constructor
        ii. Include setter/getter methods for the *name* and *owner* attributes
        iii. Print method that takes a reference to an *ostream* as a parameter
2. Implement your Library in C++ using a class making all the properties private
3. Load the data from the file into the Library
4. Test your methods to make sure they work