

Simulação – Exemplo – Ordenação Bubble Sort

```
def bubbleSort (lista):
```

```
tam = len(lista)
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```
for i in range(tam-1,0,-1):
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```
for j in range(i):
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if lista[j] > lista[j+1]:
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```
temp = lista[j]
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lista[j] = lista[j+1]
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lista[j+1] = temp
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54	26	93	17	77
0	1	2	3	4

[illegible]

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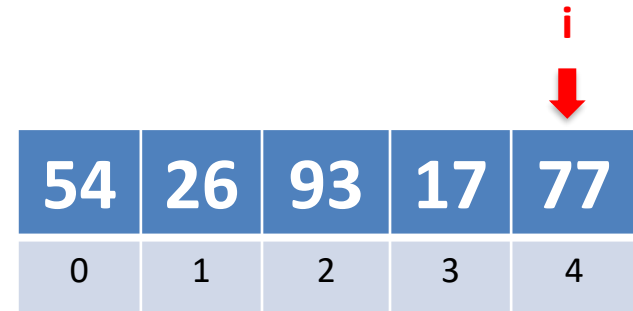
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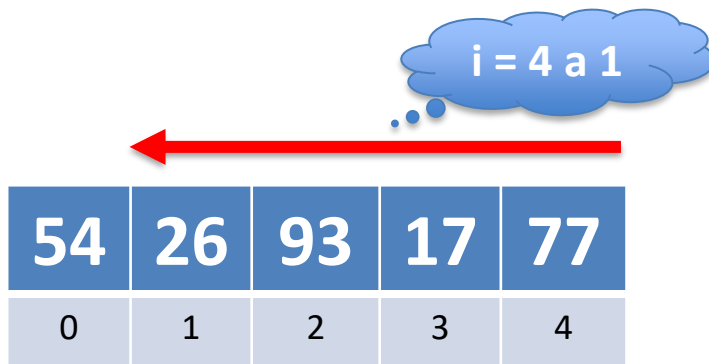
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54	26	93	17	77
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tam	i	j	temp
5	4		



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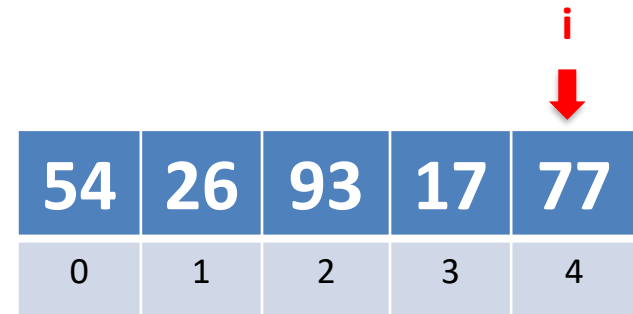
