Report: PA1

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Program Description

The program created was a simple array-based data structure called "My_vec." This structure was meant to mimic the data structure vector found in STL. The vector class performed functions such as finding, inserting, deleting and replacing elements. The vector needed to be dynamic, and thus needed to change in capacity if the size of the vector grew too big. The class also needed to contain a copy constructor, assignment operator, destructor and it had to overload the [] operator as well as the output operator (<<). The vector also had to have the capability of sorting itself from maximum value to minimum and the ability to return the index of the maximum value. All of these features had to work on a vector of type "char" as well as a vector of generic type.

Purpose of Assignment

The purpose of this assignment was to review basic C++ principles taught in previous courses as well as highlight basic data structure and algorithm implementation. We performed an in-depth exercise in the creation of a simple data structure. Through the creation of a simple My_vec class, we were able to practice our C++ skills and tie in programming to its base of algorithms.

Data Structure Description and ADT Run-time of the Class My_vec

The functions used were comparatively the same in terms of ADT run-time with their theoretical counterparts. The big-Ohs found for each function are as follows:

- get_size: O(1)
- get_capacity: O(1)
- copy constructor: O(n)

- assignment operator: best - O(1) worst - O(n)
- elem_at_rank: O(1)
- overflow_check: best - O(1) worst - O(n)
- insert_at_rank O(n)
- replace_at_rank: O(1)
- remove_at_rank: O(n)
- find_max_index: O(n)
- sort_max: $O(n^2)$

Those listed without a worst or best big-Oh distinction had the same big-Oh for both scenarios. These big-Oh were equal to the theoretical big-Oh values of such functions (as found in the textbook). As stated above, the majority of the big-Oh values found were constant through both the best and worst case of the function. The best case over-all would be to assign a vector only to itself and insert and replace elements only within the range first created. Also, not using the sort function would lower the run-time as it implements a selection sort algorithm and thus has a $O(n^2)$.

Insturctions to Compile and Run Program; Input and Output Specifications

All files provided (My_vec.h, My_vec.cpp, main.cpp or in the case of the template My_vec_template.h and template_main.cpp) must first be placed in the same directory. Using the PUTTY terminal, change directories to match the one that contains the files. Then, either execute the code by typing the "g++ -std=c++11 *.cpp" command or by using "make all." If using the g++ method, run the program with "./a.out," if using the other method run the program by executing "./Main". There are no user inputs for this program. If correctly compiled and executed the program will print out various tests for the My_vec class and its functions. All inputs for the program are included in the main.cpp as a part of the code. These inputs are the values inside each vector.

Logical Exceptions and Bug Description

Due to the nature of most functions used, most exceptions in the program check for range errors. One such example would be the elem_at_rank() function which returns the value of an element at the rank inputted. This function first checks to see if the integer of the rank is inside the capacity of the vector. If the element is out of bounds, it displays an error. The function overflow_check() is used when the vector needs to increase in size, the exception to which being the

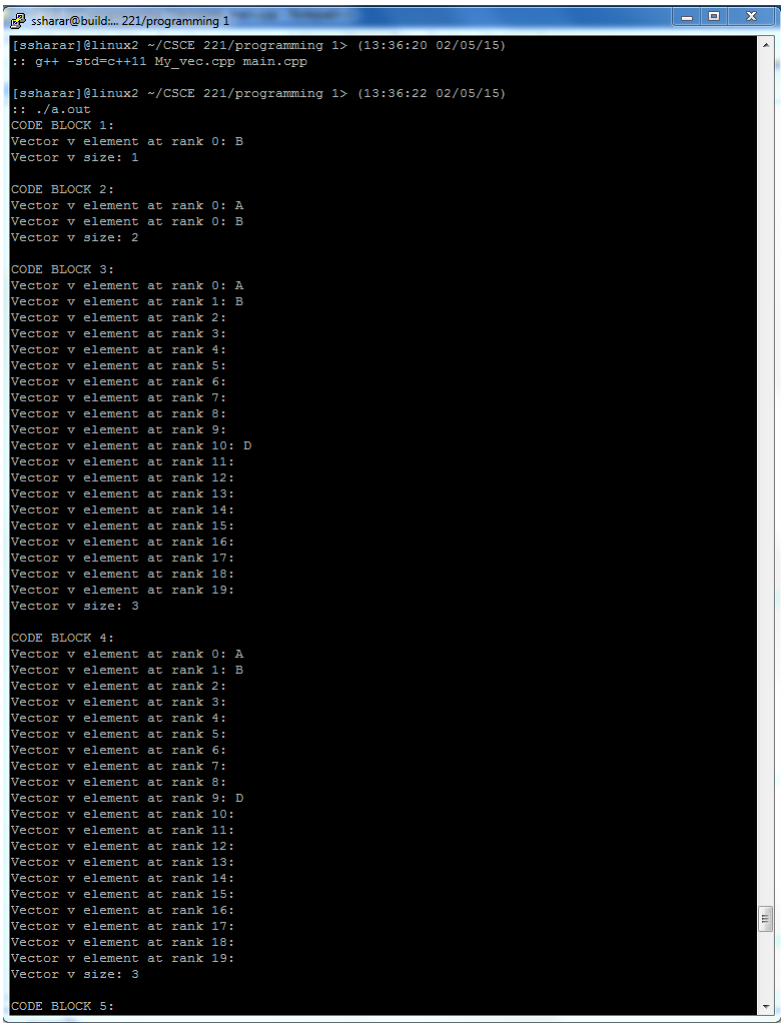
vector does not need to grow in size and the function does nothing. Additionally if a new vector is created to increase the size, this function make sure to delete the old vector preventing leaks. This function is used as an exception in the insert_at_rank() and remove_at_rank() functions which call upon overlfow_check() when the rank provided is out of bounds. In the template version of the class My_vec, the copy constructor does not allow for two different type of vectors to be set equal to each other. This ensures that two incompatible vectors are not being set equal to each other. A Bug that could occur with such a program would be the misuse of the [] operator. Due to the nature of the [] operator, it is possible to assign values to the vector at a given rank using this operator. Unlike the insert_at_rank() function, this operator does not increase in size if a rank that is out of bounds is called. Instead it does nothing. This could cause errors for someone implementing the [] operator to assign values.

