

## 11.14 Big O Summary for This Chapter's Searching and Sorting Algorithms

- Searching and sorting algorithms covered in this chapter with the Big O for each

Algorithm	Location	Big O
Searching Algorithms:		
Linear search	Section 11.7	$O(n)$
Binary search	Section 11.9	$O(\log n)$
Recursive binary search	Exercise 11.18	$O(\log n)$
Sorting Algorithms:		
Selection sort	Section 11.11	$O(n^2)$
Insertion sort	Section 11.12	$O(n^2)$
Merge sort	Section 11.13	$O(n \log n)$

## 11.14 Big O Summary for This Chapter's Searching and Sorting Algorithms (cont.)

- Big O values we've covered in this chapter along with a number of values for  $n$  to highlight the differences in the growth rates

$n =$	$O(\log n)$	$O(n)$	$O(n \log n)$	$O(n^2)$
1	0	1	0	1
2	1	2	2	4
3	1	3	3	9
4	1	4	4	16
5	1	5	5	25
10	1	10	10	100
100	2	100	200	10,000
1000	3	1000	3000	$10^6$
1,000,000	6	1,000,000	6,000,000	$10^{12}$
1,000,000,000	9	1,000,000,000	9,000,000,000	$10^{18}$

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