The Standard Template Library Algorithms
Lecture 39
Section 10.5

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Outline

1. The STL Algorithms
2. Examples
3. Assignment
The STL Algorithms

- The STL algorithms are divided into categories.
  - Sequence-modifying algorithms.
  - Sequence-non-modifying algorithms.
  - Sorting
  - Searching
  - Merging
  - Heap (priority queue)
  - Min/max
  - Miscellaneous
Visit the web site

http://www.cplusplus.com/reference/algorithm/

to see a full list of the algorithms available.
Some Sequence-Modifying Algorithms

- `copy(first, last, result);`
- `replace_if(first, last, bool (*)(T), T value);`
- `reverse(first, last);`
- `rotate(first, middle, last);`
- `random_shuffle(first, last);`
- `Iterator partition(first, last, bool (*)(T));`
Some Sequence-Non-Modifying Algorithms

- `for_each(first, last, f);`
- `Iterator find_if(first, last, bool (*)(T));`
- `int count_if(first, last, bool (*)(T));`
- `Iterator search(first1, last1, first2, last2);`
Some Other Algorithms

- `sort();`
- `binary_search();`
- `merge();`
- `inplace_merge();`
- `next_permutation();`
- `prev_permutation();`
Applying Algorithms to Containers

- These algorithms may be applied to any container (or adaptor) class, including arrays.
- If the container class is an array, then the indexes of the array elements qualify as iterators.
Applying Algorithms to Containers

- Run the program `STLVectorAlgorithmTest.cpp`.
- Run the program `STLArrayAlgorithmTest.cpp`.
Assignment

Homework

- Read Section 10.5, pages 564 - 573.