

Comprehensive_Runtime_Complexity_Table

Data Structure/Algorithm	Best Case	Worst Case	Average Case
Array (Search, unsorted)	$O(1)$	$O(n)$	$O(n)$
Array (Search, sorted)	$O(1)$	$O(\log n)$	$O(\log n)$
Linked List (Search)	$O(1)$	$O(n)$	$O(n)$
Stack (Push/Pop)	$O(1)$	$O(1)$	$O(1)$
Queue (Enqueue/Dequeue)	$O(1)$	$O(1)$	$O(1)$
Binary Search Tree (Search, balanced)	$O(\log n)$	$O(n)$	$O(\log n)$
Binary Search Tree (Search, unbalanced)	$O(\log n)$	$O(n)$	$O(n)$
AVL Tree (Search)	$O(\log n)$	$O(\log n)$	$O(\log n)$
Heap (Insert)	$O(1)$	$O(\log n)$	$O(\log n)$
Heap (Delete Root)	$O(\log n)$	$O(\log n)$	$O(\log n)$
Hash Table (Search)	$O(1)$	$O(n)$	$O(1)$
Hash Table (Insert/Delete)	$O(1)$	$O(n)$	$O(1)$
Graph (DFS/BFS)	$O(V + E)$	$O(V + E)$	$O(V + E)$
Merge Sort	$O(n \log n)$	$O(n \log n)$	$O(n \log n)$
Quick Sort	$O(n \log n)$	$O(n^2)$	$O(n \log n)$
HeapSort	$O(n \log n)$	$O(n \log n)$	$O(n \log n)$