CSE 4202
Structured Programming II Lab

Lab No: 08
Name of the topic: STL (Vector, Map, Set & Pair)

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December 05, 2020

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What to do?

Your task is to go through the functionalities and working principles of various Standard Template Libraries such as Vector, Map, Set & Pair by yourself and answer & code the given questions/problems.
You will code the solutions and include the code snippets along with answers to the given questions in a PDF format. In google classroom submit the codes and PDF individually.

1 Tasks

1.1 Task 1:

Question: What is vector? How is it different from arrays?
Code Declare an array using a vector and implement the erase, insert, pop_back, push_back operations for that array and print them.
Besides this implement each of these operations by declaring a normal integer array. Each of the operations should be implemented as a function like:

- void erase(...)
- void insert(...)
- void pushback(...)
- void popback(...)

1.2 Task 2:

Question:What is an iterator? How is it different from pointers?
Code: Declare an iterator and use it to parse a vector. While parsing delete the 3rd element in the array and print the vector array?

1.3 Task 3:

Question: Explain the Pair STL. What can be good replacement of Pair STL provided you don't know how to use Pair?
Code: Implement the make_pair operation using the Pair STL.
Declare a vector pair and sort the vector depending on the second element in ascending order.

1.4 Task 4:

Question: Explain the working principle of the Map STL. What order is the key elements stored in the Map container?
Code: Implement the insert, find, erase & empty operations using the Map STL. Show an alternative way to insert key elements in the Map STL.
Also show each of these operations by declaring a normal integer array which will act as a replacement of the Map STL. Each of the operations should be implemented as a function like:

- void insert(...)
- void find(...)

- void erase(...)
- void empty(...)

1.5 Task 5:

Question: Explain the working principle of the Set STL. What order is the elements stored in the Set container?
Code: Implement the insert & count operations using the Set STL and print the set using iterators.
Also show these operations by declaring a normal integer array. Each of the operations should be implemented as a function like:

- void insert(...)
- void count(...)