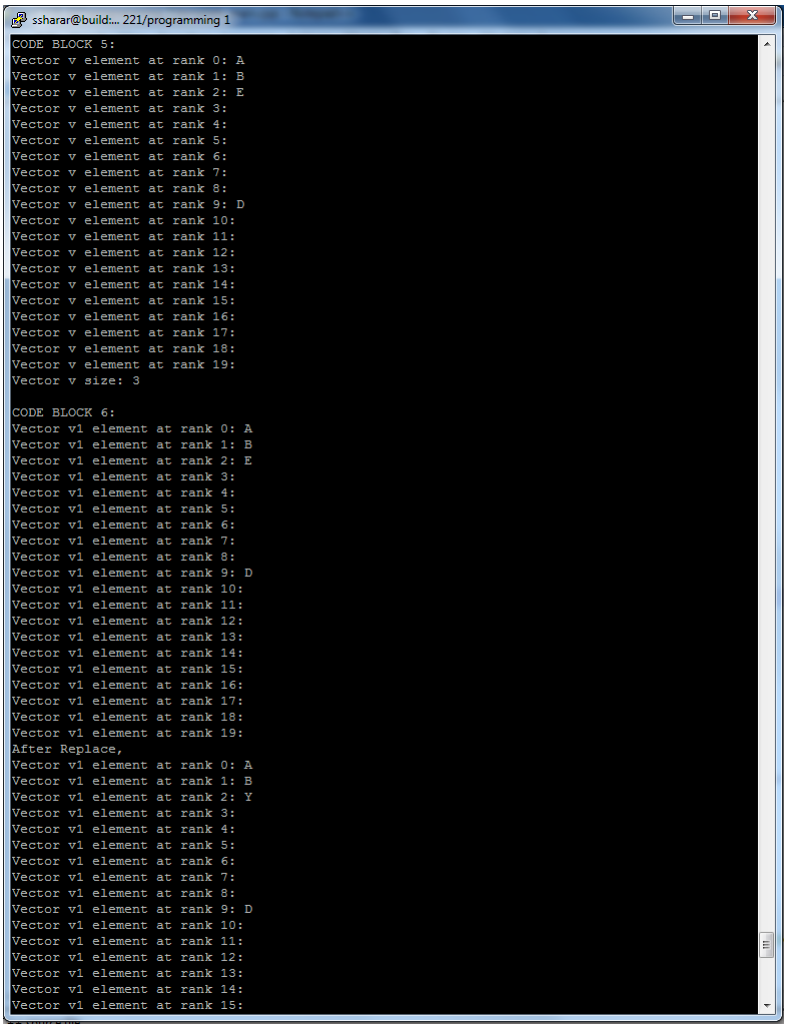
C++ Object Oriented and Generic Programming Features, C++11 Features

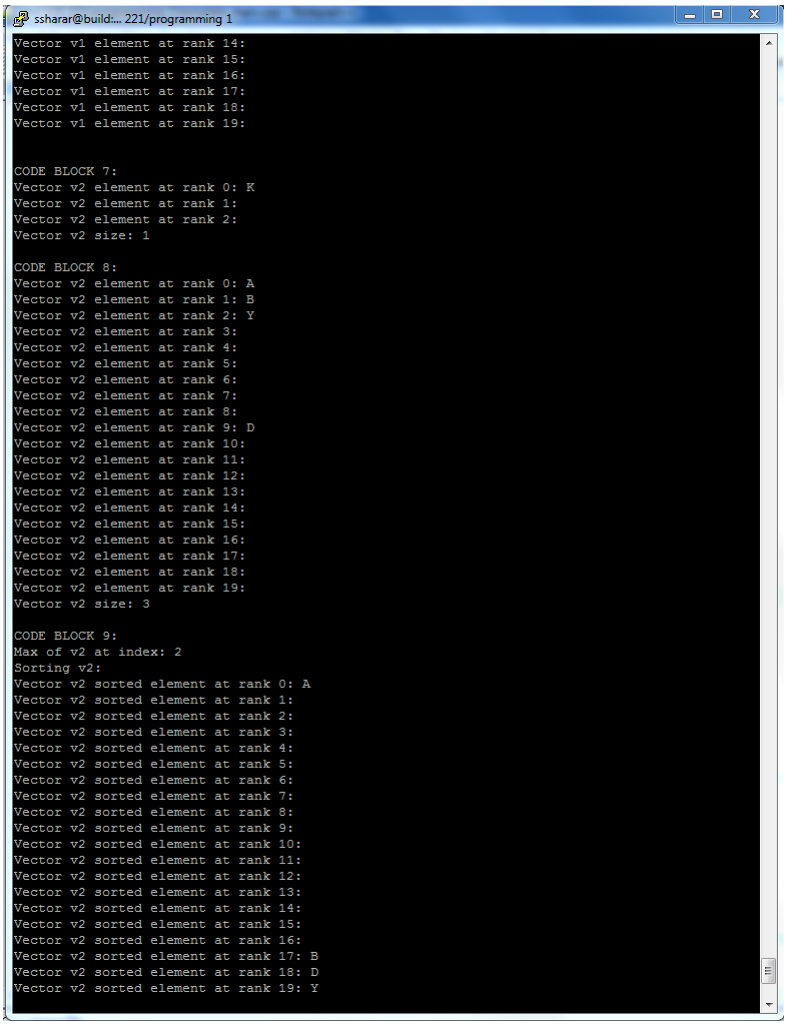
For this program, creating a class was the main objective. This itself was an implementation of C++ object oriented features. Inside the class object, abstraction of private and public functions and variables were used. Polymorphism of the [] operator as well as overloading the [] and the output operator were other object oriented implementations. In the template version of the My_vec class, encapsulation of the function definitions in the header file was used as a feature of template classes. As for generic programming, the c++ template was used to make the My_vec class generic. The class was declared as a template and all variables were changed to use the template type T. The main component of c++ 11 that was used was the nullptr. This pointer was used to check for empty arrays in the heap.