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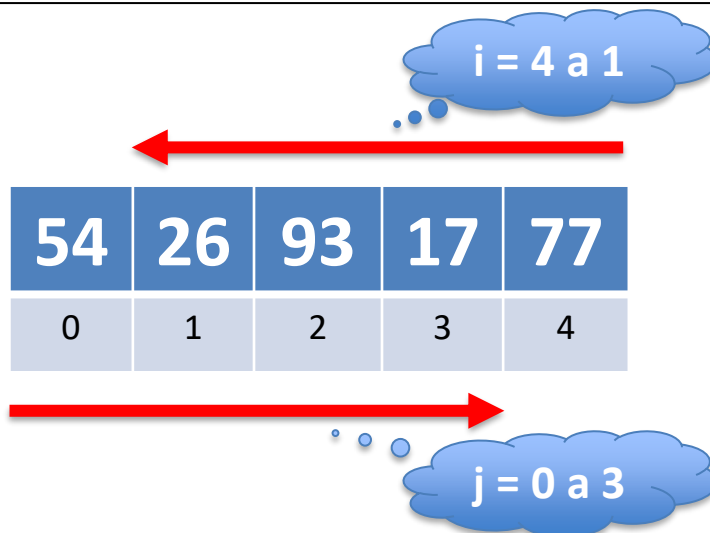
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54 > 26

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[illegible]

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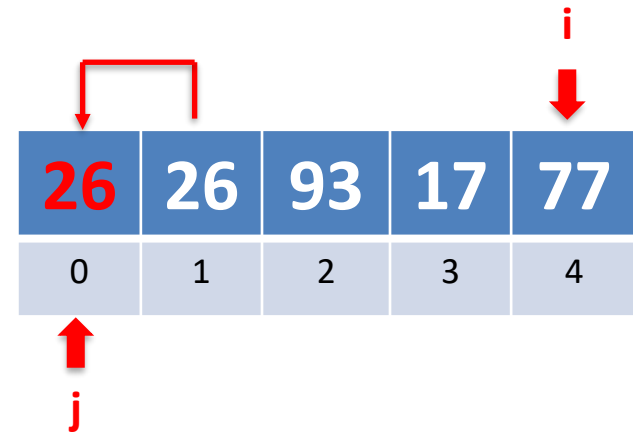
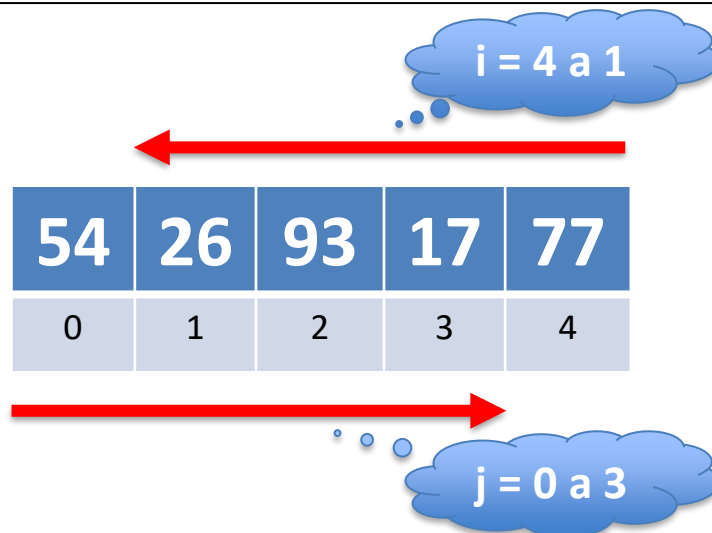
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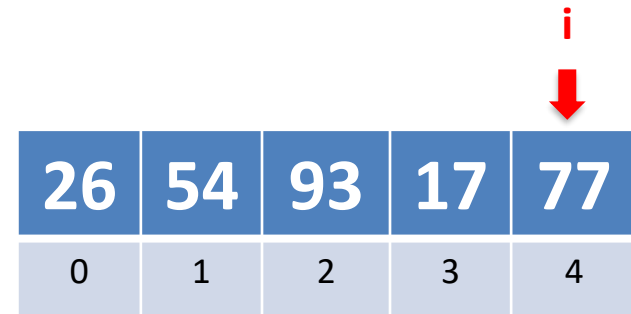
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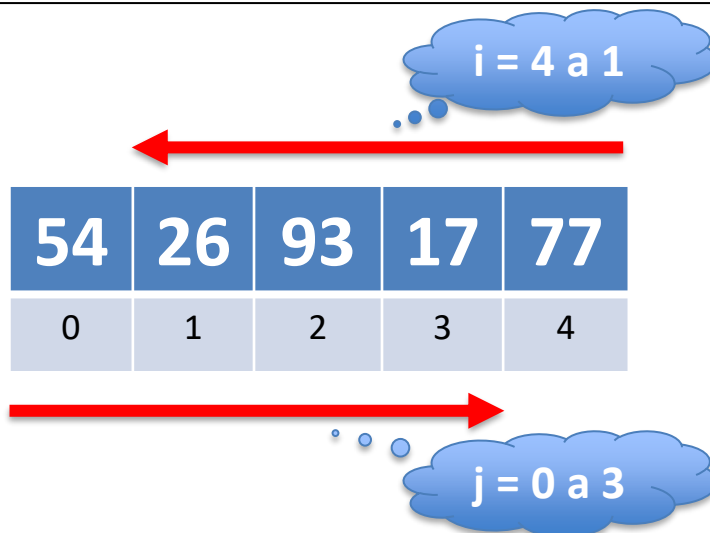
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26	54	93	17	77
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tam	i	j	temp
5	4	0	54
5	4	1	



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tam	i	j	temp
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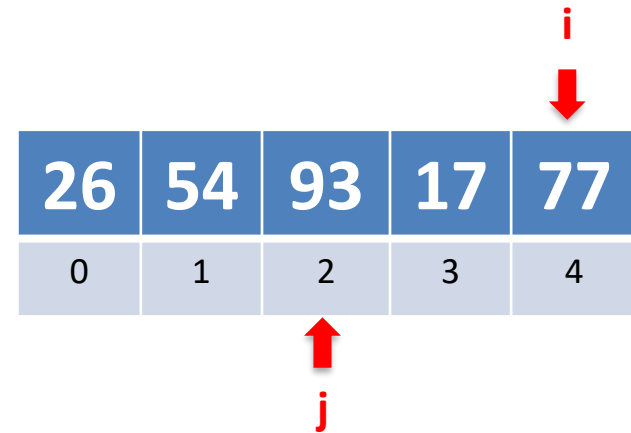
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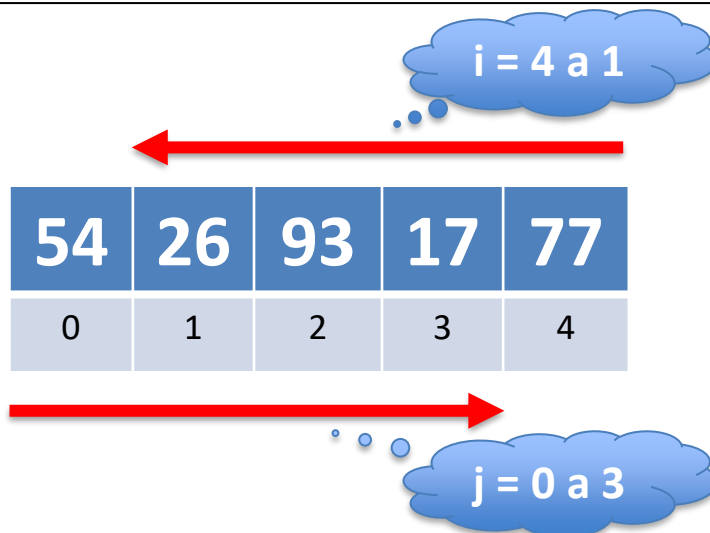
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tam	i	j	temp
