Homework 12

All the following assignments are selected from Gaddis edition 7. The purpose is that you practice with **exceptions** and **templates**. First do the reading assignment; Section 16.1-16-4 (pages 973-1002). Run your code, submit the output and code too. Submit code in a separate, compliable file, do NOT include it in your pdf or text file.

1. Programming Challenge 16.7. SimpleVector modification, page 1021[2 points].
2. Programming Challenge 16.8. SearchableVector modification, page 1021 [1 point].
3. Programming Challenge 16.9. SortableVector Class Template, page 1021 [1 point].

7. `SimpleVector` Modification

Modify the `SimpleVector` class template, presented in this chapter, to include the member functions `push_back` and `pop_back`. These functions should emulate the STL vector class member functions of the same name. (See Table 16-4.) The `push_back` function should throw an exception if the array is full. The `push_back` function should accept an argument and insert its value at the end of the array. The `pop_back` function should accept no argument and remove the last element from the array. Test the class with a driver program.

8. `SearchableVector` Modification

Modify the `SearchableVector` class template, presented in this chapter, so it performs a binary search instead of a linear search. Test the template in a driver program.

9. `SortableVector` Class Template

Write a class template named `SortableVector`. The class should be derived from the `SimpleVector` class presented in this chapter. It should have a member function that sorts the array elements in ascending order. (Use the sorting algorithm of your choice.) Test the template in a driver program.