Assignment 3

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Reading Assignment: C++ Primer, 5th edition

- Chapter 3 – Strings, Vectors, and Arrays

True or False:

1. **0.5 pt** – A `using` declation enables the use of a name from a namespace without qualifying the name with a `namespace_name::` prefix.
2. **0.5 pt** – The `>>` operator reads a given stream up to and including the frist newline, and then stores what it read.
3. **0.5 pt** – Upon dereferencing an iterator, one gets the object that the iterator denotes.
4. **0.5 pt** – Assume `myvector` is an object derived from `vector`, and consider the following code.

   ```
   auto beg = myvector.begin();
   auto end = myvector.end();
   auto mid = (end + beg)/2;
   ```

   This code is valid irrespective of the length of `myvector`.
5. **0.5 pt** – An `array` is a container of unnamed objects of a single type. It is possible to add an elements to an `array`, and thereby modify its size.
6. **0.5 pt** – As with the library `vector` and `string` types, one can use a range `for` or the subscript operation to access elements of an array.

Short Questions:

1. **1 pt** – Explain how to add an element to a `vector`.
2. **1 pt** – Suppose that `s1` and `s2` are strings. Explain each of the following operations.
   (a) `s1 == s2`
   (b) `s1 + s2`
   (c) `s1 < s2`
   (d) `s1.size()`
3. **1 pt** – What are some of the basic operations that are supported for iterators?
4. **1 pt** – Suppose that `it` is an iterator and `mem` is a member of `*it`. Find an equivalent expression for `it->mem`.

Programming Challenge:

1. Write a program to read a sequence of speeds in mph from `cin` and store the values as a `vector`. Print the size and contents of the `vector`. Process the `vector` using the `range for` statement, and change each temperature value to km/h. Again, print the size and contents of the `vector`.

2. Implement your application in C++.

3. Using CMake and GitHub, commit your code as a project in a directory labeled `Assignment3`.