Selection Sort Algorithm

Selection sort is a sorting algorithm **that selects the smallest element from an unsorted list in each iteration** and **places that element at the beginning of the unsorted list.**

Working of Selection Sort

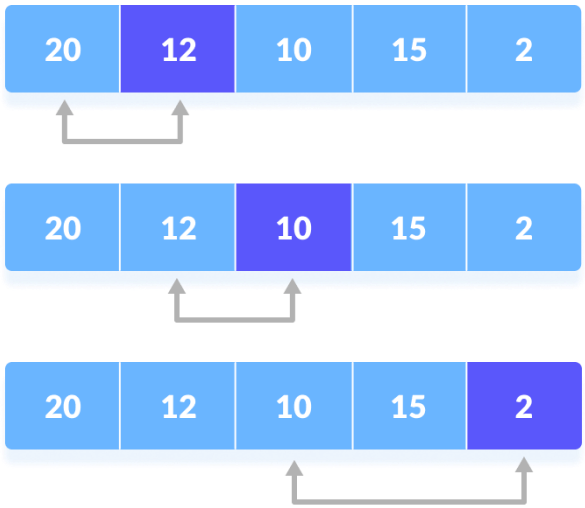
1. **Set the first element as minimum.**

Select first element as minimum

2. **Compare minimum with the second element**. If the **second element is smaller than minimum**, assign the **second element as minimum.**

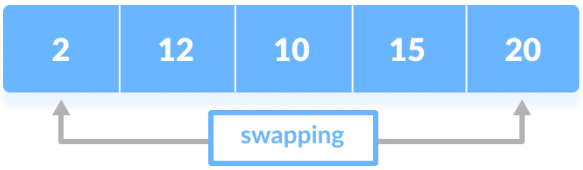
   Compare **minimum with the third element**. Again, **if the third element is smaller, then assign minimum to the third element** otherwise do nothing.

The process goes on until the last element.



Compare minimum with the remaining elements

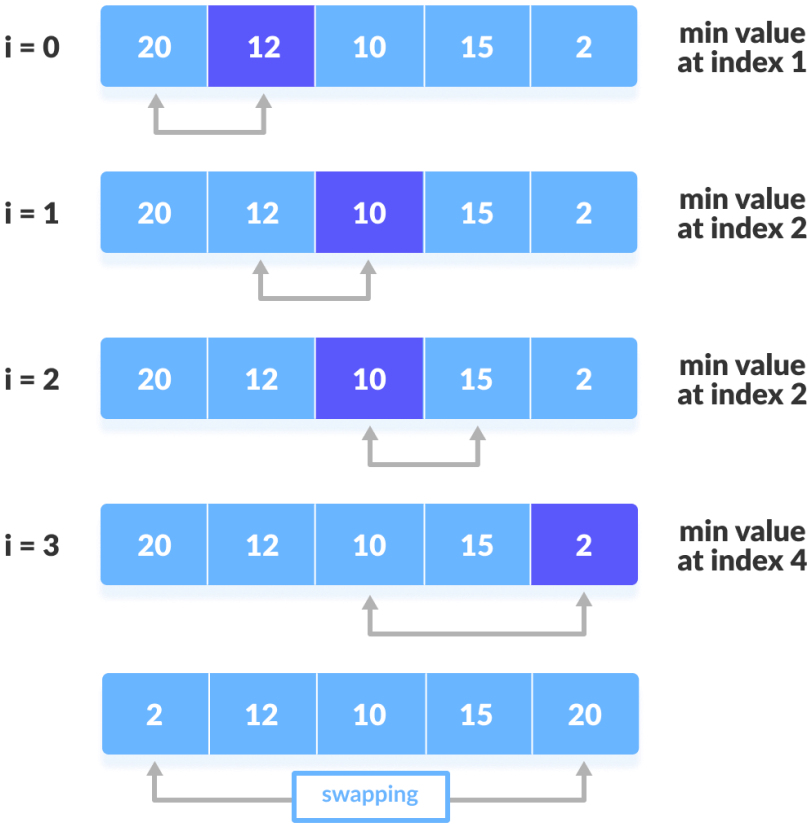
3. **After each iteration, minimum is placed in the front of the unsorted list**



