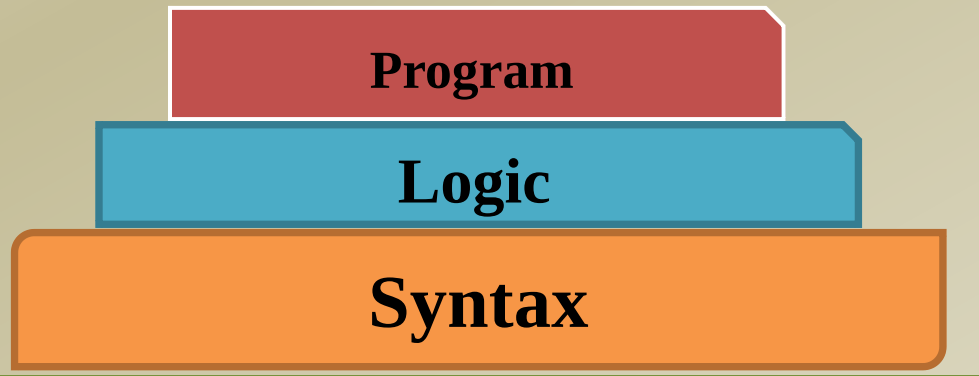
Code at Random (OPC) PVT. LTD.

