

Algorithms Cheat Sheet (Color-Coded)

Algorithm	Time Complexity	Category	Use Case
Linear Search	$O(n)$	Searching	Used when the list is unsorted or small.
Binary Search	$O(\log n)$	Searching	Requires sorted data, very fast lookups.
Jump Search	$O(\sqrt{n})$	Searching	Efficient for uniformly distributed data.
Bubble Sort	$O(n^2)$	Sorting	Educational, rarely used in production.
Quick Sort	$O(n \log n)$	Sorting	Fastest general-purpose sort, divide & conquer.
Merge Sort	$O(n \log n)$	Sorting	Stable sorting, good for linked lists.
Stack	$O(1)$ push/pop	Data Structure	Used for undo operations, DFS.
Queue	$O(1)$ enqueue/dequeue	Data Structure	Used for BFS, order processing.
Hash Table	$O(1)$ avg	Data Structure	Key-value storage with fast lookups.