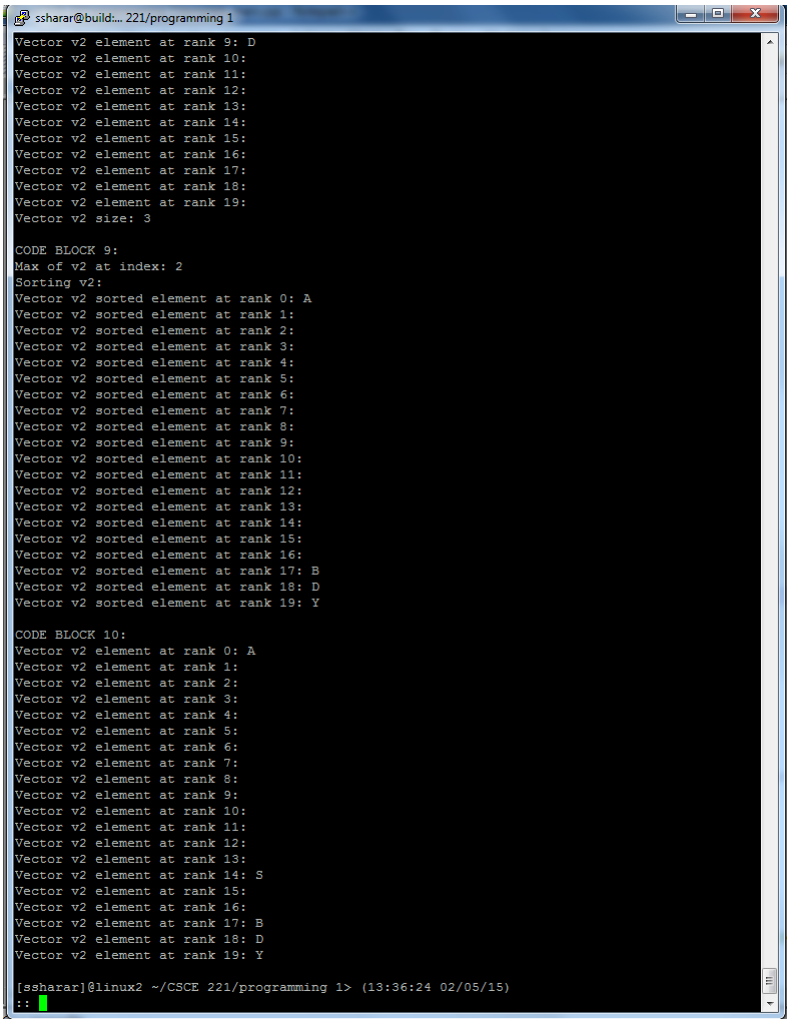
Testing Results

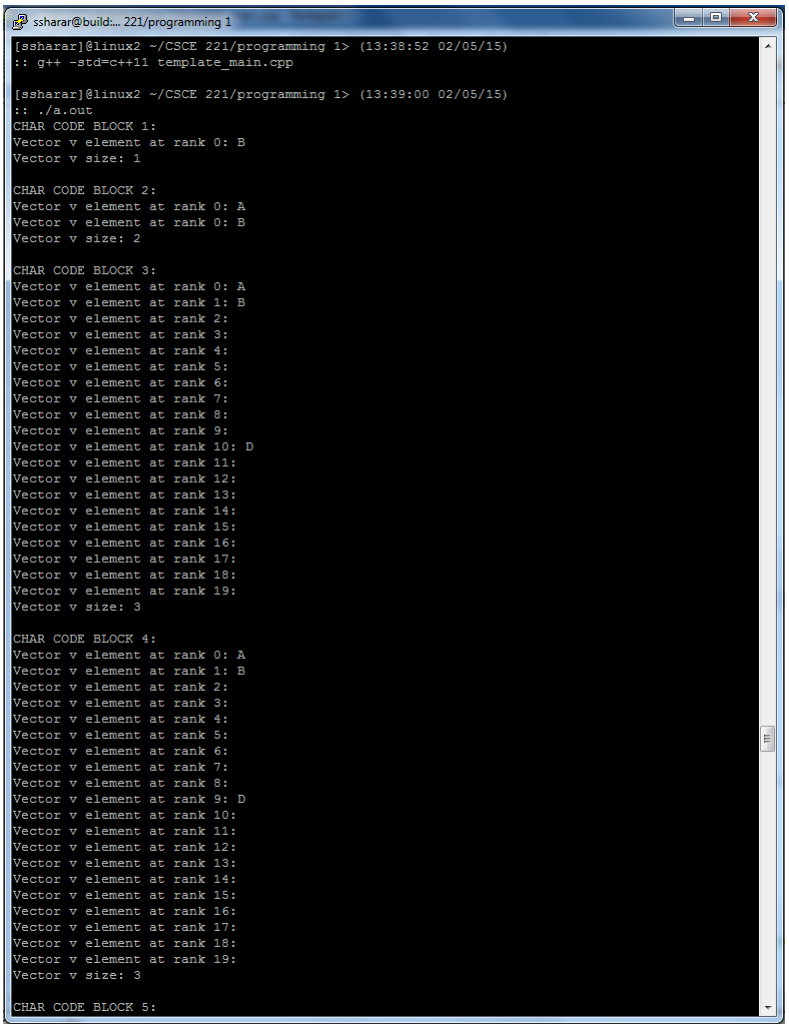
Pictured are the outputs for each run. The first is the My_vec with only char properties, the second is My_vec with template properties.

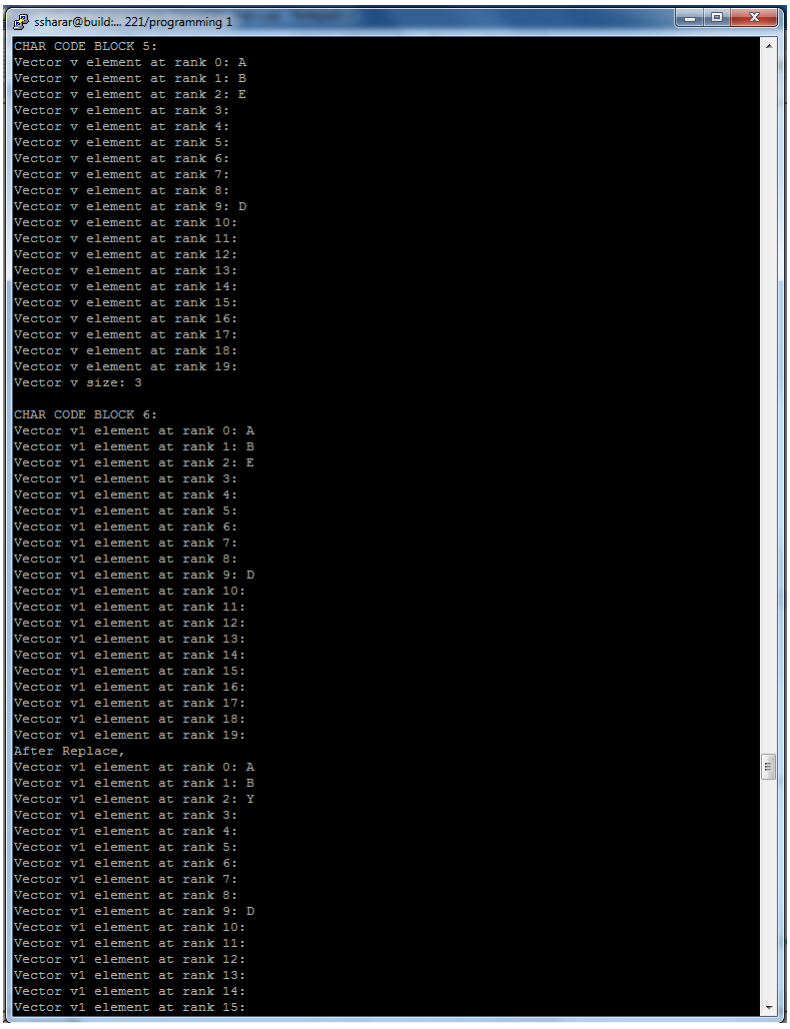

ssharar@build:... 221/programming 1
[ssharar]@linux2 ~/CSCE 221/programming 1> (13:36:20 02/05/15)
:: g++ -std=c++11 My_vec.cpp main.cpp
[ssharar]@linux2 ~/CSCE 221/programming 1> (13:36:22 02/05/15)
:: ./a.out
CODE BLOCK 1:
Vector v element at rank 0: B
Vector v size: 1
CODE BLOCK 2:
Vector v element at rank 0: A
Vector v element at rank 0: B
Vector v size: 2
CODE BLOCK 3:
Vector v element at rank 0: A
Vector v element at rank 1: B
Vector v element at rank 2:
Vector v element at rank 3:
Vector v element at rank 4:
Vector v element at rank 5:
Vector v element at rank 6:
Vector v element at rank 7:
Vector v element at rank 8:
Vector v element at rank 9:
Vector v element at rank 10: D
Vector v element at rank 11:
Vector v element at rank 12:
Vector v element at rank 13:
Vector v element at rank 14:
Vector v element at rank 15:
Vector v element at rank 16:
Vector v element at rank 17:
Vector v element at rank 18:
Vector v element at rank 19:
Vector v size: 3
CODE BLOCK 4:
Vector v element at rank 0: A
Vector v element at rank 1: B
Vector v element at rank 2:
Vector v element at rank 3:
Vector v element at rank 4:
Vector v element at rank 5:
Vector v element at rank 6:
Vector v element at rank 7:
Vector v element at rank 8:
Vector v element at rank 9: D
Vector v element at rank 10:
Vector v element at rank 11:
Vector v element at rank 12:
Vector v element at rank 13:
Vector v element at rank 14:
Vector v element at rank 15:
Vector v element at rank 16:
Vector v element at rank 17:
Vector v element at rank 18:
Vector v element at rank 19:
Vector v size: 3
CODE BLOCK 5:

