

### Algorithm Running Time Complexity

- An array (also known as lists in Python) is a collection of numbers stored sequentially in memory.

For example  $A = [5, 3, 1, 7]$  is an array of 4 numbers.

- A sorted array is a collection of numbers stored such that each is bigger than or equal to its previous.

For example  $A = [1, 3, 5, 7]$  is a sorted array.

- A linked list is a collection to numbers, stored along with the memory address of the next number.

Example:

Answer the following questions:

What is the worst case ( $O(\cdot)$ ) running time for :

1. Appending an array.
2. Appending a sorted array (note that we must ensure array is sorted).
3. Appending a linked list.

4. Deleting an item from an array.
5. Deleting an item from a sorted array.
6. Deleting an item from a linked list.
7. Searching an item in an array.
8. Searching an item in a sorted array.
9. Searching in a linked list.