***Data Structure (Time Complexity for data containers in C++)***

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Insert: Delete: sort and search: indexing:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| STL container | Insert  At the beginning | Insert  in the  middle | Insert at the end | Delete  At the begin | Delete  in the  middle | Delete at the end | sort | Search with sorted container | search with un sorted container | indexing | Visiting all element |
| std::String | **O(n)** | **O(n)** | **O(1)** | **O(n)** | **O(n)** | **O(1)** | **O(n log 2n)** | **O(log n)** | **O(n)** | **O(1)** | **O(n)** |
| std::Vector | **O(n)** | **O(n)** | **O(1)** | **O(n)** | **O(n)** | **O(1)** | **O(n log2n)** | **O(log n)** | **O(n)** | **O(1)** | **O(n)** |
| std::List | **O(1)** | **O(n)** | **O(1)** | **O(1)** | **O(n)** | **O(1)** | **O(n log n)** | **O(n)** | **O(n)** | **N/A** | **O(n)** |
| std:forward\_list | **O(1)** | **O(n)** | **O(n)** | **O(1)** | **O(n)** | **O(n)** | **O(n log n)­­­­­­­­­** | **O(n)** | **O(n)** | **N/A** | **O(n)** |
| std::deque | **O(1)** | **O(n)** | **O(1)** | **O(1)** | **O(n)** | **O(1)** | **O(n log 2n)** | **O(log n)** | **O(n)** | **O(1)** | **O(n)** |
| std::set | **O(log n)** | **O(log n)** | **O(log n)** | **O(logn)** | **O(logn)** | **O(logn)** | **N/A** | **O(log n)** | **N/A** | **N/A** | **O(n)** |
| std::unorderedset | **O(1)** | **O(n)** | **O(1)** | **O(1)** | **O(1)** | **O(1)** | **N/A** | **N/A** | **O(n)** | **N/A** | **O(n)** |
| std::stack | **N/A** | **N/A** | **O(1)** | **N/A** | **N/A** | **O(1)** | **N/A** | **N/A** | **N/A** | **N/A** | **N/A** |
| std::queue | **N/A** | **N/A** | **O(1)** | **O(1)** | **N/A** | **N/A** | **N/A** | **N/A** | **N/A** | **N/A** | **N/A** |
| std:priorityqueue | **O(log n)** | **N/A** | **O(log n)** | **N/A** | **N/A** | **O(log n)** | **N/A** | **N/A** | **N/A** | **N/A** | **N/A** |