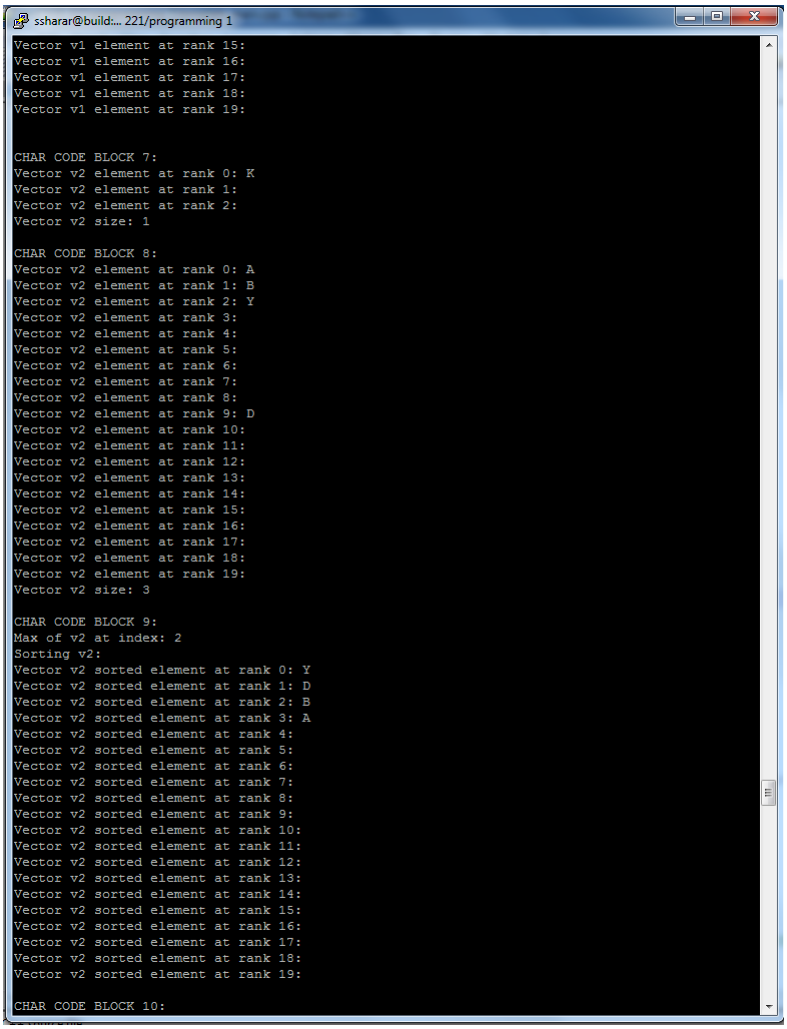

ssharar@build:... 221/programming 1
CODE BLOCK 5:
Vector v element at rank 0: A
Vector v element at rank 1: B
Vector v element at rank 2: E
Vector v element at rank 3:
Vector v element at rank 4:
Vector v element at rank 5:
Vector v element at rank 6:
Vector v element at rank 7:
Vector v element at rank 8:
Vector v element at rank 9: D
Vector v element at rank 10:
Vector v element at rank 11:
Vector v element at rank 12:
Vector v element at rank 13:
Vector v element at rank 14:
Vector v element at rank 15:
Vector v element at rank 16:
Vector v element at rank 17:
Vector v element at rank 18:
Vector v element at rank 19:
Vector v size: 3
CODE BLOCK 6:
Vector v1 element at rank 0: A
Vector v1 element at rank 1: B
Vector v1 element at rank 2: E
Vector v1 element at rank 3:
Vector v1 element at rank 4:
Vector v1 element at rank 5:
Vector v1 element at rank 6:
Vector v1 element at rank 7:
Vector v1 element at rank 8:
Vector v1 element at rank 9: D
Vector v1 element at rank 10:
Vector v1 element at rank 11:
Vector v1 element at rank 12:
Vector v1 element at rank 13:
Vector v1 element at rank 14:
Vector v1 element at rank 15:
Vector v1 element at rank 16:
Vector v1 element at rank 17:
Vector v1 element at rank 18:
Vector v1 element at rank 19:
After Replace,
Vector v1 element at rank 0: A
Vector v1 element at rank 1: B
Vector v1 element at rank 2: Y
Vector v1 element at rank 3:
Vector v1 element at rank 4:
Vector v1 element at rank 5:
Vector v1 element at rank 6:
Vector v1 element at rank 7:
Vector v1 element at rank 8:
Vector v1 element at rank 9: D
Vector v1 element at rank 10:
Vector v1 element at rank 11:
Vector v1 element at rank 12:
Vector v1 element at rank 13:
Vector v1 element at rank 14:
Vector v1 element at rank 15:

