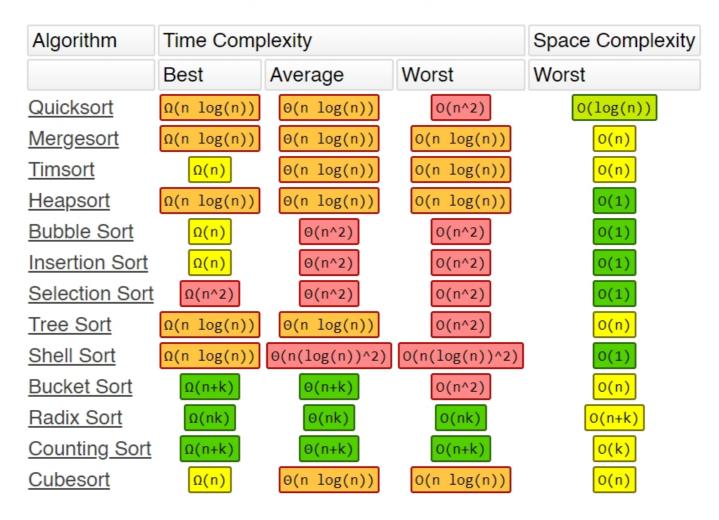
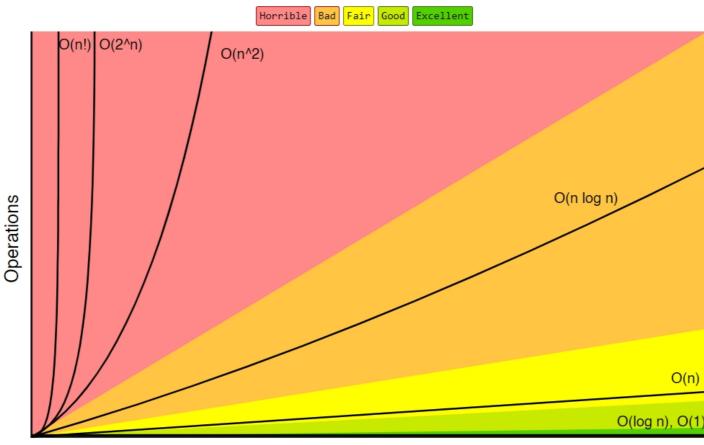
Common Data Structure Operations

Data Structure	Time Complexity								Space Complexity
	Average				Worst				Worst
	Access	Search	Insertion	Deletion	Access	Search	Insertion	Deletion	
<u>Array</u>	$oxed{\Theta(1)}$	Θ(n)	Θ(n)	Θ(n)	0(1)	0(n)	O(n)	0(n)	0(n)
<u>Stack</u>	Θ(n)	Θ(n)	$oxed{\Theta(1)}$	$oxed{\Theta(1)}$	O(n)	O(n)	0(1)	0(1)	0(n)
Queue	Θ(n)	Θ(n)	$oxed{\Theta(1)}$	$oxed{\Theta(1)}$	O(n)	O(n)	0(1)	0(1)	0(n)
Singly-Linked List	Θ(n)	Θ(n)	$oxed{\Theta(1)}$	$oxed{\Theta(1)}$	O(n)	O(n)	0(1)	0(1)	0(n)
Doubly-Linked List	Θ(n)	Θ(n)	$oxed{\Theta(1)}$	$oxed{\Theta(1)}$	O(n)	O(n)	0(1)	0(1)	0(n)
<u>Skip List</u>	Θ(log(n))	Θ(log(n))	$\Theta(\log(n))$	$\Theta(\log(n))$	O(n)	O(n)	O(n)	O(n)	O(n log(n))
Hash Table	N/A	$oxed{\Theta(1)}$	$oxed{\Theta(1)}$	$oxed{\Theta(1)}$	N/A	O(n)	O(n)	O(n)	0(n)
Binary Search Tree	Θ(log(n))	Θ(log(n))	$\Theta(\log(n))$	Θ(log(n))	O(n)	O(n)	O(n)	O(n)	0(n)
Cartesian Tree	N/A	Θ(log(n))	Θ(log(n))	Θ(log(n))	N/A	O(n)	O(n)	O(n)	0(n)
B-Tree	Θ(log(n))	Θ(log(n))	Θ(log(n))	Θ(log(n))	O(log(n))	O(log(n))	O(log(n))	O(log(n))	0(n)
Red-Black Tree	Θ(log(n))	Θ(log(n))	Θ(log(n))	Θ(log(n))	O(log(n))	O(log(n))	O(log(n))	O(log(n))	0(n)
Splay Tree	N/A	Θ(log(n))	Θ(log(n))	Θ(log(n))	N/A	O(log(n))	O(log(n))	O(log(n))	0(n)
AVL Tree	Θ(log(n))	Θ(log(n))	Θ(log(n))	Θ(log(n))	O(log(n))	O(log(n))	O(log(n))	O(log(n))	0(n)
KD Tree	Θ(log(n))	Θ(log(n))	Θ(log(n))	Θ(log(n))	O(n)	O(n)	O(n)	O(n)	0(n)

Array Sorting Algorithms



Big-O Complexity Chart



Elements