

Problem Set 5

NOTE: Some students have had problems compiling problem sets on Mac OS. This is due to the Apple compiler being very conservative with its choice of C++ standards. Using the C++11 standard should make this work -- use `g++ -std=c++11` to enable this.

Sorting w/ Lookup

The file `sort_atoms.cpp` contains a vector of strings, with each string containing an element symbol.

- 1.) Sort this list such that all elements are in order by their element number (not in alphabetical order). Print out this sorted vector.
- 2.) Find the unique elements of the vector (ie, remove duplicates), and print those out.

Hint: For #1, you should create a lookup table with an `std::map`, which you can use to find the element number given a symbol. Then you need to write a custom comparison function.

Calculating the Molecular Formula

The file `molecule.cpp` contains some pieces of the now-familiar molecule class. Your task is to write a function to calculate the molecular formula as a string from the atoms contained in the class.

The symbols should be in alphabetical order, with the appropriate element count (ie, H₂O), not HHO).

Hint: It would be helpful to have another lookup table as in the previous problem, but going in the opposite direction.