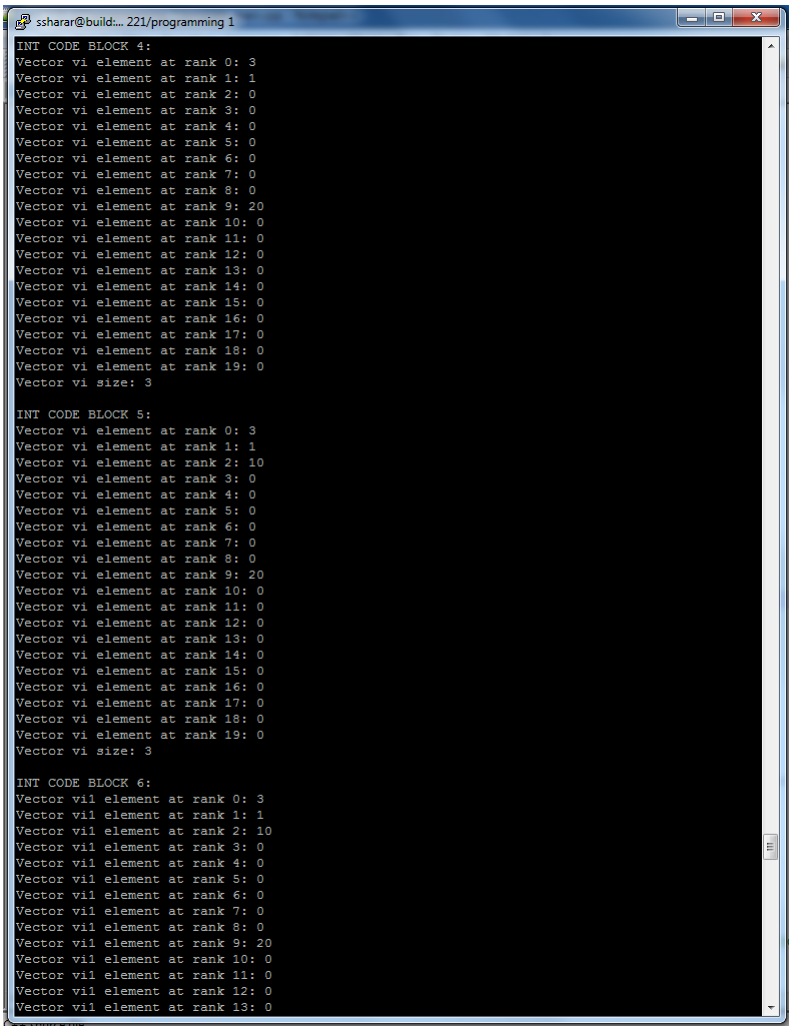

ssharar@build:... 221/programming 1
Vector v1 element at rank 14:
Vector v1 element at rank 15:
Vector v1 element at rank 16:
Vector v1 element at rank 17:
Vector v1 element at rank 18:
Vector v1 element at rank 19:
CODE BLOCK 7:
Vector v2 element at rank 0: K
Vector v2 element at rank 1:
Vector v2 element at rank 2:
Vector v2 size: 1
CODE BLOCK 8:
Vector v2 element at rank 0: A
Vector v2 element at rank 1: B
Vector v2 element at rank 2: Y
Vector v2 element at rank 3:
Vector v2 element at rank 4:
Vector v2 element at rank 5:
Vector v2 element at rank 6:
Vector v2 element at rank 7:
Vector v2 element at rank 8:
Vector v2 element at rank 9: D
Vector v2 element at rank 10:
Vector v2 element at rank 11:
Vector v2 element at rank 12:
Vector v2 element at rank 13:
Vector v2 element at rank 14:
Vector v2 element at rank 15:
Vector v2 element at rank 16:
Vector v2 element at rank 17:
Vector v2 element at rank 18:
Vector v2 element at rank 19:
Vector v2 size: 3
CODE BLOCK 9:
Max of v2 at index: 2
Sorting v2:
Vector v2 sorted element at rank 0: A
Vector v2 sorted element at rank 1:
Vector v2 sorted element at rank 2:
Vector v2 sorted element at rank 3:
Vector v2 sorted element at rank 4:
Vector v2 sorted element at rank 5:
Vector v2 sorted element at rank 6:
Vector v2 sorted element at rank 7:
Vector v2 sorted element at rank 8:
Vector v2 sorted element at rank 9:
Vector v2 sorted element at rank 10:
Vector v2 sorted element at rank 11:
Vector v2 sorted element at rank 12:
Vector v2 sorted element at rank 13:
Vector v2 sorted element at rank 14:
Vector v2 sorted element at rank 15:
Vector v2 sorted element at rank 16:
Vector v2 sorted element at rank 17: B
Vector v2 sorted element at rank 18: D
Vector v2 sorted element at rank 19: Y

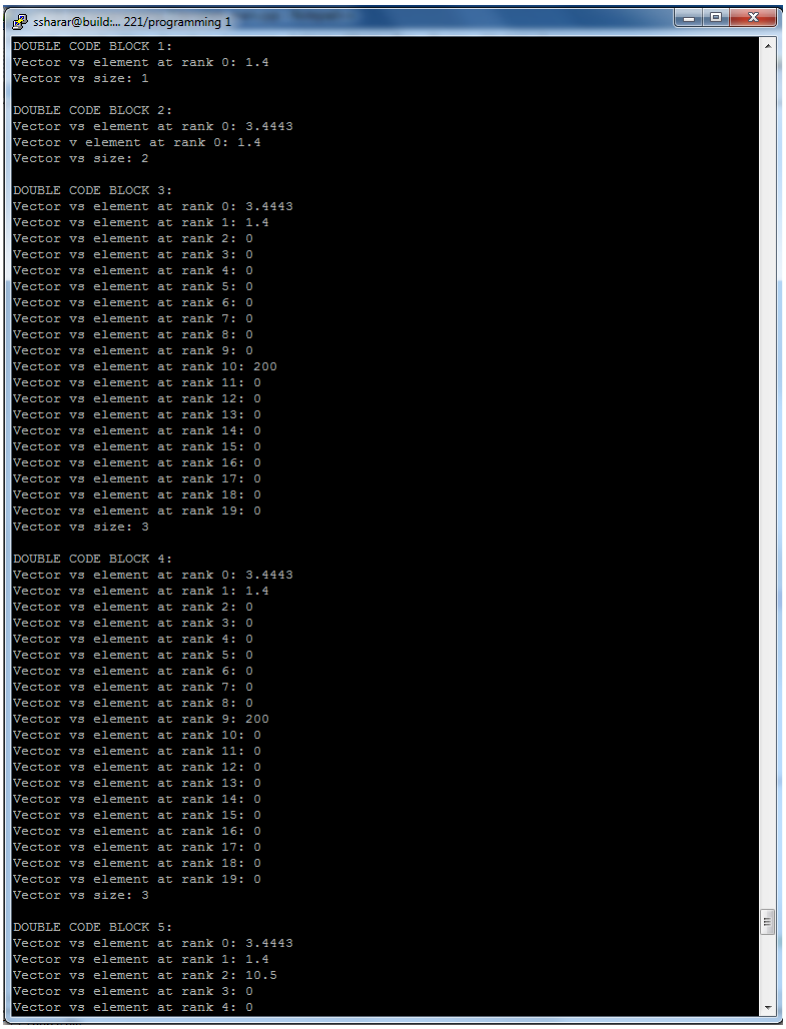

ssharar@build:... 221/programming 1
Vector v2 element at rank 9: D
Vector v2 element at rank 10:
Vector v2 element at rank 11:
Vector v2 element at rank 12:
Vector v2 element at rank 13:
Vector v2 element at rank 14:
Vector v2 element at rank 15:
Vector v2 element at rank 16:
Vector v2 element at rank 17:
Vector v2 element at rank 18:
Vector v2 element at rank 19:
Vector v2 size: 3
CODE BLOCK 9:
Max of v2 at index: 2
Sorting v2:
Vector v2 sorted element at rank 0: A
Vector v2 sorted element at rank 1:
Vector v2 sorted element at rank 2:
Vector v2 sorted element at rank 3:
Vector v2 sorted element at rank 4:
Vector v2 sorted element at rank 5:
Vector v2 sorted element at rank 6:
Vector v2 sorted element at rank 7:
Vector v2 sorted element at rank 8:
Vector v2 sorted element at rank 9:
Vector v2 sorted element at rank 10:
Vector v2 sorted element at rank 11:
Vector v2 sorted element at rank 12:
Vector v2 sorted element at rank 13:
Vector v2 sorted element at rank 14:
Vector v2 sorted element at rank 15:
Vector v2 sorted element at rank 16:
Vector v2 sorted element at rank 17: B
Vector v2 sorted element at rank 18: D
Vector v2 sorted element at rank 19: Y
CODE BLOCK 10:
Vector v2 element at rank 0: A
Vector v2 element at rank 1:
Vector v2 element at rank 2:
Vector v2 element at rank 3:
Vector v2 element at rank 4:
Vector v2 element at rank 5:
Vector v2 element at rank 6:
Vector v2 element at rank 7:
Vector v2 element at rank 8:
Vector v2 element at rank 9:
Vector v2 element at rank 10:
Vector v2 element at rank 11:
Vector v2 element at rank 12:
Vector v2 element at rank 13:
Vector v2 element at rank 14: S
Vector v2 element at rank 15:
Vector v2 element at rank 16:
Vector v2 element at rank 17: B
Vector v2 element at rank 18: D
Vector v2 element at rank 19: Y
[ssharar]@linux2 ~/CSCE 221/programming 1> (13:36:24 02/05/15)
::

