Quick Sort

time Complexity: $n \log n$

```
4  5  ❌  3  2  1

4  5  |  1  2  3
↑              ↑
L              R

2  5  |  1  4  3
   ↑     ↑
   L     R

2  |  5  4  3
   ↑  ↑
   R  L

[2   1]  3  [4   5]

2  1
```

$\overset{=}{(1)}\ \overset{\cdot}{2} \Rightarrow$ 1   2   3 $\overline{[4\ \ 5]}$

↑↑

L R

$\Downarrow$

(4)   5

(5)   4

↑↑

L R

1 2 3 4 5 $\Longleftarrow$ 4   5