Swap the first with minimum

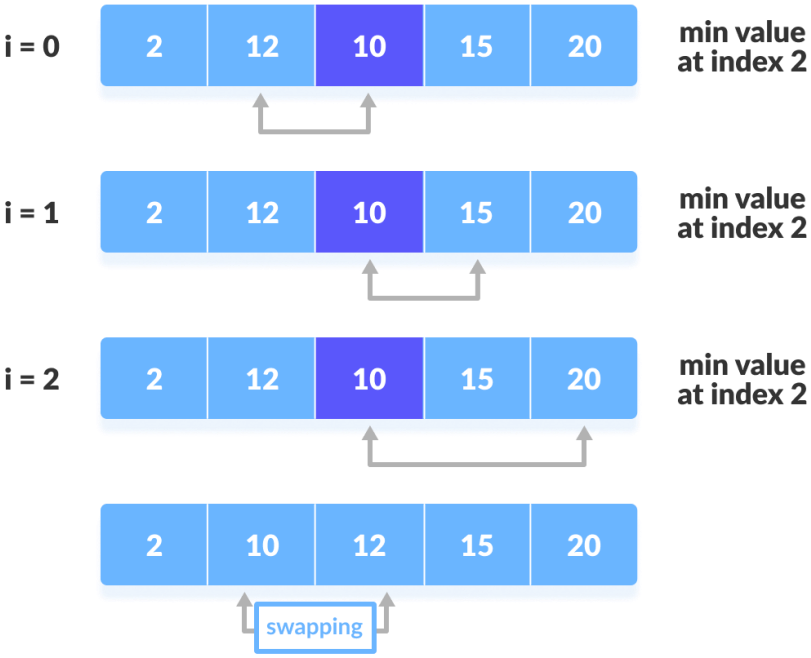
4. **For each iteration, indexing starts from the first unsorted element.** Step 1 to 3 are repeated until all the elements are placed at their correct positions.

step = 0


i = 0
20
12
10
15
2
min value at index 1
i = 1
20
12
10
15
2
min value at index 2
i = 2
20
12
10
15
2
min value at index 2
i = 3
20
12
10
15
2
min value at index 4
2
12
10
15
20
swapping

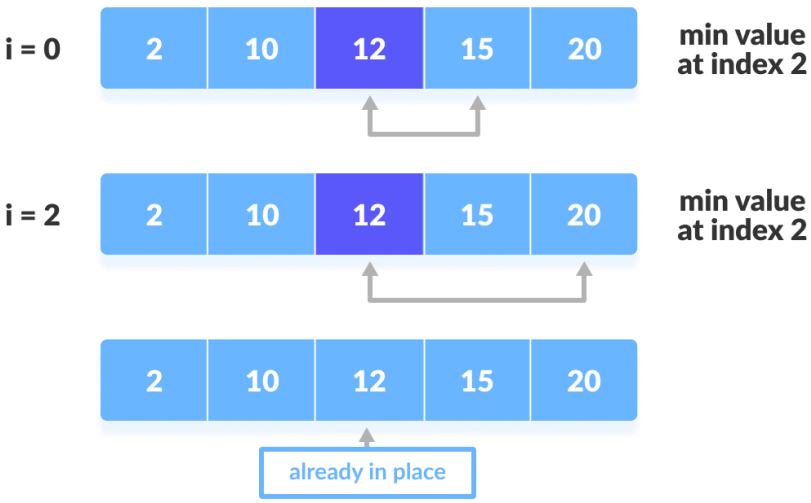
The first iteration

step = 1

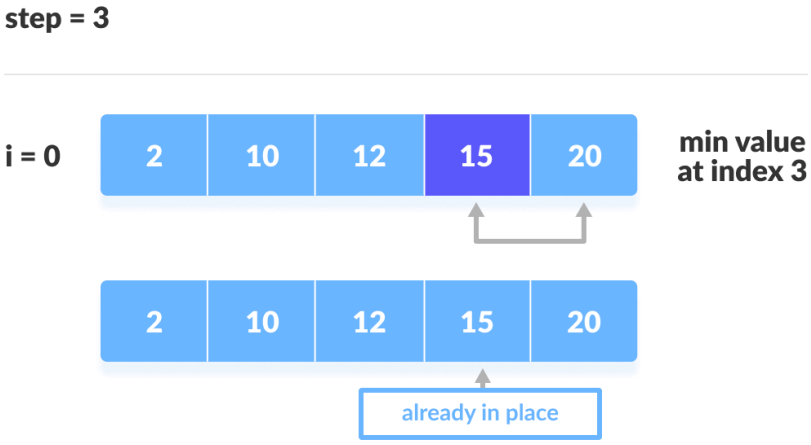


The second iteration

step = 2



The third iteration



The fourth iteration

Selection Sort Algorithm

```
selectionSort(array, size)
  repeat (size - 1) times
  set the first unsorted element as the minimum
  for each of the unsorted elements
    if element < currentMinimum
      set element as new minimum
  swap minimum with first unsorted position
end selectionSort
```