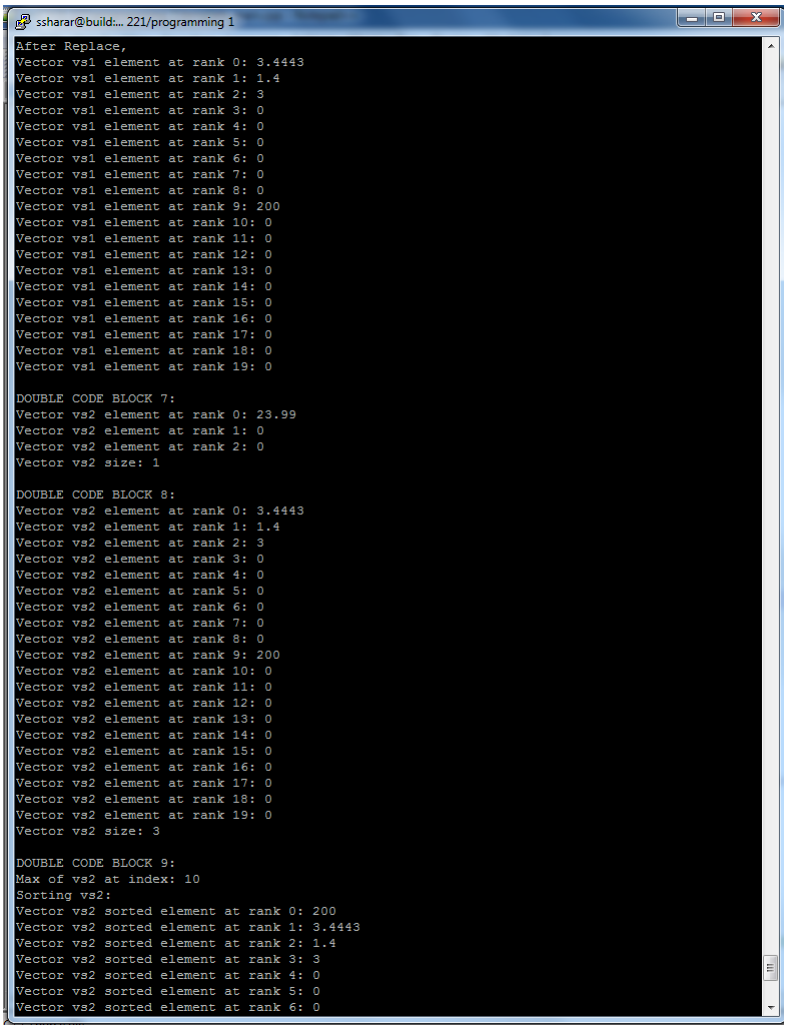

ssharar@build:... 221/programming 1
[ssharar]@linux2 ~/CSCE 221/programming 1> (13:38:52 02/05/15)
:: g++ -std=c++11 template_main.cpp
[ssharar]@linux2 ~/CSCE 221/programming 1> (13:39:00 02/05/15)
:: ./a.out
CHAR CODE BLOCK 1:
Vector v element at rank 0: B
Vector v size: 1
CHAR CODE BLOCK 2:
Vector v element at rank 0: A
Vector v element at rank 0: B
Vector v size: 2
CHAR CODE BLOCK 3:
Vector v element at rank 0: A
Vector v element at rank 1: B
Vector v element at rank 2:
Vector v element at rank 3:
Vector v element at rank 4:
Vector v element at rank 5:
Vector v element at rank 6:
Vector v element at rank 7:
Vector v element at rank 8:
Vector v element at rank 9:
Vector v element at rank 10: D
Vector v element at rank 11:
Vector v element at rank 12:
Vector v element at rank 13:
Vector v element at rank 14:
Vector v element at rank 15:
Vector v element at rank 16:
Vector v element at rank 17:
Vector v element at rank 18:
Vector v element at rank 19:
Vector v size: 3
CHAR CODE BLOCK 4:
Vector v element at rank 0: A
Vector v element at rank 1: B
Vector v element at rank 2:
Vector v element at rank 3:
Vector v element at rank 4:
Vector v element at rank 5:
Vector v element at rank 6:
Vector v element at rank 7:
Vector v element at rank 8:
Vector v element at rank 9: D
Vector v element at rank 10:
Vector v element at rank 11:
Vector v element at rank 12:
Vector v element at rank 13:
Vector v element at rank 14:
Vector v element at rank 15:
Vector v element at rank 16:
Vector v element at rank 17:
Vector v element at rank 18:
Vector v element at rank 19:
Vector v size: 3
CHAR CODE BLOCK 5:

