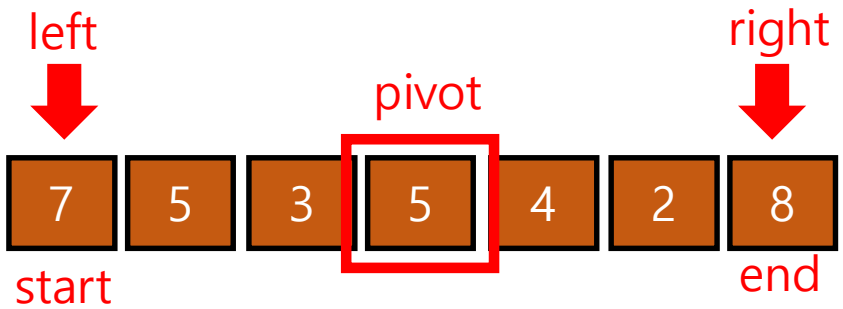
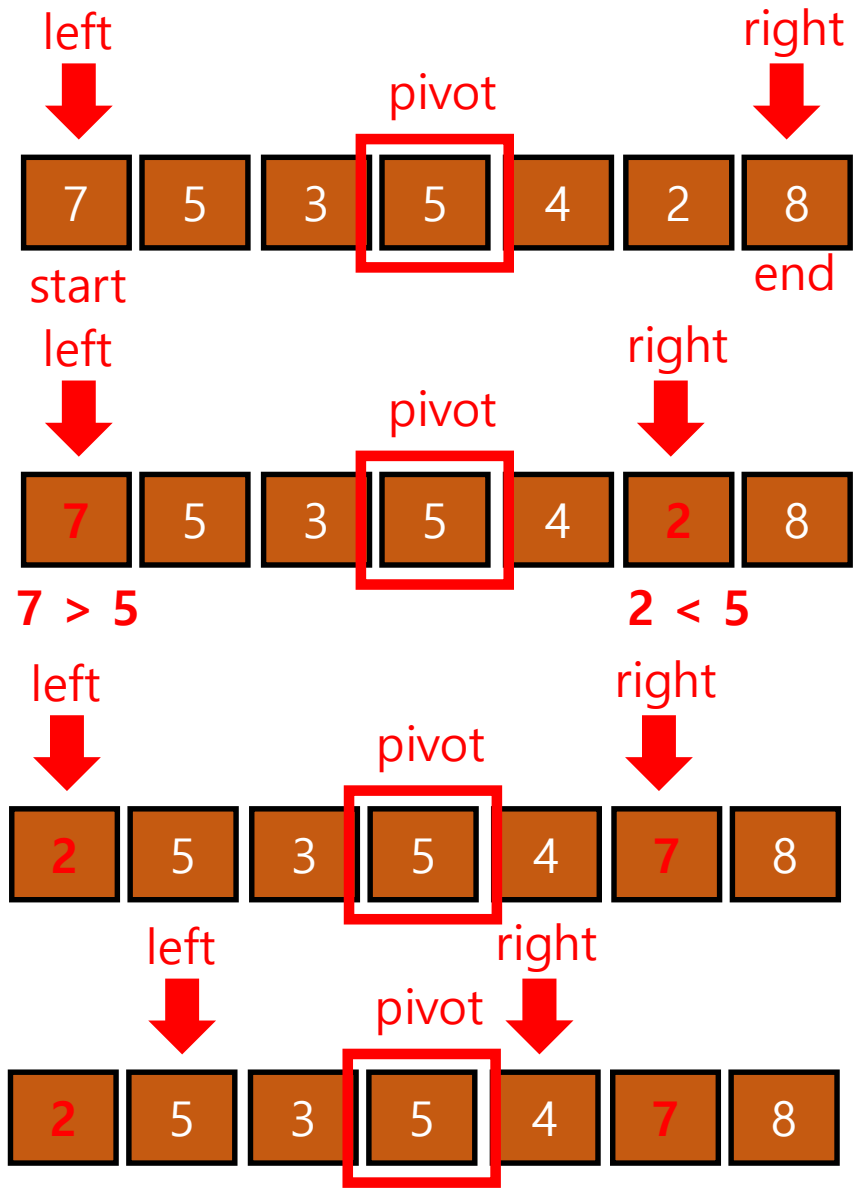
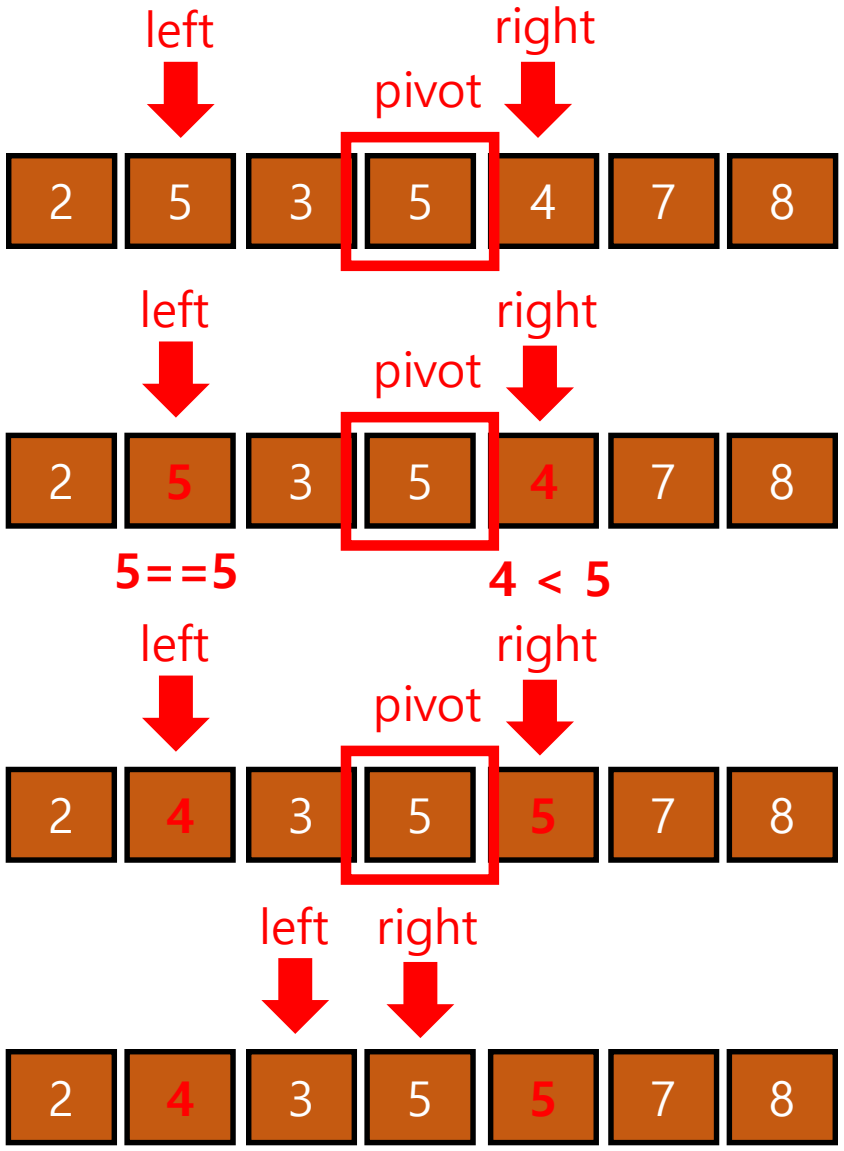
