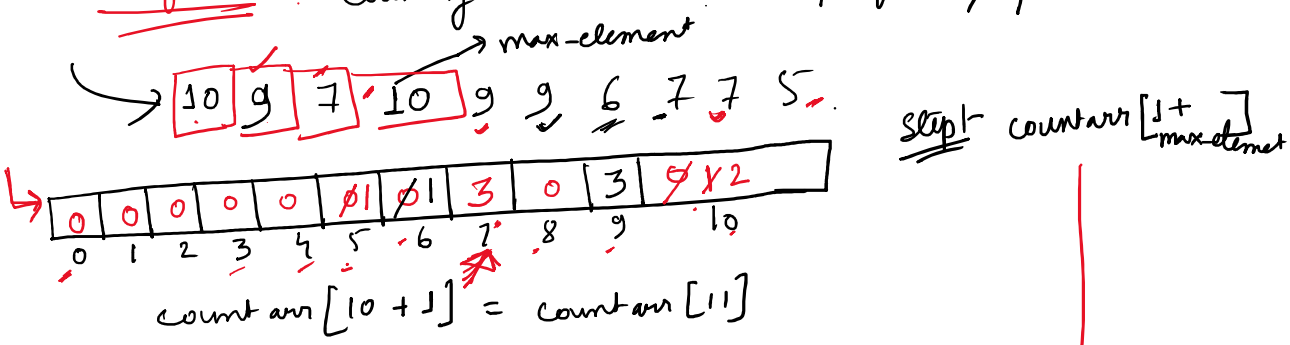
31 January 2025 09:34

Selection, Insertion, Bubble ⟶ $O(n^2)$

Merge, Heap, Quick ⟶ $O(n \log n)$

Count, Radix, Shell, Bucket ⟶ $O(n)$

Counting Sort - Counting ⟶ count ⟶ frequency of each element.



count arr [10 + 1] = count arr [11]

Step - count arr [1 + max-element]

count arr [1 + 10^9].

Next step - 5 6 7 7 7 9 9 9 10 10

Limitation - 0-ive integer problem

② 10^9

① Non-comparision -

② TC ⟶ $O(n+k)$ ⟶ Size of Arr / Max-element.

no of elements in arr ⟶ Linear TC.

SC ⟶ $O(1 + Max\_element)$.

Radix Sort - Non-comparision sorting algo.

Input arr - Sort

904

46

5

74

62

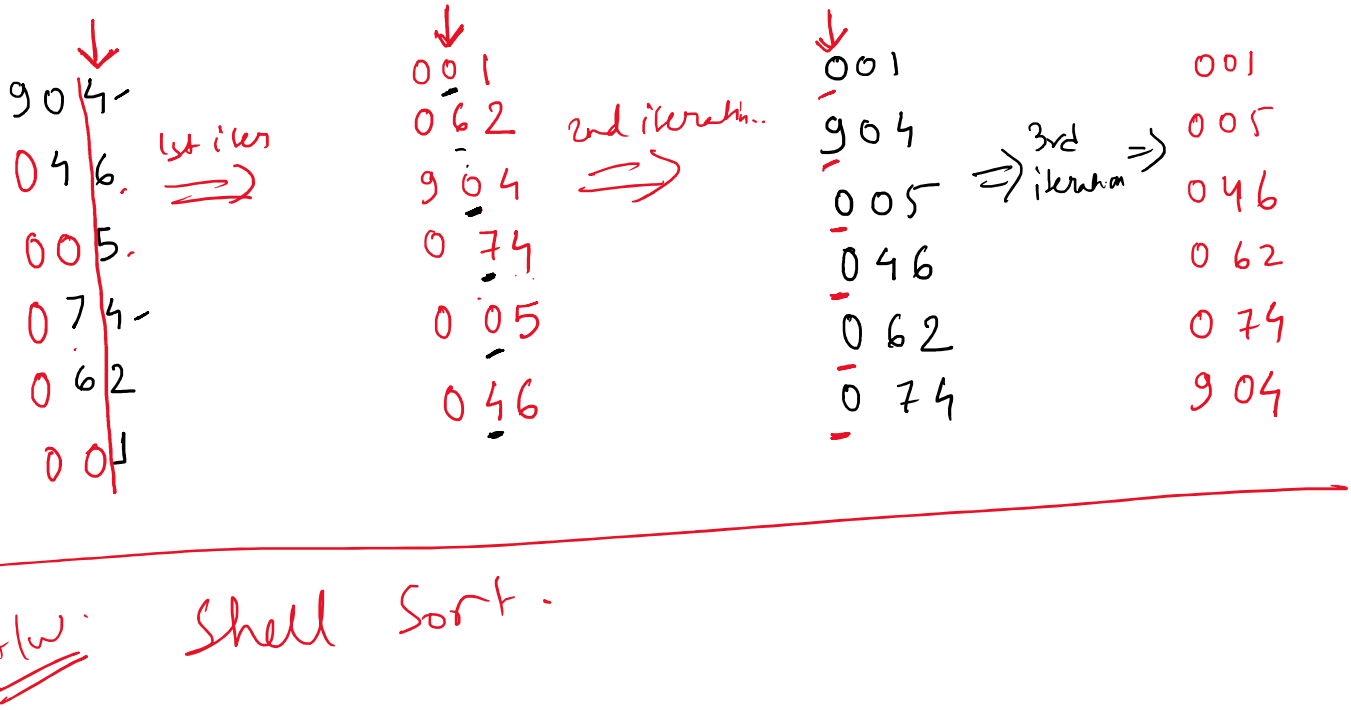
1

① Find max-element and no. of digits in it.

Max element = 904

No. of digits = 3.

↓ 001 ↓ 001 001



Hw: Shell Sort.