C++ course – Exercises Set 7

Wouter Verkerke (Jan 2023)

Exercise 7.1 – Make a catalogue of English words

The goal of this exercise is to use C++ STL classes to make a catalogue of all the English words that occur in a given text file, including the number of times that each word occurs.

- Write a small `main()` program that reads in file `ex5.2/example.txt` word by word.

  Open the file using an `ifstream` class and read each word into a STL class string using `operator>>`.

  As a first step in the development of your program, print each word as your read it.

- The next step is to use an STL `map` to keep track of all the words. Create an object name `myMap` of the type `map<string,int>` in the beginning of your program that will hold the catalogue of words.

  Then replace the line of code in your reading loop that prints out the word with a line of code that stores it: `myMap[word] += 1`.

  Explain what the preceding line of code does.

- Finally, at the end of your program – once you have processed all words in the file – print out the contents of myMap using the iterator mechanism:

  1. First create an iterator that points to the first element of `myMap` using the `begin()` method.
  2. Then create a `while()` loop that compares the iterator to the value of `myMap.end()`, which returns an iterator pointing to the last element in the map.
  3. Inside the loop, print out each map element. Remember that a map stores a pair of values and the iterator points to a `pair` template object, which has data members `first` and `second` that hold the key and value of each map entry, respectively
  4. Finally, use the `++` operator to move the iterator to the next element inside the while loop.