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93 > 17

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j = 0 a 3

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tam	i	j	temp
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5	4	1	
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tam	i	j	temp
5	4	0	54
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tam	i	j	temp
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5	4	1	
5	4	2	93

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i = 4 a 1

54	26	93	17	77
0	1	2	3	4

j = 0 a 3

26	54	17	93	77
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i ↓

↑ j

tam	i	j	temp
5	4	0	54
5	4	1	
5	4	2	93

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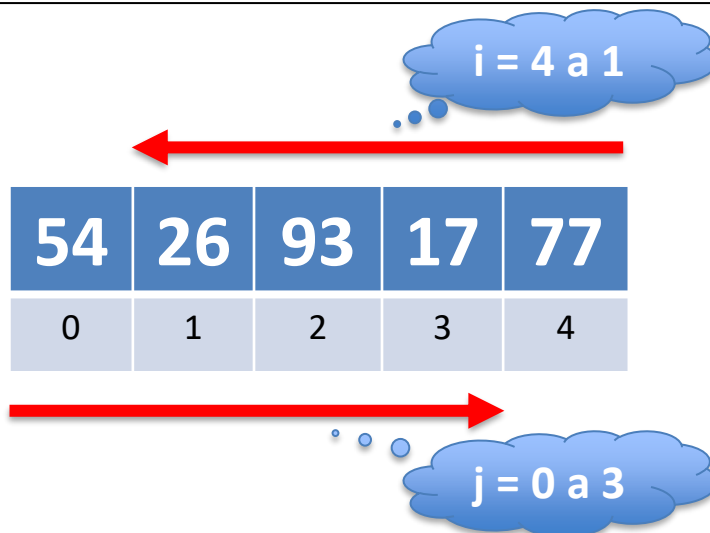
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26	54	17	93	77
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i ↓
↑ *j*

tam	i	j	temp
5	4	0	54
5	4	1	
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5	4	3	



