Week 5 Exercises Part1

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1.1–1.2

Exercise1: Zip codes

Starter code:
https://github.com/sandraleeusc/csci104_fall2020_lecture/blob/master/map_zip.cpp

Data file:

https://github.com/sandraleeusc/csci104_fall2020_lecture/blob/master/zipcodes.txt

Edit map_zip.cpp and view the data file zipcodes.txt

- We have written code to read in all the zipcodes in zipcodes.txt into a vector 'all_zips'
- Iterate through the zipcodes in 'all_zips' using an **iterator**

1. Create a map that stores zip codes as the keys and the number of occurrences as the value
2. Then Iterate through your map and print out your results
3. Sort the vector of zipcodes
4. Find the number of occurrences of the first zip code in sorted order without using the map
5. Bonus: How can you sort the pairs in the map?

Exercise 2: Practice Midterm Exam Question

This previous exam question will give you practice using STL container classes and designing your own class.

Here is the sample exam question:

https://github.com/sandraleeusc/csci104_fall2020_lecture/blob/master/magazine_blank.pdf

Please note that the function getValueOfMostRecentM does not need to be a constant member function. (Why?)

Exercise 3: Templatized Bounded Array List with Exceptions

You will complete the implementation of the bounded array list using templates and exceptions.

Here is the starter code:

https://github.com/sandraleeusc/csci104_fall2020_lecture/blob/master/BAList.cpp

1. You must implement the constructor, push_back, insert, and remove. (Would drawing pictures help?)
2. Consider when exception may help with error condition handling. Use out_of_range exceptions.
3. Answer the following runtime questions about this class:

- What is worst-case runtime of set(i, value)?
- What is worst-case runtime of get(i)?
- What is worst-case runtime of pushback(value)?
- What is worst-case runtime of insert(i, value)?
- What is worst-case runtime of remove(i)?