

Exercise 2

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Implementation for both linear and binary search to find an element in an array of elements.

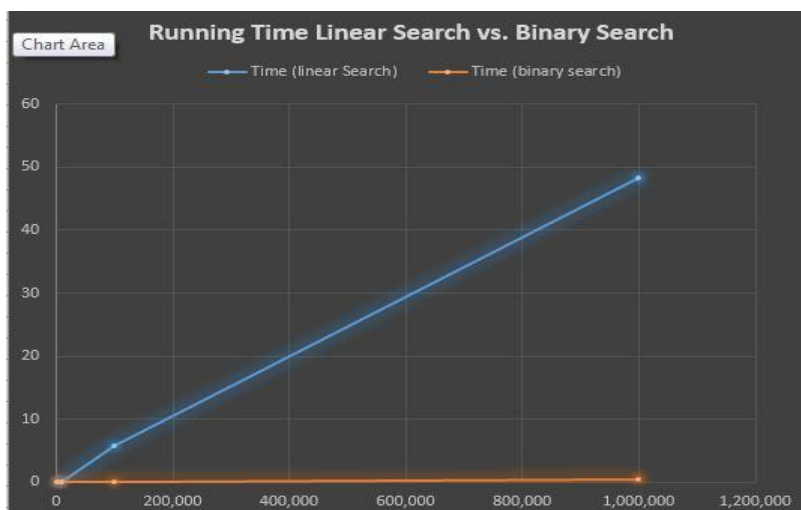
Exercise 2

Input/ output

Input starts with two integers n and s , where n is the number of integers in the array and s is the number of elements that you search for. Following lines contain n numbers of the array, followed by s numbers that you search for.

Running Time

N	Time(Linear Search)	Time(Binary Search)
1000	0.002276	0.00032
10000	0.013818	0.000222
100000	5.74265	0.030643
1000000	48.3496	0.370478



Running Time

The Running times for Linear Search and Binary are completely different.

Linear Search has a linear growth $\{O(n)\}$ in time complexity, whereas

Binary search has a time complexity that looks like $\{O(\log n)\}$.

Note: this running time is measured without the sorting method being inside of the binary search method. However, I submitted the code that includes sort inside the method.