

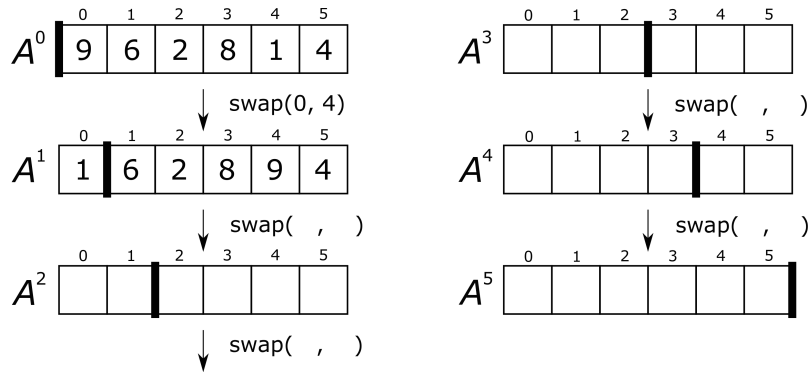
# Algorithms and Data Structures

## Algorithm Assignment: Lecture 2

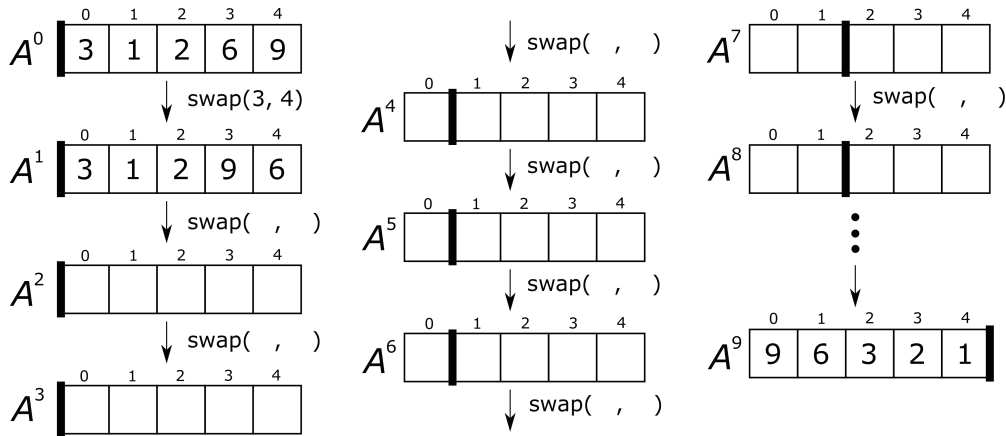
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1. Using the algorithm, Selection Sort, sort the following sequence:  $A = \{9, 6, 2, 8, 1, 4\}$  in ascending order. Let  $\text{swap}(a, b)$  be an operation to swap  $A_a$  and  $A_b$ .



2. Using the algorithm, Bubble Sort, sort the following sequence:  $A = \{3, 1, 2, 6, 9\}$  in descending order. You should illustrate how the algorithm works on the sequence. Let  $\text{swap}(a, b)$  be an operation to swap  $A_a$  and  $A_b$ .



3. Arrange the following classes of functions in ascending order of growth rate.

$$O(n), \quad O(1), \quad O(n!), \quad O(n^2), \quad O(n^{10}), \quad O(2^n), \quad O(n \log n), \quad O(\log n)$$

[illegible]