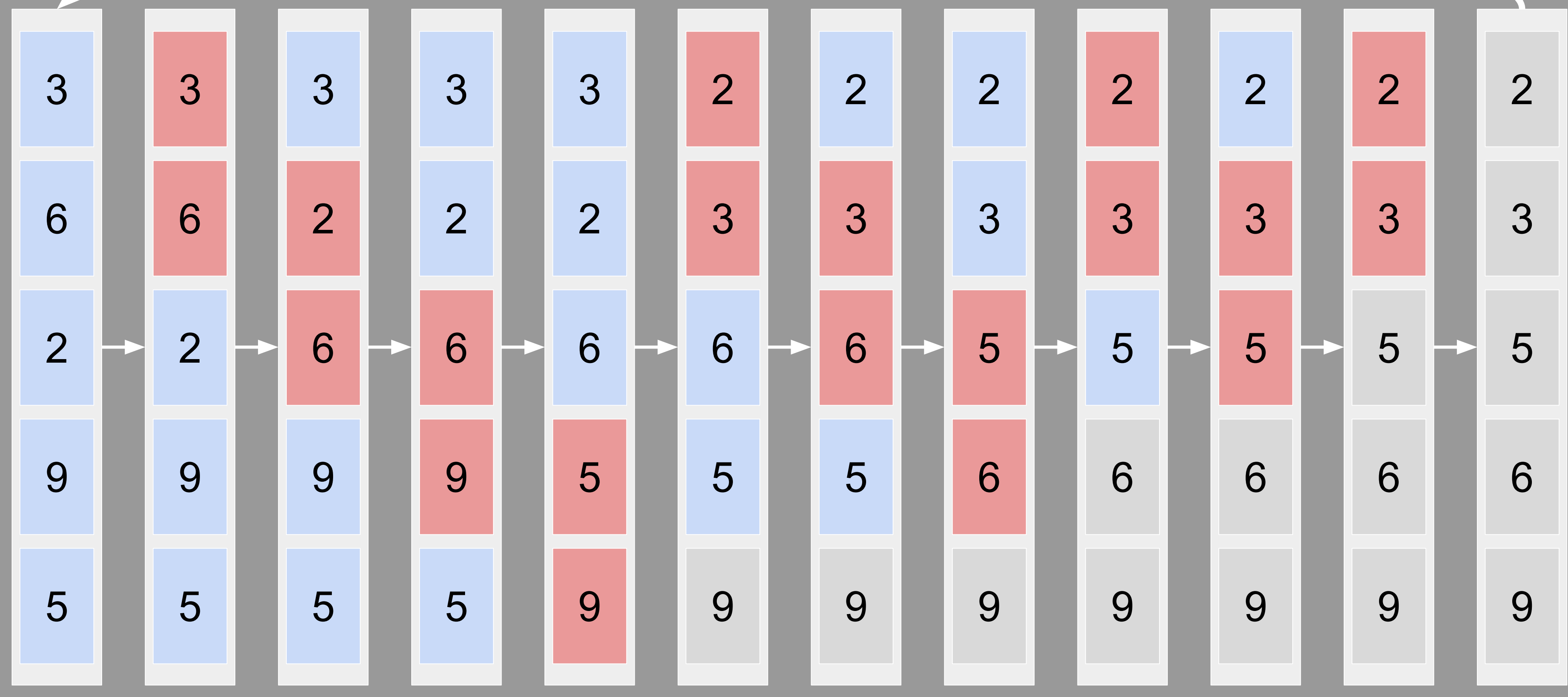


A list of 5 integers

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Bubble sort



$4 + 3 + 2 + 1 = 10$ steps for $n = 5$

$$(N - 1) + (N - 2) + \cdots + 1 = \sum_{i=1}^{N-1} i = \frac{N(N - 1)}{2} \text{ steps for } n = N$$

$$O\left(\frac{N(N - 1)}{2}\right) = O\left(\frac{N^2}{2} - \frac{N}{2}\right) = O(N^2)$$

$O(1)$