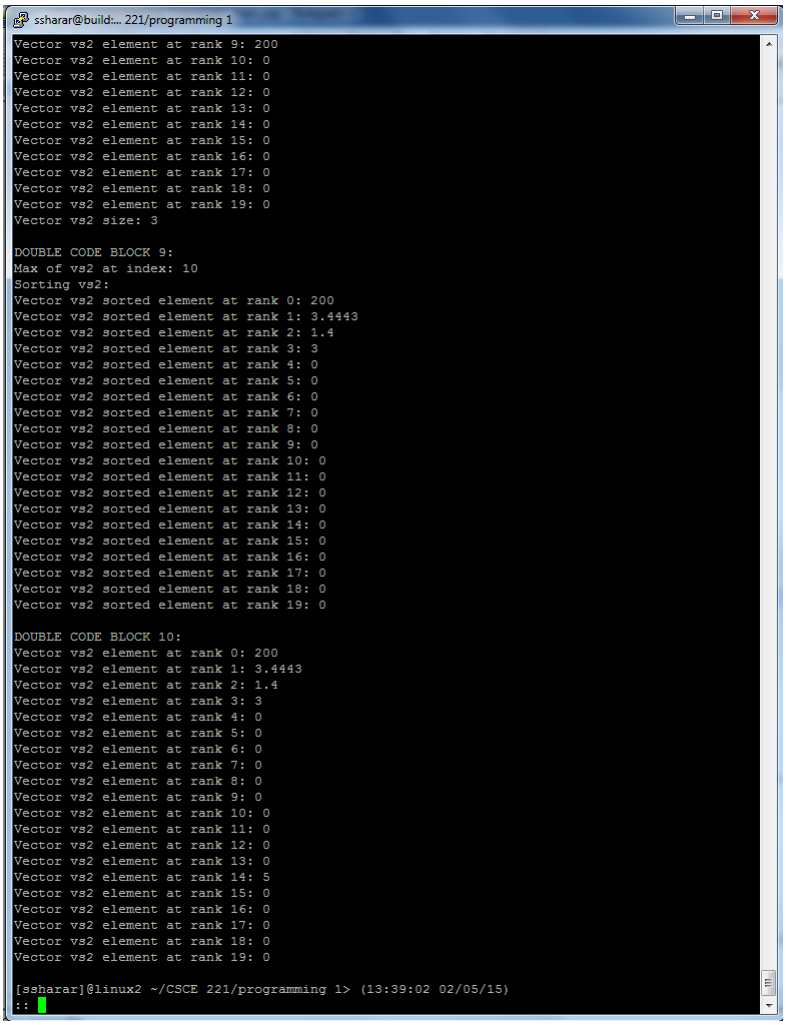

ssharar@build:... 221/programming 1
CHAR CODE BLOCK 5:
Vector v element at rank 0: A
Vector v element at rank 1: B
Vector v element at rank 2: E
Vector v element at rank 3:
Vector v element at rank 4:
Vector v element at rank 5:
Vector v element at rank 6:
Vector v element at rank 7:
Vector v element at rank 8:
Vector v element at rank 9: D
Vector v element at rank 10:
Vector v element at rank 11:
Vector v element at rank 12:
Vector v element at rank 13:
Vector v element at rank 14:
Vector v element at rank 15:
Vector v element at rank 16:
Vector v element at rank 17:
Vector v element at rank 18:
Vector v element at rank 19:
Vector v size: 3
CHAR CODE BLOCK 6:
Vector v1 element at rank 0: A
Vector v1 element at rank 1: B
Vector v1 element at rank 2: E
Vector v1 element at rank 3:
Vector v1 element at rank 4:
Vector v1 element at rank 5:
Vector v1 element at rank 6:
Vector v1 element at rank 7:
Vector v1 element at rank 8:
Vector v1 element at rank 9: D
Vector v1 element at rank 10:
Vector v1 element at rank 11:
Vector v1 element at rank 12:
Vector v1 element at rank 13:
Vector v1 element at rank 14:
Vector v1 element at rank 15:
Vector v1 element at rank 16:
Vector v1 element at rank 17:
Vector v1 element at rank 18:
Vector v1 element at rank 19:
After Replace,
Vector v1 element at rank 0: A
Vector v1 element at rank 1: B
Vector v1 element at rank 2: Y
Vector v1 element at rank 3:
Vector v1 element at rank 4:
Vector v1 element at rank 5:
Vector v1 element at rank 6:
Vector v1 element at rank 7:
Vector v1 element at rank 8:
Vector v1 element at rank 9: D
Vector v1 element at rank 10:
Vector v1 element at rank 11:
Vector v1 element at rank 12:
Vector v1 element at rank 13:
Vector v1 element at rank 14:
Vector v1 element at rank 15:


ssharar@build:... 221/programming 1
Vector v1 element at rank 15:
Vector v1 element at rank 16:
Vector v1 element at rank 17:
Vector v1 element at rank 18:
Vector v1 element at rank 19:
CHAR CODE BLOCK 7:
Vector v2 element at rank 0: K
Vector v2 element at rank 1:
Vector v2 element at rank 2:
Vector v2 size: 1
CHAR CODE BLOCK 8:
Vector v2 element at rank 0: A
Vector v2 element at rank 1: B
Vector v2 element at rank 2: Y
Vector v2 element at rank 3:
Vector v2 element at rank 4:
Vector v2 element at rank 5:
Vector v2 element at rank 6:
Vector v2 element at rank 7:
Vector v2 element at rank 8:
Vector v2 element at rank 9: D
Vector v2 element at rank 10:
Vector v2 element at rank 11:
Vector v2 element at rank 12:
Vector v2 element at rank 13:
Vector v2 element at rank 14:
Vector v2 element at rank 15:
Vector v2 element at rank 16:
Vector v2 element at rank 17:
Vector v2 element at rank 18:
Vector v2 element at rank 19:
Vector v2 size: 3
CHAR CODE BLOCK 9:
Max of v2 at index: 2
Sorting v2:
Vector v2 sorted element at rank 0: Y
Vector v2 sorted element at rank 1: D
Vector v2 sorted element at rank 2: B
Vector v2 sorted element at rank 3: A
Vector v2 sorted element at rank 4:
Vector v2 sorted element at rank 5:
Vector v2 sorted element at rank 6:
Vector v2 sorted element at rank 7:
Vector v2 sorted element at rank 8:
Vector v2 sorted element at rank 9:
Vector v2 sorted element at rank 10:
Vector v2 sorted element at rank 11:
Vector v2 sorted element at rank 12:
Vector v2 sorted element at rank 13:
Vector v2 sorted element at rank 14:
Vector v2 sorted element at rank 15:
Vector v2 sorted element at rank 16:
Vector v2 sorted element at rank 17:
Vector v2 sorted element at rank 18:
Vector v2 sorted element at rank 19:
CHAR CODE BLOCK 10:


ssharar@build:... 221/programming 1
INT CODE BLOCK 4:
Vector vi element at rank 0: 3
Vector vi element at rank 1: 1
Vector vi element at rank 2: 0
Vector vi element at rank 3: 0
Vector vi element at rank 4: 0
Vector vi element at rank 5: 0
Vector vi element at rank 6: 0
Vector vi element at rank 7: 0
Vector vi element at rank 8: 0
Vector vi element at rank 9: 20
Vector vi element at rank 10: 0
Vector vi element at rank 11: 0
Vector vi element at rank 12: 0
Vector vi element at rank 13: 0
Vector vi element at rank 14: 0
Vector vi element at rank 15: 0
Vector vi element at rank 16: 0
Vector vi element at rank 17: 0
Vector vi element at rank 18: 0
Vector vi element at rank 19: 0
Vector vi size: 3
INT CODE BLOCK 5:
Vector vi element at rank 0: 3
Vector vi element at rank 1: 1
Vector vi element at rank 2: 10
Vector vi element at rank 3: 0
Vector vi element at rank 4: 0
Vector vi element at rank 5: 0
Vector vi element at rank 6: 0
Vector vi element at rank 7: 0
Vector vi element at rank 8: 0
Vector vi element at rank 9: 20
Vector vi element at rank 10: 0
Vector vi element at rank 11: 0
Vector vi element at rank 12: 0
Vector vi element at rank 13: 0
Vector vi element at rank 14: 0
Vector vi element at rank 15: 0
Vector vi element at rank 16: 0
Vector vi element at rank 17: 0
Vector vi element at rank 18: 0
Vector vi element at rank 19: 0
Vector vi size: 3
INT CODE BLOCK 6:
Vector vi1 element at rank 0: 3
Vector vi1 element at rank 1: 1
Vector vi1 element at rank 2: 10
Vector vi1 element at rank 3: 0
Vector vi1 element at rank 4: 0
Vector vi1 element at rank 5: 0
Vector vi1 element at rank 6: 0
Vector vi1 element at rank 7: 0
Vector vi1 element at rank 8: 0
Vector vi1 element at rank 9: 20
Vector vi1 element at rank 10: 0
Vector vi1 element at rank 11: 0
Vector vi1 element at rank 12: 0
Vector vi1 element at rank 13: 0


