

# Search and Sort

## Questions:

- **Linear Search:**

Tutorial: <https://www.geeksforgeeks.org/linear-search/>

- <https://www.hackerearth.com/practice/algorithms/searching/linear-search/practice-problems/algorithm/monk-takes-a-walk/>
- <https://www.hackerearth.com/practice/algorithms/searching/linear-search/practice-problems/algorithm/counting-frog-paths-1abd84d5/>
- <https://www.hackerearth.com/practice/algorithms/searching/linear-search/practice-problems/algorithm/repeated-k-times/>

- **Binary Search:**

Tutorial: <https://www.hackerearth.com/practice/algorithms/searching/binary-search/tutorial/>

- Using Binary search, implement all these methods: (Search(), findUpperBound(), findLowerBound(), findPivotElement(), SearchINaRotatedSortedArray(), findSquareRoot(), Exponentiation\_of\_Number\_Using\_Binary\_Search() )  
[Follow here: <https://www.geeksforgeeks.org/binary-search/> ]
- <https://www.hackerearth.com/practice/algorithms/searching/binary-search/practice-problems/algorithm/bishu-and-soldiers/>
- <https://www.hackerearth.com/practice/algorithms/searching/binary-search/practice-problems/algorithm/substring-in-blocks-335081c2/>
- <https://www.hackerearth.com/practice/algorithms/searching/binary-search/practice-problems/algorithm/friends-49/>
- <https://www.hackerearth.com/practice/algorithms/searching/binary-search/practice-problems/algorithm/rasta-and-kheshtak/>
- <https://www.hackerearth.com/practice/algorithms/searching/binary-search/practice-problems/algorithm/kth-smallest-number-again-2/>
- **Now, Some above normal level questions:**
- **Aggressive cows:** <https://www.spoj.com/problems/AGGRCOW/>
- **Book Allocation Problem:** <https://www.geeksforgeeks.org/allocate-minimum-number-pages/>
- **EKO SPOJ:** <https://www.spoj.com/problems/EKO/>

- **Job Scheduling Algo:** <https://www.geeksforgeeks.org/weighted-job-scheduling-log-n-time/>
- **Missing Number in AP:** <https://www.geeksforgeeks.org/find-missing-number-arithmetic-progression/>
- **Smallest number with atleast n trailing zeroes in factorial:** <https://practice.geeksforgeeks.org/problems/smallest-factorial-number/0>
- **Painters Partition Problem:** <https://www.geeksforgeeks.org/painters-partition-problem-set-2/>
- **ROTI/PRATA SPOJ:** <https://www.spoj.com/problems/PRATA/>
- **Double Helix SPOJ:** <https://www.spoj.com/problems/ANARC05B/>
- **Subset Sums:** <https://www.spoj.com/problems/SUBSUMS/>

## Sorting:

[Follow here: <https://www.geeksforgeeks.org/sorting-algorithms/> ]

- Selection Sort: <https://www.geeksforgeeks.org/selection-sort/>
- Bubble Sort: <https://www.geeksforgeeks.org/bubble-sort/>
- Insertion Sort: <https://www.geeksforgeeks.org/insertion-sort/>
- Merge Sort: <https://www.geeksforgeeks.org/merge-sort/>
- QuickSort: <https://www.geeksforgeeks.org/quick-sort/>
- HeapSort: <https://www.geeksforgeeks.org/heap-sort/>
- Counting Sort: <https://www.geeksforgeeks.org/counting-sort/>
- Radix Sort: <https://www.geeksforgeeks.org/radix-sort/>
- Shell Sort: <https://www.geeksforgeeks.org/shellsort/>
- **Comparative Analysis of all Sorting algorithms:** <https://www.geeksforgeeks.org/analysis-of-different-sorting-techniques/>

## Questions:

- Use Concepts of Bubble sort only:
  - <https://www.hackerearth.com/practice/algorithms/sorting/bubble-sort/practice-problems/algorithm/save-patients/>
  - <https://www.hackerearth.com/practice/algorithms/sorting/bubble-sort/practice-problems/algorithm/benny-and-segments-marcheasy/>
- Use Concepts of Insertion sort only:
  - <https://www.hackerearth.com/practice/algorithms/sorting/insertion-sort/practice-problems/algorithm/monk-and-nice-strings-3/>
- Use Concepts of Selection sort only:
  - <https://www.hackerearth.com/practice/algorithms/sorting/selection-sort/practice-problems/algorithm/old-keypad-in-a-foreign-land-24/>
- Use Concepts of Merge sort only:
  - <https://www.hackerearth.com/practice/algorithms/sorting/merge-sort/practice-problems/algorithm/i-think-its-easy/>
  - <https://www.hackerearth.com/practice/algorithms/sorting/merge-sort/practice-problems/algorithm/shil-and-lucky-string-1/>
  - <https://www.hackerearth.com/practice/algorithms/sorting/merge-sort/practice-problems/algorithm/fredo-and-sums-1-605205cd/>
- Use Concepts of Quick sort only:
  - <https://www.hackerearth.com/practice/algorithms/sorting/quick-sort/practice-problems/algorithm/one-sized-game/>
- Use Concepts of Counting sort only:
  - <https://www.hackerearth.com/practice/algorithms/sorting/counting-sort/practice-problems/algorithm/finding-pairs-4/>
- Use Concepts of Radix sort only:
  - <https://www.hackerearth.com/practice/algorithms/sorting/radix-sort/practice-problems/algorithm/monk-and-sorting-algorithm/>
- Use Concepts of Heap sort only:
  - <https://www.hackerearth.com/practice/algorithms/sorting/heap-sort/practice-problems/algorithm/divide-apples/>
- **Find the inversion count:** <https://practice.geeksforgeeks.org/problems/inversion-of-array/0> {**use merge sort**}

- **Why merge sort is preferred for Linked list and Quick sort for arrays ?**
- Answer: <https://www.geeksforgeeks.org/why-quick-sort-preferred-for-arrays-and-merge-sort-for-linked-lists/>