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93 > 77

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0	1	2	3	4

tam	i	j	temp
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5	4	1	
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5	4	3	

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0	1	2	3	4

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26	54	17	93	77
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tam	i	j	temp
5	4	0	54
5	4	1	
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tam	i	j	temp
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i = 4 a 1

54	26	93	17	77
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26	54	17	77	93
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tam	i	j	temp
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5	4	1	
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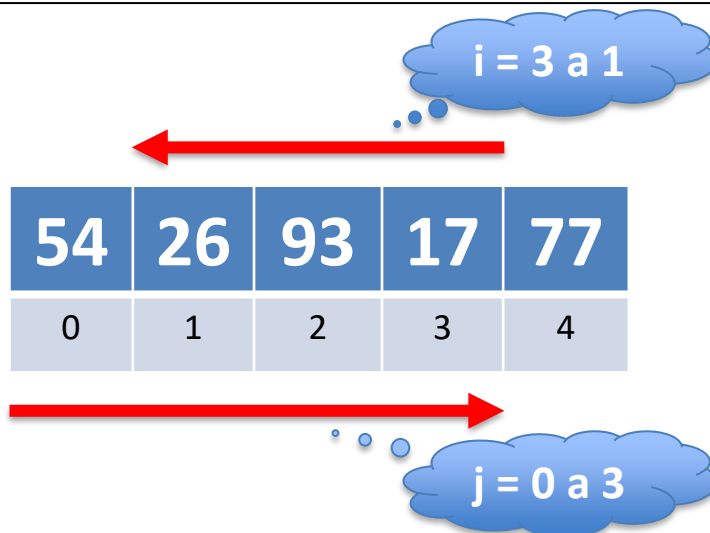
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<div><div>i</div><div>↓</div></div>				
26	54	17	77	93
0	1	2	3	4
