**Webster University**

**COSC 1560 Computer Programming II  
Fall Semester 2014  
Assignment 3, Classes and Objects II, Due Thursday, September 18, 2014**

The object of this assignment is to further practice using classes and objects. You will write and use a private member function, input from a file, use some io-manipulators, and finally divide your program into specification, implementation, and client files.

This is a modification of your program for Assignment 2.

* Correct your Assignment 2 program as necessary. I will post my Assignment 2 solution sometime Friday.
* Modify your corrected program to open the file [Patrons.txt](https://cluster18-files.instructure.com/courses/1185565/files/45124325/course%20files/public/assignments/Patrons.txt) (print an appropriate error message if the file is not found) and read from it, instead of from the keyboard. Do this without modifiying your (corrected) Address or Patron classes in any way.
* Test your modified program. Output at this stage will be formatted like assignment 2.
* Now add a private member function, out of line, with prototype   
  void writeSpace(ostream& fout, int needed, int printed ) const;  
  to Patron. This function must write *needed* minus *printed* spaces.
* Add a statement to writePatron that uses writeSpace with 30 as needed, the combined sizes of lastName and firstName plus 2 as printed, between writing the names and writing the phone number. The size of a string is returned by the string class' member function size(), for example lastName.size()
* Correctly format the zip-code to USPS standards:
  + If zip is less than 100000, print it with a width of 5, a fill character of '0'
  + otherwise print zip / 100000 as above, hyphen, zip % 10000 with a width of 4, fill character 0.
* Use the const qualifier wherever appropriate.
* Test your program. It should produce the output shown below.
* Finally, divide your program into five files:
  + The specification and implementation files for the Address class.
  + The specification and implementation files for the Patron class.
  + The client program ( main ).

**Compile and run your multi-file program to be sure it compiles and runs correctly.**

* Attach **all five** files (3 .cpp, 2 .h) to Assignment 3 in WorldClassRoom

The first few Patron records (out of a total of 50) in the specified format are shown below:

1  
Keller, Jennifer               409-225-7267  
2017 Brookview Drive  
Beaumont, TX 77701  
2  
Soto, Daniel                   630-702-3934  
19 Steele Street  
Schaumburg, IL 60173-1424  
3  
Blackmon, James                269-805-3166  
4490 Echo Lane  
Benton Harbor, MI 49022  
4  
Phillips, Henry                760-878-5409  
3263 Wilson Street  
Independence, CA 93526  
5  
Robeson, Joel                  978-387-1612  
295 Hampton Meadows  
Bolton, MA 01740-0300  
6  
Boyd, Sarah                    512-382-5297  
3765 Bubby Drive  
Austin, TX 78701-0091  
7  
Haas, Dannette                 913-489-8401  
1923 Poe Lane  
Westphalia, KS 66093

K: Cobalt's metal, hard and shining;  
Cobol's wordy and confining;  
KOBOLDs topple when you strike them;  
Don't feel bad, it's hard to like them. --The Roguelet's ABC

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