

8) MergeSort

```
def mergesort(lista):
```

```
    print(lista)
```

```
    if len(lista) > 1:
```

```
        medio = len(lista) // 2
```

```
        izq = lista[:medio]
```

```
        der = lista[medio:]
```

```
        mergesort(izq)
```

```
        mergesort(der)
```

```
        i = 0; j = 0
```

```
        k = 0
```

```
        while i < len(izq) and j < len(der):
```

```
            if izq[i] < der[j]:
```

```
                lista[k] = izq[i]
```

```
                i += 1
```

```
            else:
```

```
                lista[k] = der[j]
```

```
                j += 1
```

```
            k += 1
```

```
        while j < len(der):
```

```
            lista[k] = der[j]
```

```
            j += 1
```

```
            k += 1
```

```
        while i < len(izq):
```

```
            lista[k] = izq[i]
```

```
            i += 1
```

```
            k += 1
```

```
    return lista
```

Valores cada llamada

Numero	Medio	Primera	Segunda
1	4	[100, 21, 95, 13]	[23, 45, 450, 18, 35]
2	2	[100, 22]	[95, 13]
3	1	[100]	[22]
4	1	[95]	[13]
5	2	[23, 45]	[450, 18, 35]
6	1	[23]	[45]
7	1	[450]	[18, 35]
8	1	[18]	[35]

Primer write

i	lista	N llamada
0	[100, 21]	1
0	[95, 13]	2
0	[100, 22, 95, 13]	3
0	[1, 22, 95, 13]	3
1	[1, 22, 95, 13]	3
0	[23, 45]	4
0	[18, 35]	5
0	[450, 18, 35]	6
0	[18, 18, 35]	6
0	[23, 45, 450, 18, 35]	7
0	[18, 45, 450, 18, 35]	7
1	[18, 23, 450, 18, 35]	7
1	[18, 23, 35, 18, 35]	7
0	[100, 22, 95, 1, 23, 45, 450, 18, 35]	8
1	[1, 22, 95, 1, 23, 45, 450, 18, 35]	8
1	[1, 18, 95, 1, 23, 450, 18, 35]	8

2	[1, 18, 22, 1, 23, 45, 450, 18, 35]	2
2	[1, 18, 22, 23, 45, 450, 18, 35]	2
2	[1, 18, 22, 23, 35, 45, 450, 18, 35]	2
2	[1, 18, 22, 23, 35, 45, 450, 18, 35]	2
3	[1, 18, 22, 23, 35, 45, 95, 18, 35]	2

Segundo while

i	Lista	N	llamadas
0	[22, 22]		1
0	[1, 1]		2
1	[1, 22, 95, 1]		3
0	[18, 35, 35]		4

Tercer while

i	Lista	N	llamadas
1	[23, 45]		1
1	[18, 35]		2
2	[18, 23, 35, 45, 35]		3
4	[1, 18, 22, 23, 35, 45, 95, 100, 35]		4

Lista final = [1, 18, 22, 23, 35, 45, 95, 100, 450]