<div><div>↑</div><div>j</div></div>				

tam	i	j	temp
5	3		



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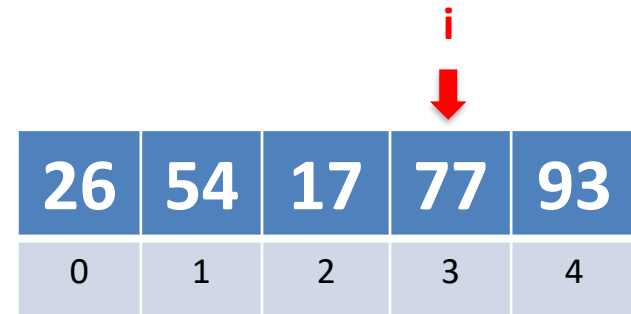
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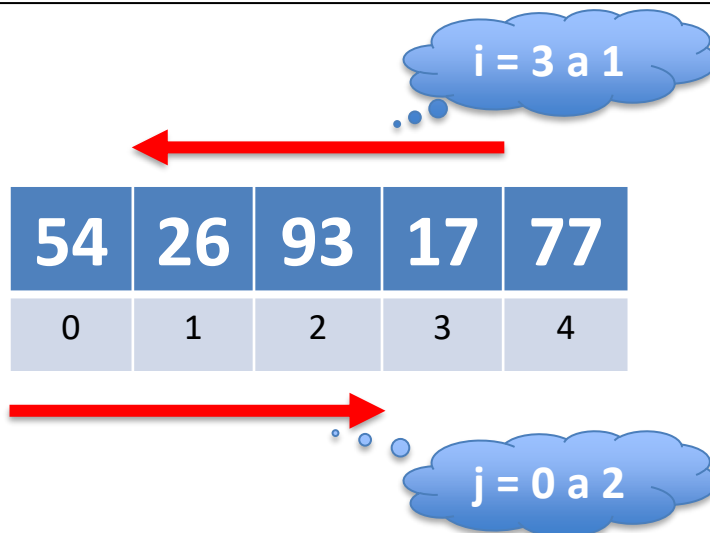
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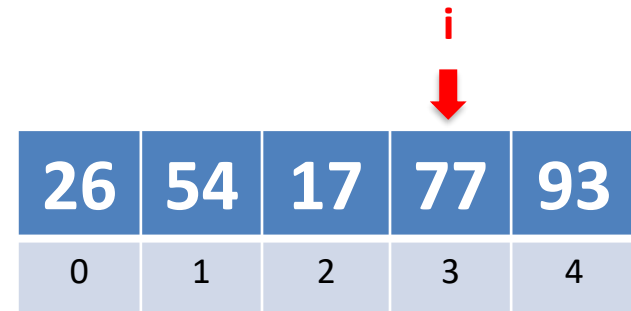
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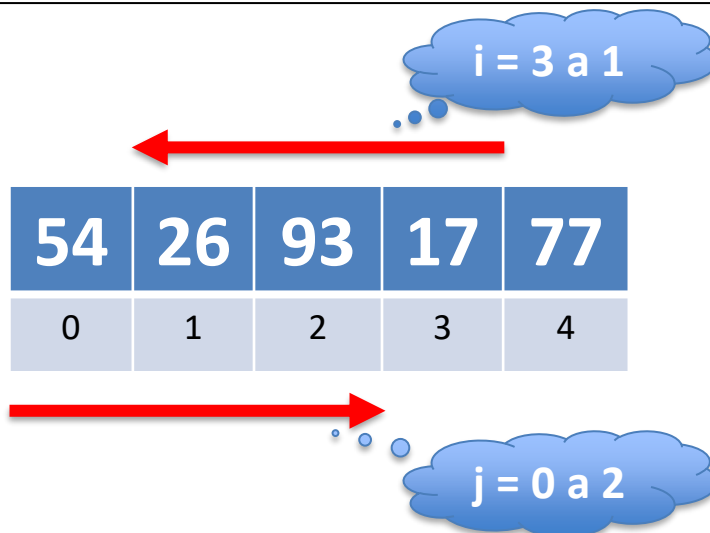
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5	3	1	



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5	3	0	
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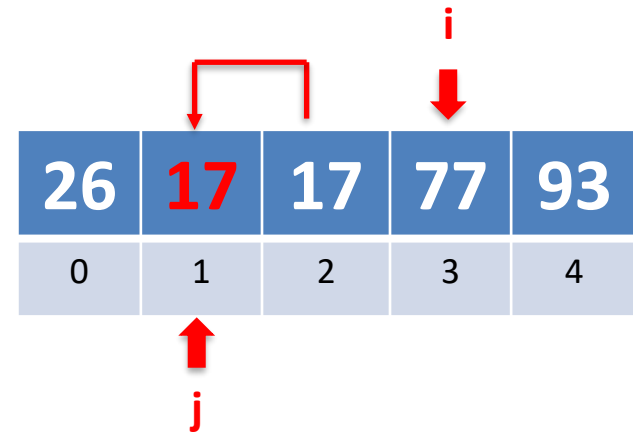
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54	26	93	17	77
0	1	2	3	4

j = 0 a 2

26	17	54	77	93
0	1	2	3	4

tam	i	j	temp
5	3	0	
5	3	1	54

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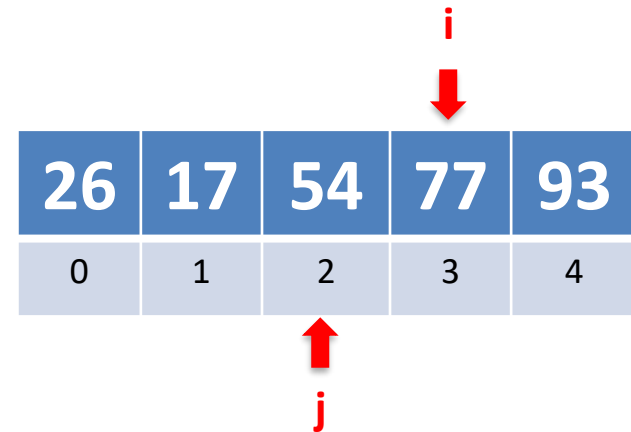
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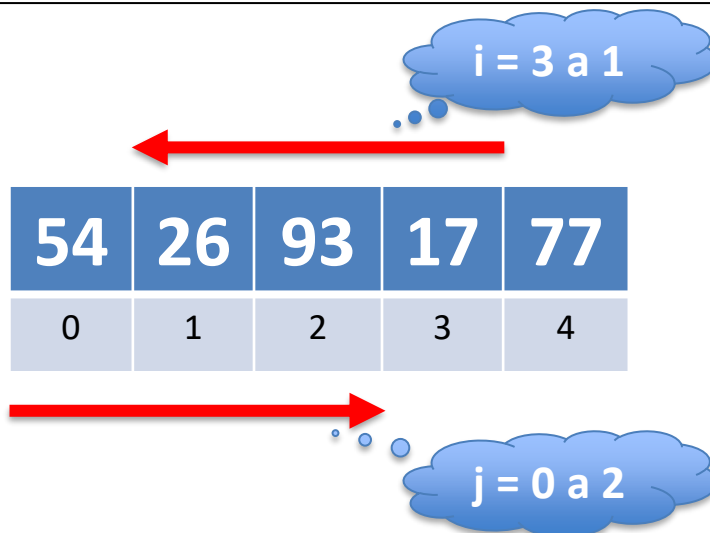
```
                lista[j] = lista[j+1]
```

