



Bubble Sort - $O(n^2)$

```
def bubble_sort(arr):
    n = len(arr)
    for i in range(n):
        for j in range(n-i-1):
            if arr[j] > arr[j+1]:
                arr[j], arr[j+1] = \
                    arr[j+1], arr[j]
```



Quick Sort - $O(n \log n)$

```
def quick_sort(arr):
    if len(arr) <= 1:
        return arr
    pivot = arr[0]
    left = [x for x in arr[1:]
            if x < pivot]
    right = [x for x in arr[1:]
             if x >= pivot]
    return quick_sort(left) + \
           [pivot] + quick_sort(right)
```

Figura 1: Comparación de algoritmos de ordenación