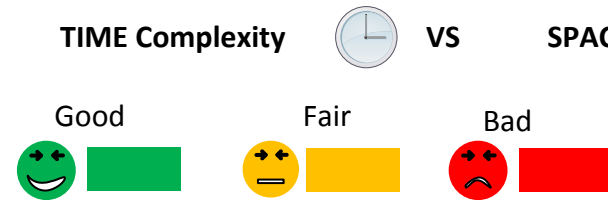
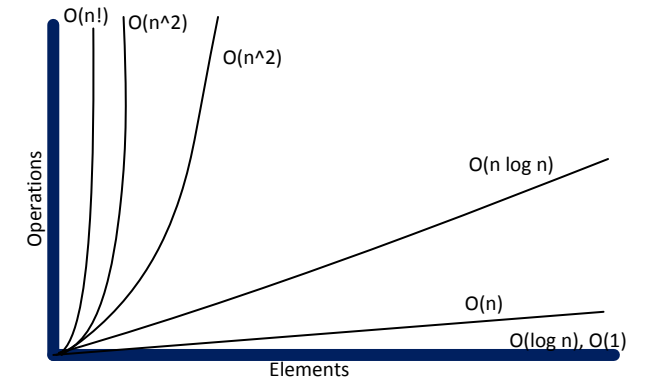


LEGEND





















{BIG-O-CHEATSHEET}

github.com/pysecuser



DATA STRUCTURE Operations

ARRAY SORTING Algorithms

	 DATA Structure	 TIME Complexity	 SPACE Complexity	 ARRAY Algorithms	 TIME Complexity	 SPACE Complexity								
	 access	 search	 insert	 delete	 access	 search	 insert	 delete						
Array	$O(1)$	$O(n)$	$O(n)$	$O(n)$	$O(1)$	$O(n)$	$O(n)$	$O(n)$	$O(n)$	Quicksort	$\Omega(n \log(n))$	$O(n \log(n))$	$O(n^2)$	$O(\log(n))$
Stack	$O(n)$	$O(n)$	$O(1)$	$O(1)$	$O(n)$	$O(n)$	$O(1)$	$O(1)$	$O(n)$	Mergesort	$\Omega(n \log(n))$	$O(n \log(n))$	$O(n \log(n))$	$O(n)$
Queue	$O(n)$	$O(n)$	$O(1)$	$O(1)$	$O(n)$	$O(n)$	$O(1)$	$O(1)$	$O(n)$	Timsort	$\Omega(n)$	$O(n \log(n))$	$O(n \log(n))$	$O(n)$
Singly-Linked List	$O(n)$	$O(n)$	$O(1)$	$O(1)$	$O(n)$	$O(n)$	$O(1)$	$O(1)$	$O(n)$	Heapsort	$\Omega(n \log(n))$	$O(n \log(n))$	$O(n \log(n))$	$O(1)$
Doubly-Linked List	$O(n)$	$O(n)$	$O(1)$	$O(1)$	$O(n)$	$O(n)$	$O(1)$	$O(1)$	$O(n)$	Bubble sort	$\Omega(n)$	$O(n^2)$	$O(n^2)$	$O(1)$
Skip List	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(n)$	$O(n)$	$O(n)$	$O(n)$	$O(n \log(n))$	Insertion Sort	$\Omega(n)$	$O(n^2)$	$O(n^2)$	$O(1)$
Hash Table	N/A	$O(1)$	$O(1)$	$O(1)$	N/A	$O(n)$	$O(n)$	$O(n)$	$O(n)$	Selection Sort	$\Omega(n^2)$	$O(n^2)$	$O(n^2)$	$O(1)$
Bibary Search Tree	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(n)$	$O(n)$	$O(n)$	$O(n)$	$O(n)$	Tree Sort	$\Omega(n \log(n))$	$O(n \log(n))$	$O(n^2)$	$O(n)$
Cartesian Tree	N/A	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	N/A	$O(n)$	$O(n)$	$O(n)$	$O(n)$	Shell Sort	$\Omega(n \log(n))$	$O(n(\log(n))^2)$	$O(n(\log(n))^2)$	$O(1)$
B-Tree	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(n)$	Bucket Sort	$\Omega(n+k)$	$O(n+k)$	$O(n^2)$	$O(n)$
Red-Black Tree	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(n)$	Radix Sort	$\Omega(n+k)$	$O(nk)$	$O(nk)$	$O(n+k)$
Splay Tree	N/A	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	N/A	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(n)$	Counting Sort	$\Omega(n+k)$	$O(n+k)$	$O(n+k)$	$O(k)$
AVL Tree	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(n)$	Cubesort	$\Omega(n)$	$O(n \log(n))$	$O(n \log(n))$	$O(n)$
KD Tree	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(\log(n))$	$O(n)$	$O(n)$	$O(n)$	$O(n)$	$O(n)$					