Selection Sort

→ when size of array is small we use this

what? → different round / passes

↓

Smallest element leke, usko right jagah par place kardete hai

n = 5

	0	1	2	3	4
arr[] =	64	25	12	22	11
	i				

Round 1 ⇒

64 25 12 22 11

i = 0

swap

11 min of all array

Round 2 ⇒

11 25 12 22 64

i = 1

swap

12 min

Round 3 ⇒

11 12 25 22 64

i = 2

22 min

11 12 22 25 64

already right place

Round = 4 ⇒

i = 3

11 12 22 25 64

Total round = n − 1

we didn't find minimum for last index

for

i = 0 : i < (n-1)

↳ :

↳ min_find loop

```
for (int i=0; i<n-1; i++)
{
    int minIndex = i;
    // index of min ele in range i → n
    for (j=i+1; j<n; j++)
    {
        if (arr[j] < arr[minIndex])
        { // new min then store
            minIndex = j; } }
    Swap (arr[minIndex], arr[i]);
}
```

Space complexity :- Constant (when we assign only variable)

Time complexity :- $O(n^2)$

Comparison = $1+2+3+\dots+(n-2)+(n-1)$

$\Rightarrow \frac{n(n-1)}{2} \Rightarrow \frac{n^2-n}{2}$