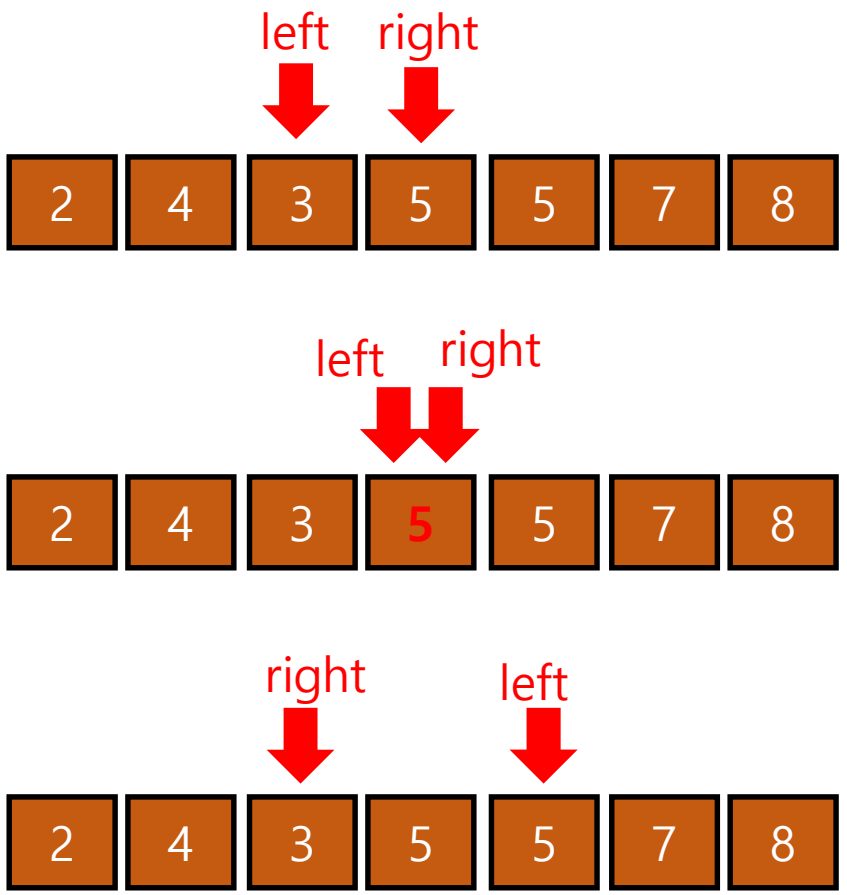
Data structure

