

Day 29

Sorting algorithm

* A sorting algorithm is used to rearrange a given array or list element according to comparison operator on the elements. The comparison operator is used to decide the new order of element in the respective data structures.

* for example,
A list of character is sorted : in increasing order of their ASCII values. This is the character with lesser ASCII value will be placed first than the character with higher ASCII value.

Input

Output

a n n a m a l a i ==> a a a a i l m n n

Bubble Sort

Bubble sort is simplest sorting algorithm that works by repeatedly swapping the adjacent elements if they are in wrong order

Example: arr = [5 1 4 2 8]

First pass:

1 5 4 2 8

1 4 5 2 8

1 4 2 5 8

Second pass:

1 2 4 5 8

Implementation:

```
def bubble-sort(arr):
```

```
    n = len(arr)
```

```
    for i in range(n):
```

```
        for j in range(0, n-i-1):
```

```
            if arr[j], arr > arr[j+1]:
```

```
                arr[j], arr[j+1] = arr[j+1], arr[j]
```

arr = [64, 34, 25, 12, 22, 11, 90]

bubblesort(arr)

print("Sorted array is : ", arr)

Output :

Sorted array = [11, 12, 22, 25, 34, 64, 90]

* Worst case occurs when array is

reverse sorted.

* Best case occurs when array is
already sorted