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Linear Search

Searching

Searching

- Searching is the process of finding the location of the specified element in a list.

- Searching in data structure refers to the process of finding the required information from a collection of items stored as elements in the computer memory. These sets of items are in different forms, such as an array, linked list, graph, or tree.

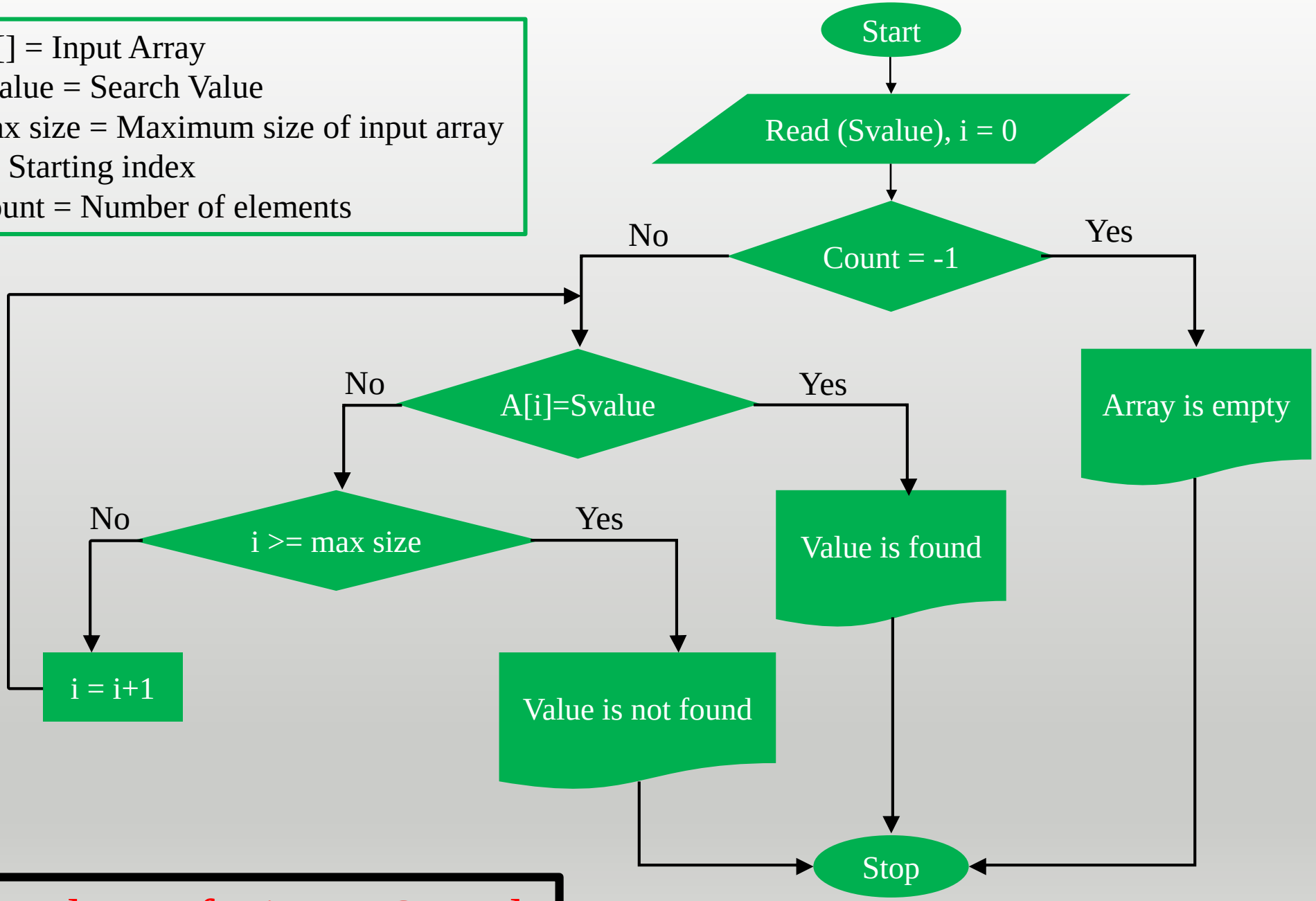
Searching

- Types of searching:
  - Array search
    - Linear search/Sequential search
    - Binary search/Interval search
  - Tree or graph search
    - BFS (Breadth First Search)
    - DFS (Depth First Search)

Linear Searching

- A linear search or sequential search is a method for finding an element within a list. It sequentially checks each element of the list until a match is found or the whole list has been searched.