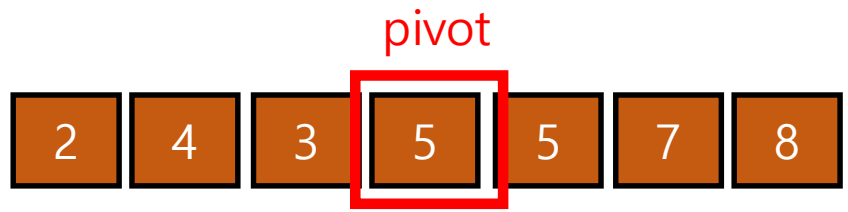
Quick sort

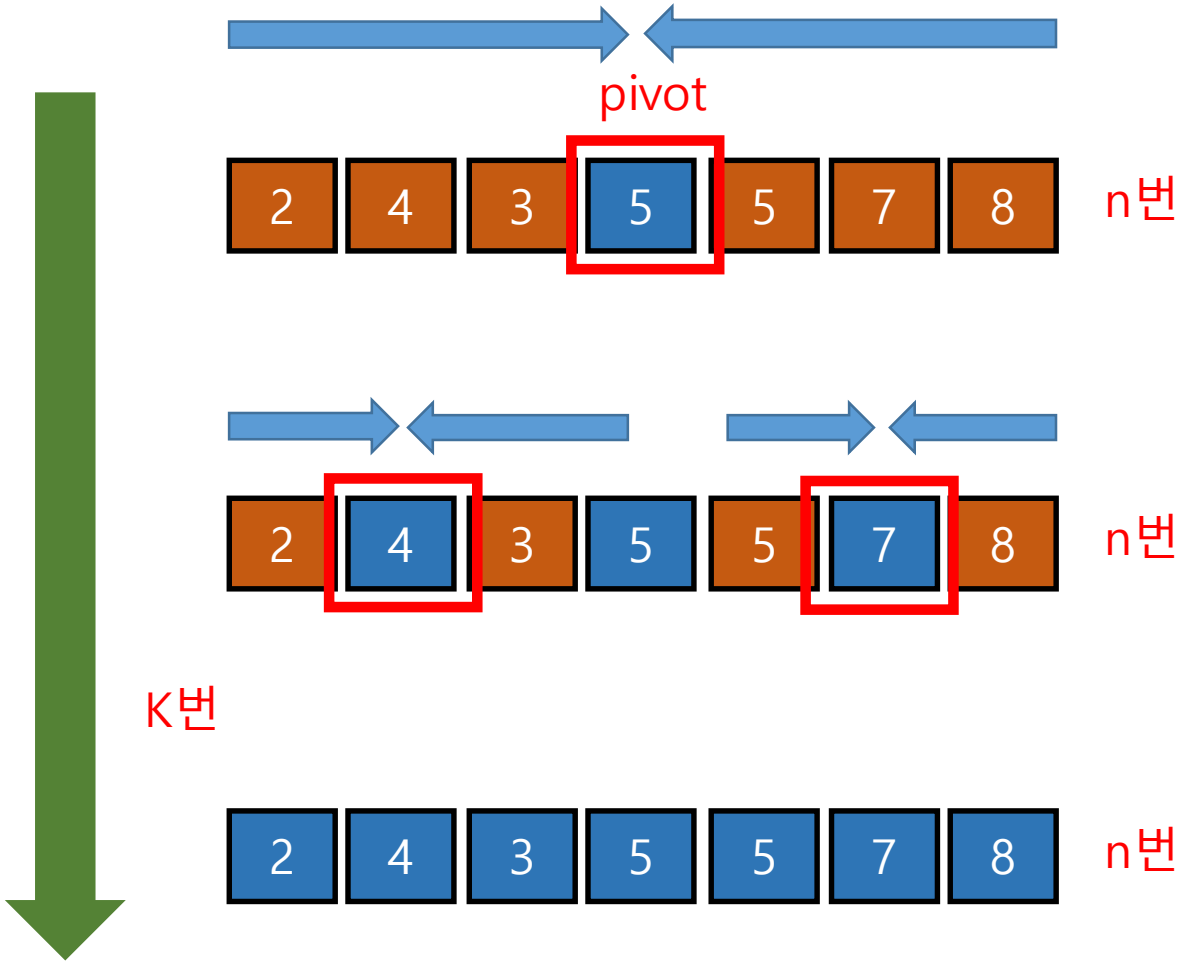

left
right
pivot
7
5
3
5
4
2
8
start
end


left
right
pivot
7
5
3
5
4
2
8
start
end
left
right
pivot
7
5
3
5
4
2
8
7 > 5
2 < 5
left
right
pivot
2
5
3
5
4
7
8
left
right
pivot
2
5
3
5
4
7
8


left
right
pivot
2 5 3 5 4 7 8
left
right
pivot
2 5 3 5 4 7 8
5==5
4 < 5
left
right
pivot
2 4 3 5 5 7 8
left
right
2 4 3 5 5 7 8


left
right
2 4 3 5 5 7 8
left
right
2 4 3 5 5 7 8
right
left
2 4 3 5 5 7 8


pivot
2
4
3
5
5
7
8



$$T(n) = n * k$$

$n * (\frac{1}{2})^k = 1$ $k = \log_2 n$

$T(n) = n * \log_2 n$

$O(n * log\, n)$