

LEARN DATA STRUCTURE

organizing data

Data Structures & Algorithms

DSA - Home

DSA - Overview

DSA - Environment Setup

Algorithm

DSA - Algorithms Basics

DSA - Asymptotic Analysis

DSA - Greedy Algorithms

DSA - Divide and Conquer

DSA - Dynamic Programming

Data Structures

DSA - Data Structure Basics

DSA - Array Data Structure

Linked Lists

DSA - Linked List Basics

DSA - Doubly Linked List

DSA - Circular Linked List

Stack & Queue

DSA - Stack

DSA - Expression Parsing

DSA - Queue

Searching Techniques

DSA - Linear Search

DSA - Binary Search

DSA - Interpolation Search

DSA - Hash Table

Sorting Techniques

DSA - Sorting Algorithms

DSA - Bubble Sort

DSA - Insertion Sort

DSA - Selection Sort

DSA - Merge Sort

DSA - Shell Sort

DSA - Quick Sort

Graph Data Structure

DSA - Graph Data Structure

DSA - Depth First Traversal

DSA - Breadth First Traversal

Tree Data Structure

DSA - Tree Data Structure

DSA - Tree Traversal

DSA - Binary Search Tree

DSA - AVL Tree

DSA - Spanning Tree

DSA - Heap

Recursion

DSA - Recursion Basics

DSA - Tower of Hanoi

DSA - Fibonacci Series

DSA Useful Resources

DSA - Questions and Answers

DSA - Quick Guide

DSA - Useful Resources

DSA - Discussion

Selected Reading

UPSC IAS Exams Notes

Developer's Best Practices

Questions and Answers

Effective Resume Writing

HR Interview Questions

Computer Glossary

Who is Who

Data Structure and Algorithms Selection Sort

Advertisements

阿里云 高性能云服务器2折起

Previous Page

Next Page

Selection sort is a simple sorting algorithm. This sorting algorithm is an in-place comparison-based algorithm in which the list is divided into two parts, the sorted part at the left end and the unsorted part at the right end. Initially, the sorted part is empty and the unsorted part is the entire list.

The smallest element is selected from the unsorted array and swapped with the leftmost element, and that element becomes a part of the sorted array. This process continues moving unsorted array boundary by one element to the right.

This algorithm is not suitable for large data sets as its average and worst case complexities are of $O(n^2)$, where **n** is the number of items.

How Selection Sort Works?

Consider the following depicted array as an example.

14

33

27

10

35

19

42

44

For the first position in the sorted list, the whole list is scanned sequentially. The first position where 14 is stored presently, we search the whole list and find that 10 is the lowest value.

14

33

27

10

35

19

42

44

So we replace 14 with 10. After one iteration 10, which happens to be the minimum value in the list, appears in the first position of the sorted list.

10

33

27

14

35

19

42

44

For the second position, where 33 is residing, we start scanning the rest of the list in a linear manner.

10

33

27

14

35

19

42

44

We find that 14 is the second lowest value in the list and it should appear at the second place. We swap these values.

10

33

27

14

35

19

42

44

After two iterations, two least values are positioned at the beginning in a sorted manner.

10

14

27

33

35

19

42

44

The same process is applied to the rest of the items in the array. Following is a pictorial depiction of the entire sorting process –

10

14

27

33

35

19

42

44

10

14

27

33

35

19

42

44

10

14

19

33

35

27

42

44

10

14

19

33

35

27

42

44

10

14

19

27

35

33

42

44

10

14

19

27

35

33

42

44

10

14

19

27

35

33

42

44

10

14

19

27

33

35

42

44

10

14

19

27

33

35

42

44

10

14

19

27

33

35

42

44

10

14

19

27

33

35

42

44

Now, let us learn some programming aspects of selection sort.

Algorithm

Step 1 – Set MIN to location 0

Step 2 – Search the minimum element in the list

Step 3 – Swap with value at location MIN

Step 4 – Increment MIN to point to next element

Step 5 – Repeat until list is sorted

Pseudocode

```
procedure selection sort
  list : array of items
  n    : size of list

  for i = 1 to n – 1
    /* set current element as minimum*/
    min = i

    /* check the element to be minimum */

    for j = i+1 to n
      if list[j] < list[min] then
        min = j;
      end if
    end for

    /* swap the minimum element with the current element*/
    if indexMin != i then
      swap list[min] and list[i]
    end if

  end for
end procedure
```

To know about selection sort implementation in C programming language, please click here [↗](#).


Previous Page

Print

Next Page

Advertisements


阿里云 开年采购"惠" 5折起 新用户还享满返，¥5000封顶 立即抢购



Tutorials Point (India) Pvt. Ltd.

YouTube


65K



Pressure

Calibration and Testing


Find the right tool today



Pressure

Calibration and Testing

Find the right tool today



Write for us | FAQ's | Helping | Contact

© Copyright 2018. All Rights Reserved.

Enter email for newsletter

go