CMPSC 132 Lab

September 3, 2020

Part 1: Object-Oriented Programming in C++

1. Follow instructions to create a C++ project in Visual Studio. Add these files:
   1. clockType.h - the class specification which provides the public interface for the class (non-executable)
   2. clockTypeImp.cpp - the class implementation file which contains the function definitions of the class
   3. testClock.cpp - the “client” program which creates and manipulates a clockType object
2. Build and execute the code, entering input as directed.
3. Looking at the class specification file, answer these questions about the clockType class:
   1. What is the name of the constructor function?

clockType

* 1. What are the data members (instance variables) of the class?

Hour, minutes, seconds

* 1. Excluding the constructor(s), how many member functions (methods) are there?

7

* 1. BONUS: How many non-members?

2

1. Looking at the class implementation file, answer these questions about the clockType class:
   1. List one accessor function:

getTime

* 1. List one mutator function:

setTime

* 1. The first word in each function heading specifies what:
     1. The data type of the function
     2. The data type of the value the function returns

1. Modify the client program so that it:
   1. Instantiates a second clockType object named yourClock.
   2. Try each of these statements (one at a time) and explain why one works and one doesn’t. For the one that doesn’t, do not just say it causes an error or copy the error message that it generates. Explain the reason for the error.

The second one is assigning a function to a class when it should be assigning a class to a class

1. Does it make sense to overload the + operator for the clockType class? Yes or No
2. Remove all three files from the project by pointing at each file in the Solution Explorer and using right mouse button to “Remove” from project.
3. Wait for further instructions before starting Part 2.

Part 2: Working with Arrays instead of Lists

1. Add [Merge.cpp](https://psu.instructure.com/courses/1991854/files/103519641/download?wrap=1) to the project
2. Make sure that data.txt is saved in the project folder that Visual Studio created. For example, I named my Visual Studio project Sep3, so Visual Studio created a folder with that name. The text file must be inside that folder, or C++ won’t find it. If you get the message “File not found” when you run the program, that is why.
3. Study the code.
4. Add code where indicated to merge the arrays into one array with no duplicate values.  You will go through each array only once.
5. Display the merged array.
6. Upload modified source file and this document (with your answers added) to today’s drop box.