

## Assignment to Create Time Class with Conversion

In this assignment, you must create a class called Time. The time is stored as numbers but can also be set or read as a string. You will use this class in a later assignment. (Special note, Visual Studio does not have a conflict, but in case your development system already has a class called Time, you may use the name MyTime for this class, as an alternative.)

1. Create a class called Time. The class should have three variables, two ints for hour and minutes and a bool value called afternoon to indicate am (false) or pm (true). Create set and get methods (class functions) for the hour, minutes, and afternoon variables.
2. Add setAsString(string) and getAsString() functions that allow you to set the hour, minutes, and afternoon values or get the time as a string using a very specific format: “11:07 am” or “2:30 pm”. To implement these functions, create code to convert to and from the three object variables. The setAsString should return a bool, which will be true if the string was successfully converted, and false if the conversion does not work because the string is malformed or has values out of the normal range for time.

*Some issues related to testing for characters in a string were discussed towards the end of class recorded on Wednesday March 27.*

3. Add a function to the class called test() to test your object. The function should call its own setAsString and getAsString functions together with the other functions to verify that the conversions work correctly. The test function should use cout to report the test being performed and report any error to cout. The test() function should return true if all tests succeed, and return false if any of the tests fail.

*Writing a test was shown in class on Friday, March 29. Unlike the example in class, this assignment does not have the complication of testing a double.*

This assignment will be graded on the following criteria.

- All files conform to style standards for indenting and naming conventions.
- All file contain the expected file comment header with name, copyright, etc.
- The code for each of the specified methods (class functions) works as specified.
- Code that is expected to return a bool returns true or false as specified.
- The test() function performs two tests, one for each direction of the conversion.
- The test() function performs one test with a malformed time string to demonstrate that setAsString correctly detects a bad string and returns false.

*Note: Some students use the C++ stringstream class to do this assignment. Doing so is permitted but not required. Stringstream works like iostream to a string instead of the console.*