```
                lista[j+1] = temp
```



26	17	54	77	93
0	1	2	3	4

tam	i	j	temp
5	3	0	
5	3	1	54
5	3	2	



Simulação – Exemplo – Ordenação Bubble Sort

```
def bubbleSort (lista):
```

```
    tam = len(lista)
```

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

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

```
            if lista[j] > lista[j+1]:
```

```
                temp = lista[j]
```

```
                lista[j] = lista[j+1]
```

```
                lista[j+1] = temp
```

54 > 77

i = 3 a 1

54	26	93	17	77
0	1	2	3	4

j = 0 a 2

26	17	54	77	93
0	1	2	3	4

tam	i	j	temp
5	3	0	
5	3	1	54
5	3	2	

Simulação – Exemplo – Ordenação Bubble Sort

```
def bubbleSort (lista):
```

```
    tam = len(lista)
```

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

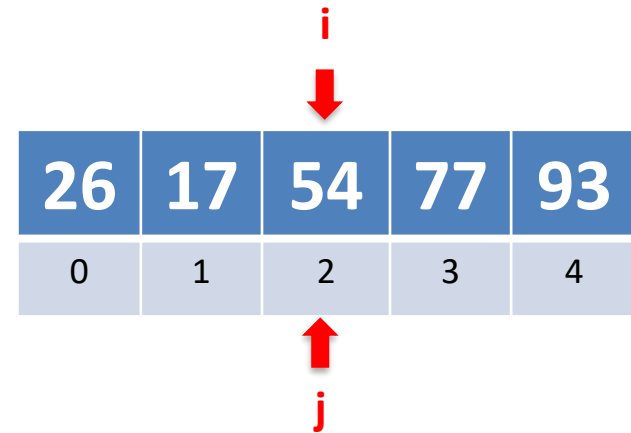
```
        for j in range(i):
```

```
            if lista[j] > lista[j+1]:
```

```
                temp = lista[j]
```

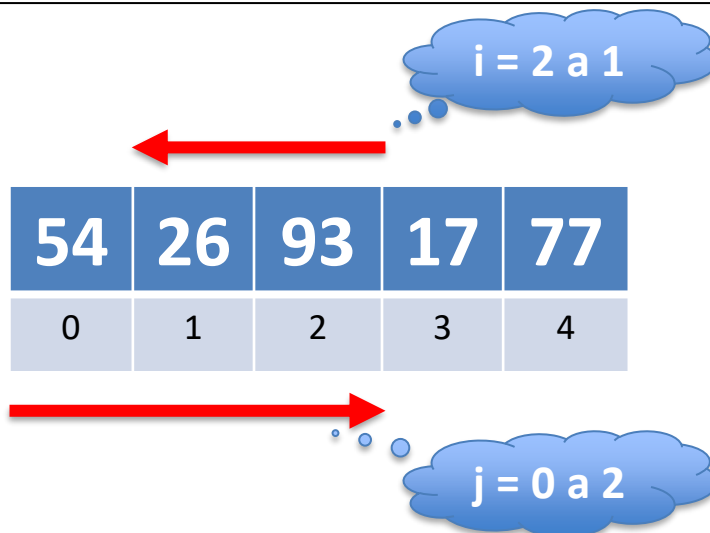
```
                lista[j] = lista[j+1]
```

```
                lista[j+1] = temp
```



26	17	54	77	93
0	1	2	3	4

tam	i	j	temp
5	2		



Simulação – Exemplo – Ordenação Bubble Sort

```
def bubbleSort (lista):
```

```
    tam = len(lista)
```

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

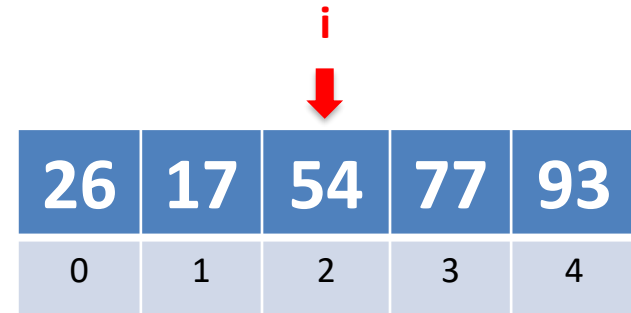
```
        for j in range(i):
```

```
            if lista[j] > lista[j+1]:
```

```
                temp = lista[j]
```

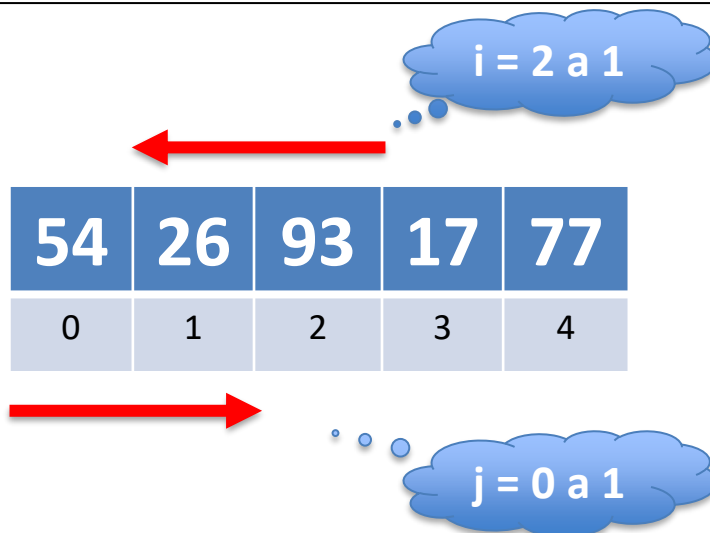
```
                lista[j] = lista[j+1]
```