Selection Sort in JAVA

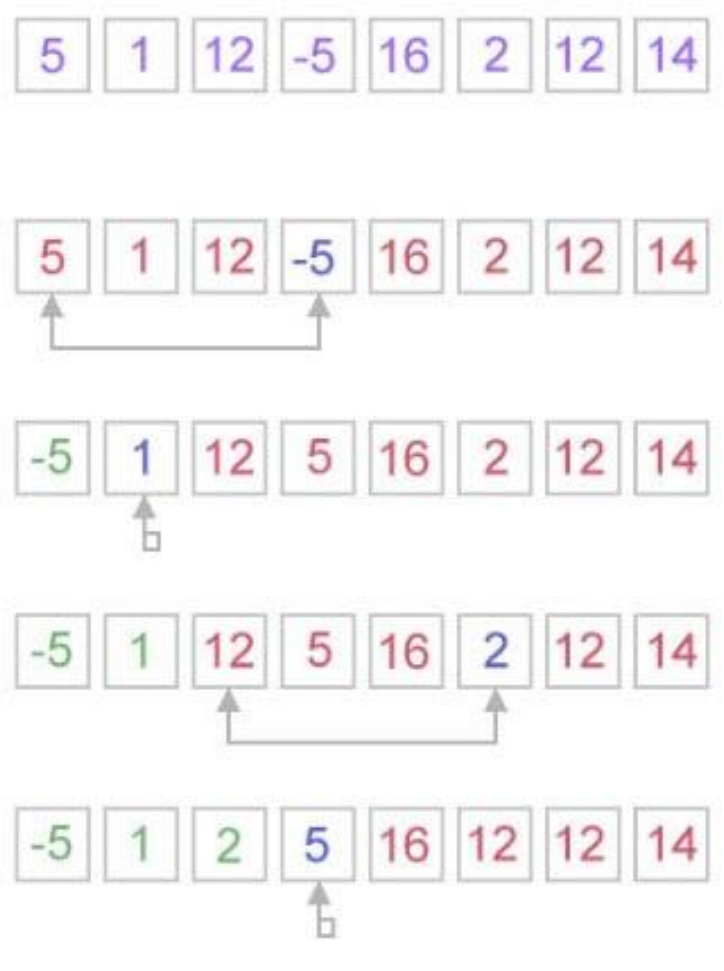


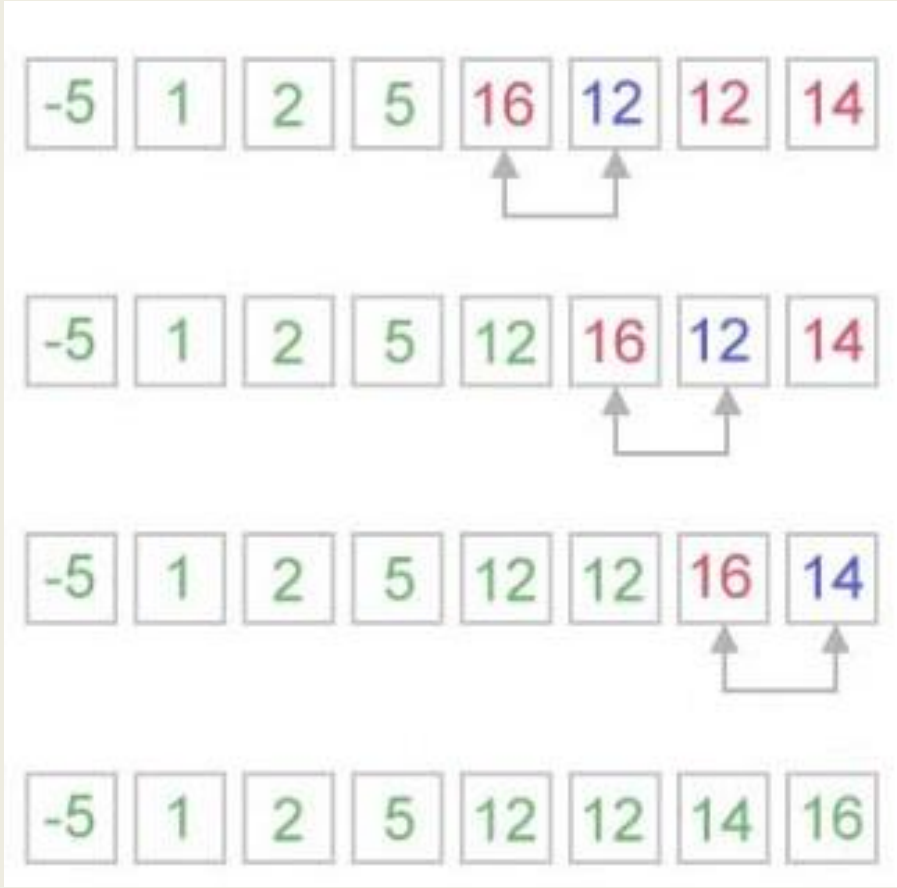
Working of Selection Sort

1. arr[ ] = {65, 25, 12, 22, 11} // Find the minimum element in arr[0...4] and place it at beginning
2. {11, 25, 12, 22, 65} // Find the minimum element in arr[1...4] and place it at beginning of arr[1..4]
3. {11, 12, 25 , 22, 65}// Find the minimum element in arr[2...4] and place it at beginning of arr[2…4]
4. {11, 12, 22, 25, 65}// Find the minimum element in arr[3...4] and place it at beginning of arr[3…4]

Final Sorted Array is - {11, 12, 22, 25, 65}

How Selection Sort Works



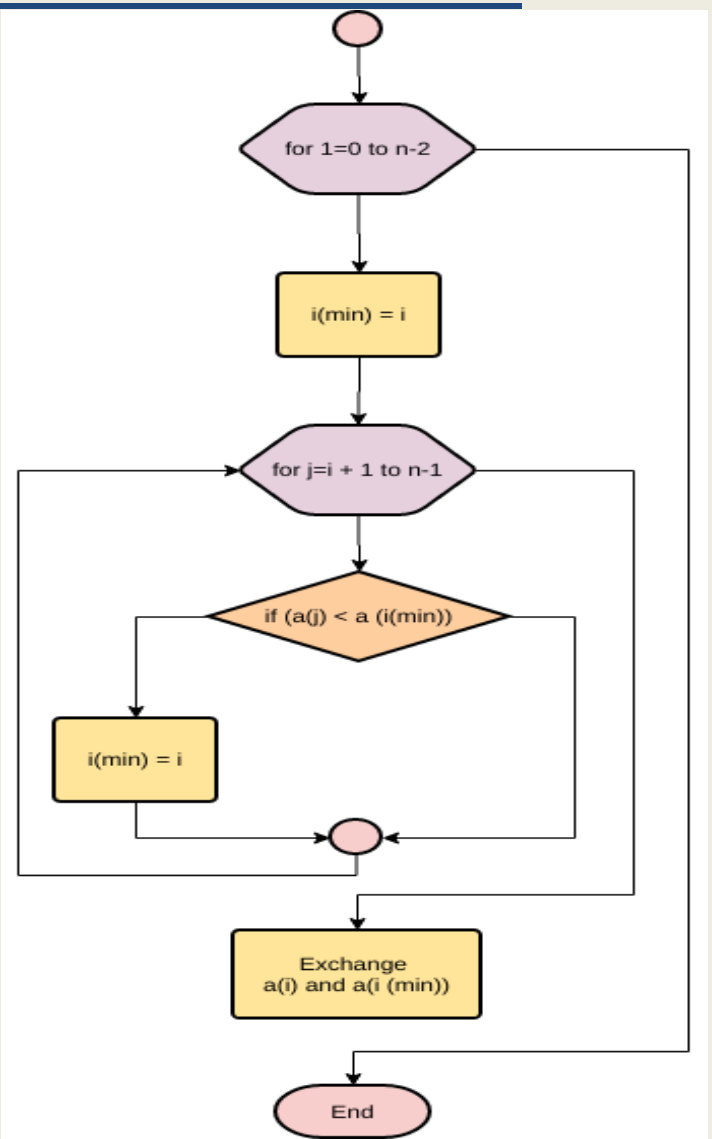


Steps to perform in Selection Sort

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

Algorithm of Selection Sort

```
function 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
```



WAP to input n numbers in an array. Perform the **Exchange Selection Sort** and sort the array in ascending order.

```
import java.util.*;
class exchange_selection{
    public static void main(String Args[]) {
        int L ,i , min , flag=0;
       Scanner sc = new Scanner(System.in);
       System.out.println("Enter the size of the array");
       L= sc.nextInt();
       int A[] = new int[L];
       System.out.println("Enter the elements of the array");
       for(i =0; i < L ; i++) {
        A[i] = sc.nextInt( );
      }
      for (int i=0 ;i<L-1; i++) {
             int min = i;
          for (int j=i+1; j<L; j++) {
                if (A[j] < A[min])
                   min = j;
            }
int temp = A[i];
            A[i] = A[min];
            A[min] = temp;
       }
      for(i=0;i<L; i++){
          System.out.print(A[i]+ " ");
      }
     }
}
```