# 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/