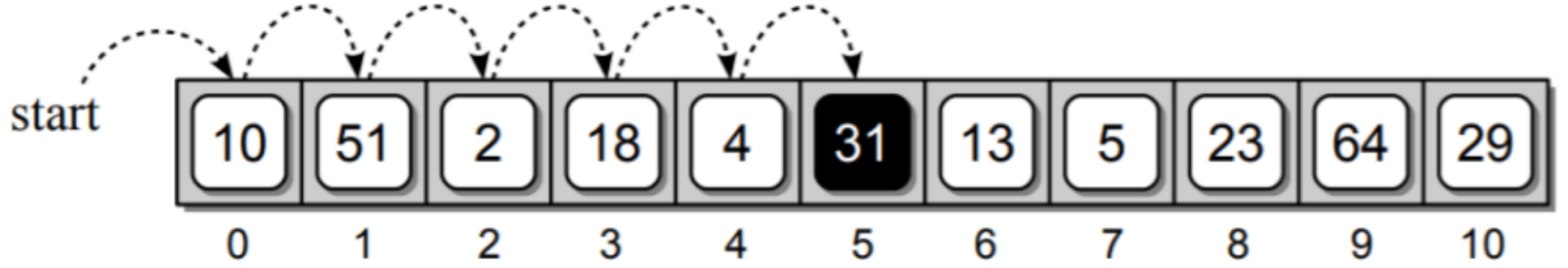
A [] = Input Array
Svalue = Search Value
max size = Maximum size of input array
i = Starting index
Count = Number of elements



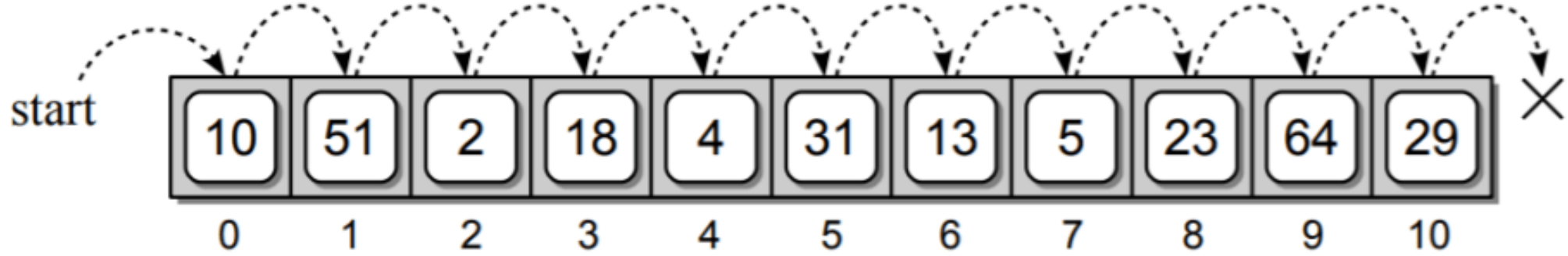
Flowchart of Linear Search

Linear Searching

(a) Searching for 31



(b) Searching for 8



Linear Searching Complexity

- Worst-case complexity: O(n) – This case occurs when the search element is not present in the array.
- Best case complexity: O(1) – This case occurs when the first element is the element to be searched.
- Average complexity: O(n) – This means when an element is present somewhere in the middle of the array.

Thank You

Any Question ?