ssharar@build:... 221/programming 1
DOUBLE CODE BLOCK 1:
Vector vs element at rank 0: 1.4
Vector vs size: 1
DOUBLE CODE BLOCK 2:
Vector vs element at rank 0: 3.4443
Vector v element at rank 0: 1.4
Vector vs size: 2
DOUBLE CODE BLOCK 3:
Vector vs element at rank 0: 3.4443
Vector vs element at rank 1: 1.4
Vector vs element at rank 2: 0
Vector vs element at rank 3: 0
Vector vs element at rank 4: 0
Vector vs element at rank 5: 0
Vector vs element at rank 6: 0
Vector vs element at rank 7: 0
Vector vs element at rank 8: 0
Vector vs element at rank 9: 0
Vector vs element at rank 10: 200
Vector vs element at rank 11: 0
Vector vs element at rank 12: 0
Vector vs element at rank 13: 0
Vector vs element at rank 14: 0
Vector vs element at rank 15: 0
Vector vs element at rank 16: 0
Vector vs element at rank 17: 0
Vector vs element at rank 18: 0
Vector vs element at rank 19: 0
Vector vs size: 3
DOUBLE CODE BLOCK 4:
Vector vs element at rank 0: 3.4443
Vector vs element at rank 1: 1.4
Vector vs element at rank 2: 0
Vector vs element at rank 3: 0
Vector vs element at rank 4: 0
Vector vs element at rank 5: 0
Vector vs element at rank 6: 0
Vector vs element at rank 7: 0
Vector vs element at rank 8: 0
Vector vs element at rank 9: 200
Vector vs element at rank 10: 0
Vector vs element at rank 11: 0
Vector vs element at rank 12: 0
Vector vs element at rank 13: 0
Vector vs element at rank 14: 0
Vector vs element at rank 15: 0
Vector vs element at rank 16: 0
Vector vs element at rank 17: 0
Vector vs element at rank 18: 0
Vector vs element at rank 19: 0
Vector vs size: 3
DOUBLE CODE BLOCK 5:
Vector vs element at rank 0: 3.4443
Vector vs element at rank 1: 1.4
Vector vs element at rank 2: 10.5
Vector vs element at rank 3: 0
Vector vs element at rank 4: 0


ssharar@build:... 221/programming 1
After Replace,
Vector vs1 element at rank 0: 3.4443
Vector vs1 element at rank 1: 1.4
Vector vs1 element at rank 2: 3
Vector vs1 element at rank 3: 0
Vector vs1 element at rank 4: 0
Vector vs1 element at rank 5: 0
Vector vs1 element at rank 6: 0
Vector vs1 element at rank 7: 0
Vector vs1 element at rank 8: 0
Vector vs1 element at rank 9: 200
Vector vs1 element at rank 10: 0
Vector vs1 element at rank 11: 0
Vector vs1 element at rank 12: 0
Vector vs1 element at rank 13: 0
Vector vs1 element at rank 14: 0
Vector vs1 element at rank 15: 0
Vector vs1 element at rank 16: 0
Vector vs1 element at rank 17: 0
Vector vs1 element at rank 18: 0
Vector vs1 element at rank 19: 0
DOUBLE CODE BLOCK 7:
Vector vs2 element at rank 0: 23.99
Vector vs2 element at rank 1: 0
Vector vs2 element at rank 2: 0
Vector vs2 size: 1
DOUBLE CODE BLOCK 8:
Vector vs2 element at rank 0: 3.4443
Vector vs2 element at rank 1: 1.4
Vector vs2 element at rank 2: 3
Vector vs2 element at rank 3: 0
Vector vs2 element at rank 4: 0
Vector vs2 element at rank 5: 0
Vector vs2 element at rank 6: 0
Vector vs2 element at rank 7: 0
Vector vs2 element at rank 8: 0
Vector vs2 element at rank 9: 200
Vector vs2 element at rank 10: 0
Vector vs2 element at rank 11: 0
Vector vs2 element at rank 12: 0
Vector vs2 element at rank 13: 0
Vector vs2 element at rank 14: 0
Vector vs2 element at rank 15: 0
Vector vs2 element at rank 16: 0
Vector vs2 element at rank 17: 0
Vector vs2 element at rank 18: 0
Vector vs2 element at rank 19: 0
Vector vs2 size: 3
DOUBLE CODE BLOCK 9:
Max of vs2 at index: 10
Sorting vs2:
Vector vs2 sorted element at rank 0: 200
Vector vs2 sorted element at rank 1: 3.4443
Vector vs2 sorted element at rank 2: 1.4
Vector vs2 sorted element at rank 3: 3
Vector vs2 sorted element at rank 4: 0
Vector vs2 sorted element at rank 5: 0
Vector vs2 sorted element at rank 6: 0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Vector vs2 element at rank 9: 200
Vector vs2 element at rank 10: 0
Vector vs2 element at rank 11: 0
Vector vs2 element at rank 12: 0
Vector vs2 element at rank 13: 0
Vector vs2 element at rank 14: 0
Vector vs2 element at rank 15: 0
Vector vs2 element at rank 16: 0
Vector vs2 element at rank 17: 0
Vector vs2 element at rank 18: 0
Vector vs2 element at rank 19: 0
Vector vs2 size: 3
DOUBLE CODE BLOCK 9:
Max of vs2 at index: 10
Sorting vs2:
Vector vs2 sorted element at rank 0: 200
Vector vs2 sorted element at rank 1: 3.4443
Vector vs2 sorted element at rank 2: 1.4
Vector vs2 sorted element at rank 3: 3
Vector vs2 sorted element at rank 4: 0
Vector vs2 sorted element at rank 5: 0
Vector vs2 sorted element at rank 6: 0
Vector vs2 sorted element at rank 7: 0
Vector vs2 sorted element at rank 8: 0
Vector vs2 sorted element at rank 9: 0
Vector vs2 sorted element at rank 10: 0
Vector vs2 sorted element at rank 11: 0
Vector vs2 sorted element at rank 12: 0
Vector vs2 sorted element at rank 13: 0
Vector vs2 sorted element at rank 14: 0
Vector vs2 sorted element at rank 15: 0
Vector vs2 sorted element at rank 16: 0
Vector vs2 sorted element at rank 17: 0
Vector vs2 sorted element at rank 18: 0
Vector vs2 sorted element at rank 19: 0
DOUBLE CODE BLOCK 10:
Vector vs2 element at rank 0: 200
Vector vs2 element at rank 1: 3.4443
Vector vs2 element at rank 2: 1.4
Vector vs2 element at rank 3: 3
Vector vs2 element at rank 4: 0
Vector vs2 element at rank 5: 0
Vector vs2 element at rank 6: 0
Vector vs2 element at rank 7: 0
Vector vs2 element at rank 8: 0
Vector vs2 element at rank 9: 0
Vector vs2 element at rank 10: 0
Vector vs2 element at rank 11: 0
Vector vs2 element at rank 12: 0
Vector vs2 element at rank 13: 0
Vector vs2 element at rank 14: 5
Vector vs2 element at rank 15: 0
Vector vs2 element at rank 16: 0
Vector vs2 element at rank 17: 0
Vector vs2 element at rank 18: 0
Vector vs2 element at rank 19: 0
[ssharar]@linux2 ~/CSCE 221/programming 1> (13:39:02 02/05/15)
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