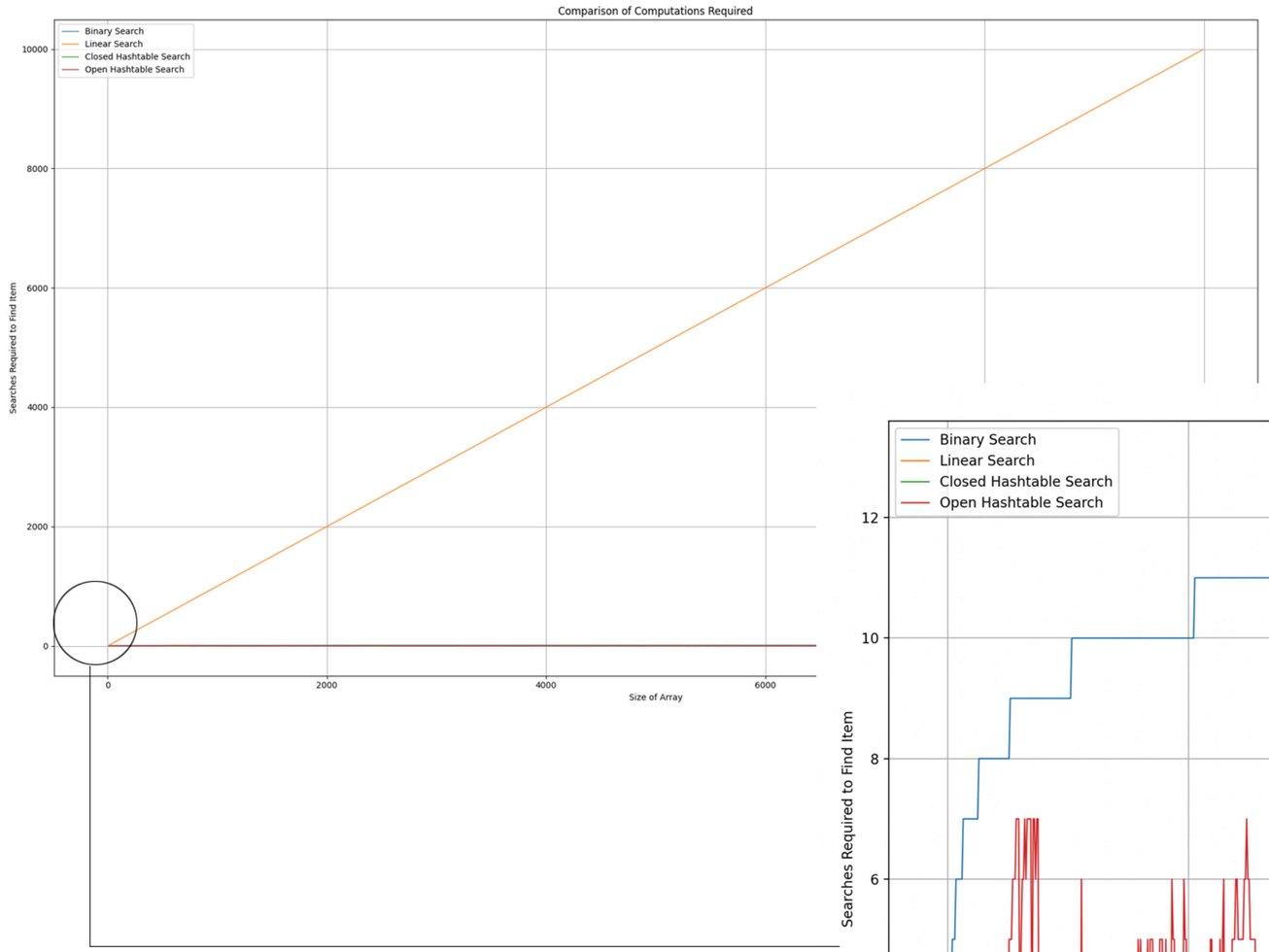
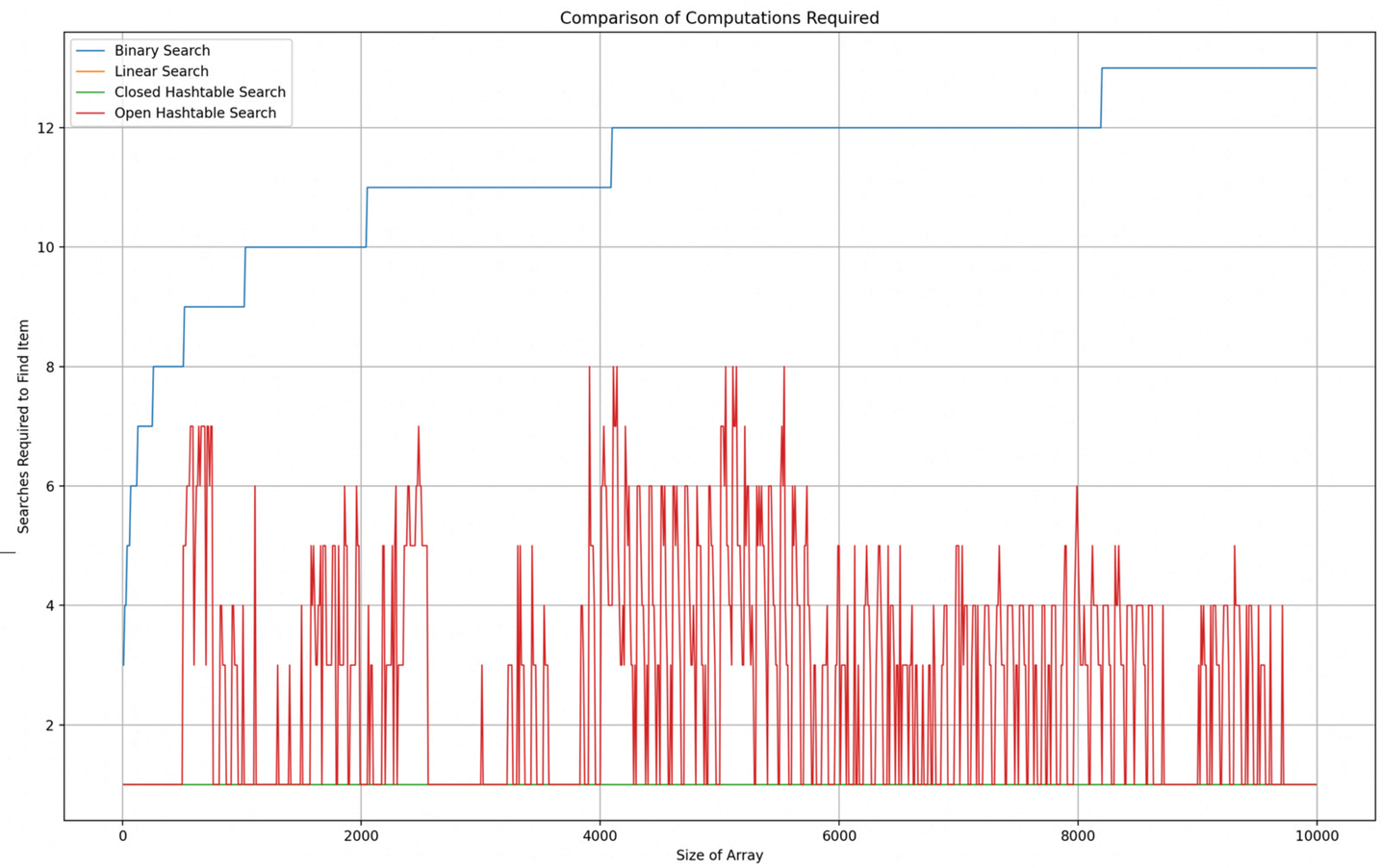
Item not found

When searching for an item not present in an array of an ordered array, the linear search algorithm will always perform at its worst case O(N) , traversing the entirety of a list before seeing that the item is not present. Binary search will perform at its its average case, O(log(N)), as shown by its logarithmic curve here. For the maps, the the closed map will only search whatever nodes are present at that hash address, maintaining constant time look up in this scenario (average depth for my open map algorithm is ~1.2). The open map performed well, too, with clustering maxing out at 8, independent of map size.






```
Benchmarking with problem size of 9990
Linear search time: 0.000036
Linear Search Comparisons: 9990

Binary search time: 0.000000
Binary Search Comparisons: 13

Open Hash search time: 0.000161
Open Hash Search Comparisons: 11504

Closed Hash search time: 0.000000
Closed Hash Search Comparisons: 1
```