```
                lista[j+1] = temp
```



26	17	54	77	93
0	1	2	3	4

tam	i	j	temp
5	2	0	



Simulação – Exemplo – Ordenação Bubble Sort

```
def bubbleSort (lista):
```

```
tam = len(lista)
```

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

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

26 > 17

```
if lista[j] > lista[j+1]:
```

```
temp = lista[j]
```

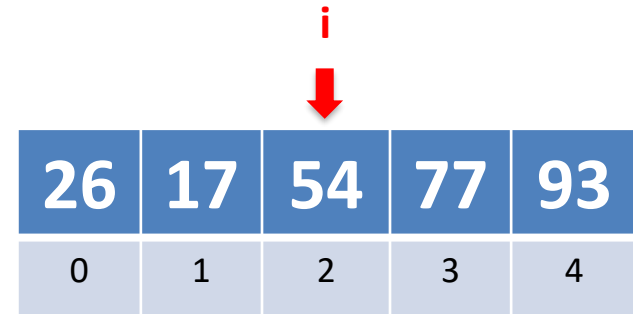
```
lista[j] = lista[j+1]
```

```
lista[j+1] = temp
```

i = 2 a 1

54	26	93	17	77
0	1	2	3	4

j = 0 a 1

[illegible]

Simulação – Exemplo – Ordenação Bubble Sort

```
def bubbleSort (lista):
```

```
tam = len(lista)
```

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

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

26 > 17

```
if lista[j] > lista[j+1]:
```

```
temp = lista[j]
```

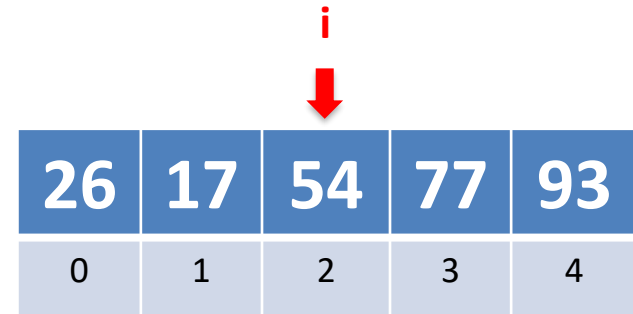
```
lista[j] = lista[j+1]
```

```
lista[j+1] = temp
```

i = 2 a 1

54	26	93	17	77
0	1	2	3	4

j = 0 a 1

[illegible]

Simulação – Exemplo – Ordenação Bubble Sort

```
def bubbleSort (lista):
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tam = len(lista)
```

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

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

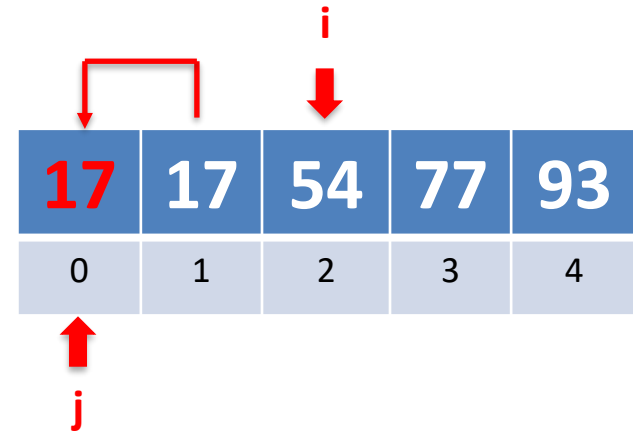
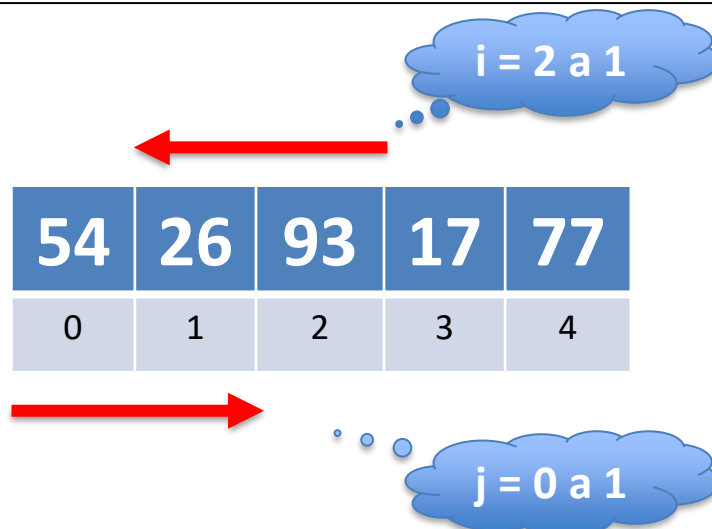
26 > 17

