

SELECTION SORT

PRESENTER: MUHAMMAD UMER



IDEA:

- Find the smallest element in the array
- Exchange it with the element in the first position
- Find the second smallest element and exchange it with the element in the second position
- Continue until the array is sorted

EXAMPLE



- We break our array into two parts. First one is sorted array and second is unsorted array
- Initially sorted list/array is empty and unsorted list is our entire input array/list.

Input Array/List

8	4	6	9	2	3	1
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After 1st Pass

1	4	6	9	2	3	8
---	---	---	---	---	---	---

After 2nd Pass

1	2	6	9	4	3	8
---	---	---	---	---	---	---

After 3rd Pass

1	2	3	9	4	6	8
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After 4th Pass

1	2	3	4	9	6	8
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After 5th Pass

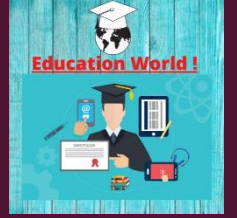
1	2	3	4	6	9	8
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After 6th Pass

1	2	3	4	6	8	9
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Note that for $N=7$ elements which is the length of array only $N-1 = 6$ passes are required

SELECTION SORT – PSEUDO CODE



Alg.: SELECTION-SORT(A)

$n = \text{length}[A]$

for $j = 1$ **to** $n - 1$

$\text{smallest} = j$

for $i = j + 1$ **to** n

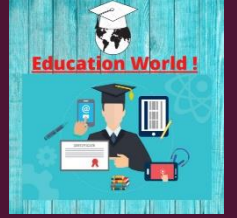
if $A[i] < A[\text{smallest}]$

$\text{smallest} = i$

 exchange $A[j] \leftrightarrow A[\text{smallest}]$

8	4	6	9	2	3	1
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YOUR TASK



- Implement selection sort for sorting the array/list of Strings in ascending order of the first alphabets of each string. [Hint : In Python “ > ” and “ < ” operators work equally for strings as they work for numbers].