Review 6

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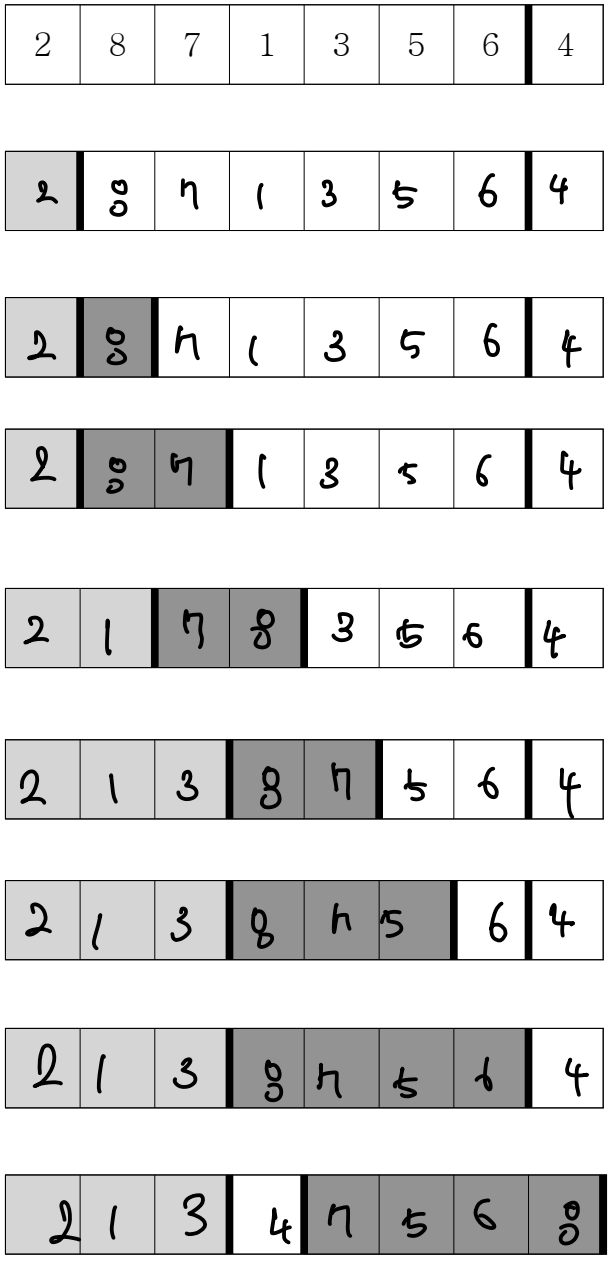
1. Illustrate the operation of PARTITION on the array A={2,8,7,1,3,5,6,4}.



2. Answer questions about the following function SELECT(A, p, r, i) where $r - p + 1 = n$.

```
SELECT(A, p, r, i)
    if p == r
        return A[p]
    q = PARTITION(A, p, r)
    k = q - p + 1
    if i == k
        return A[q]
    elseif i < k
        return SELECT(A, p, q - 1, i)
    else return SELECT(A, q + 1, r, i - k)
```

a. What does it do?

The above code performs the quick sort algorithm

b. What is the worst-case running time?

$O(n^2)$

c. What is the best-case running time?

$O(n \log n)$