



CPP – C++ Certified Professional Programmer

Exam Syllabus (ver. 1.1, 2018)

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Templates

- What are templates,
- Basic syntax,
- Function templates,
- Class templates,
- When to use templates,
- Typical problems when using templates.

STL Sequential containers

- Types of sequential containers,
- vector, deque, list and their API,
- Sequential container adapters – stack, queue and priority queue,
- Dealing with objects as container elements,
- Usage – when to use what.

STL Associative containers

- Types of associative containers,
- set and multiset – behavior and API,
- map and multimap – behavior and API,
- Putting objects into set and map,
- Usage – when to use what.

Non-modifying STL algorithms

- Definition of a non-modifying algorithm
- List of non-modifying algorithms: for_each, find, find_if, find_end, find_first_of, adjacent_find, count, count_if, mismatch, equal, search, search_n,
- Examples,
- Container compatibility.



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Modifying STL algorithms

- Definition of a modifying algorithm,
- List of modifying algorithms: transform, copy, copy_backward, swap, swap_ranges, iter_swap, replace, fill, fill_n, generate, generate_n, remove, remove_if, unique, unique_copy, reverse, reverse_copy, rotate, partition, stable_partition
- Examples,
- Container compatibility.

Sorting STL operations

- List of sorting algorithms: random_shuffle, sort, stable_partition, lower_bound, upper_bound, equal_range, binary_search,
- Examples,
- Containers compatibility,
- Sorting of objects.

STL merge operations

- List of merging algorithms: merge, includes, min_element, max_element, inplace_merge,
- STL operations for sets,
- Examples,
- Container compatibility.

STL utilities and functional library

- STL “small” tools,
- List of useful functors,
- Examples.

STL advanced I/O

- Classes which provide the input and output capability,
- Console I/O,
- Formatting,
- File I/O,
- Strings I/O,
- Examples.