Quick Sort - Divide & conquer technique.
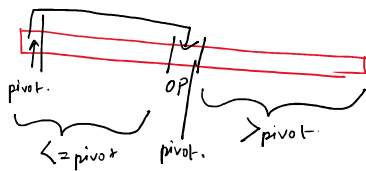
```
35    50    15    25    80    20    90    45
↑           ↑                    ↑    ↑
pivot      (P)                  (q)   ✗  ✗
```

```
pivot → 35
① P, q
② P → arr[P] <= pivot.
   q ← arr[q] > pivot.
```

⇓

```
35    20    15    25    80    50    90    45
    p→   p→   p→   (P)   ✗
```

```
(q)   ✗
```

③ Chk if p & q have crossed
each other.
↳ Swap (pivot, arr(q))

⊙ chk if p & q have not crossed
each other.
↳ swap (arr[P], arr[q]) .

Apply algo.

⇓

Apply algo

```
25    20    15    (35)    80   50   90   45.
|_____|             |_____|
   <=35.                       >35
         ↑
         OP
```

Left -

```
25    20    15           pivot = 25
      p→   (q)
         p→   (P)
```

p → arr[P] <= pivot.
q ← arr[q] > pivot.

⇓

```
15    20    (25)
|_____|    ↑
  <=        OP
```

⇓

```
( 20    15    (25) )
              ↑
              OP
```

```
80    50    90    45           pivot = 80
✗          (P)   (q)
```

arr(p) <= pivot.
arr(q) > pivot.

⇓

80   50   45   90 $\Rightarrow$ 45   50 $\boxed{80}$ 90.

$\not{p}$ $\not{q}$.

$\textcolor{red}{q}$ $\textcolor{red}{P}$

$\underbrace{\qquad}$ $\underbrace{\qquad}$

$<= 80$ $\uparrow$ > 80

OP