Sorting Tech

① Selection Sort:

ip: N = 6
arr[] = {13, 46, 24, 52, 20, 9}

op: 9, 13, 20, 24, 46, 52

* Logic: 'Select' element which is smaller/larger & swap with its ord index position

dry run:

0	1	2	3	4	5	
13	46	24	52	20	9	← first minimum
9	46	24	52	20	13	← 2nd min
9	13	24	52	20	46	← 3rd min
9	13	20	52	24	46	← 4th min
9	13	20	24	52	46	← 5th min
9	13	20	24	46	52	

Every time keeps left position sorted (selected min)

'n' elements
(n-1) iterations

Points:
① for 'i' 0 to 'n-2'
② assume/consider 'i' is min
③ for 'j' (i+1) to 'n-1'
if a[j] < a[min]
min = j
④ swap(a[i], a[min])

Algo:

```
for(int i=0; i<=n-2; i++) {
    int min=i;
    for(int j=i+1; j<=n-1; j++) {
        if(a[j] < a[min]) {
            min=j;
        }
    int temp = a[min];
    a[min] = a[i];
    a[i] = temp;
    }
for(int i=0; i<n; i++) {
System.out.print(arr[i]+" ");
}
}
```

TC: $O((n-1)*(n-2)) \geq O(n^2)$ ← Best, worst, avg.

SC: $O(1)$ ← No extra space ✓