```
if lista[j] > lista[j+1]:
```

```
temp = lista[j]
```

```
lista[j] = lista[j+1]
```

```
lista[j+1] = temp
```

[illegible]

Simulação – Exemplo – Ordenação Bubble Sort

```
def bubbleSort (lista):
```

```
tam = len(lista)
```

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

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

26 > 17

```
if lista[j] > lista[j+1]:
```

```
temp = lista[j]
```

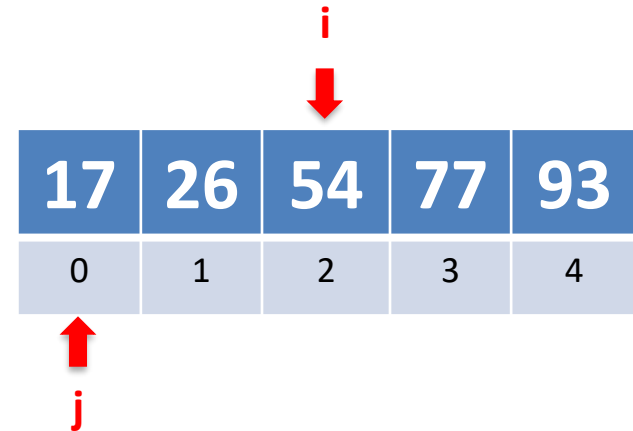
```
lista[j] = lista[j+1]
```

```
lista[j+1] = temp
```

i = 2 a 1

54	26	93	17	77
0	1	2	3	4

j = 0 a 1

[illegible]

Simulação – Exemplo – Ordenação Bubble Sort

```
def bubbleSort (lista):
```

```
    tam = len(lista)
```

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

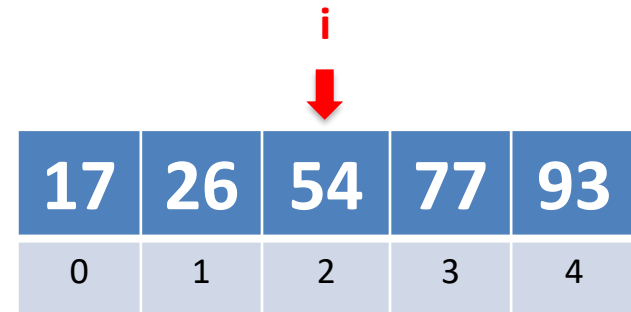
```
        for j in range(i):
```

```
            if lista[j] > lista[j+1]:
```

```
                temp = lista[j]
```

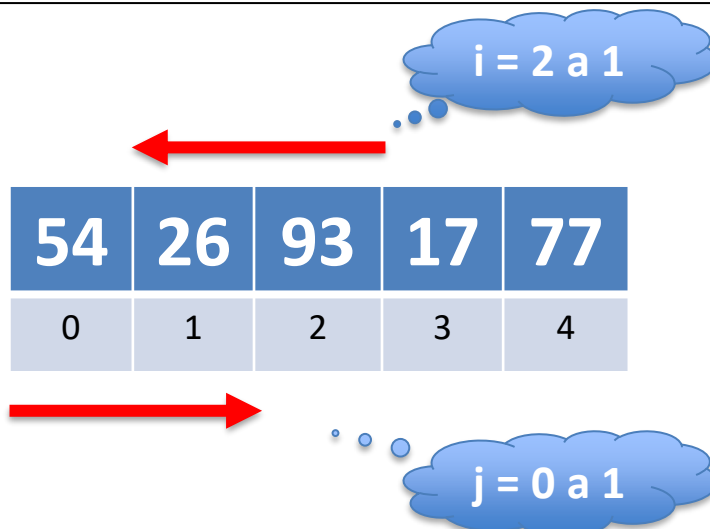
```
                lista[j] = lista[j+1]
```

```
                lista[j+1] = temp
```



17	26	54	77	93
0	1	2	3	4

tam	i	j	temp
5	2	0	26
5	2	1	



Simulação – Exemplo – Ordenação Bubble Sort

```
def bubbleSort (lista):
```

```
tam = len(lista)
```

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

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

26 > 54

```
if lista[j] > lista[j+1]:
```

```
temp = lista[j]
```

```
lista[j] = lista[j+1]
```

```
lista[j+1] = temp
```

i = 2 a 1

54	26	93	17	77
0	1	2	3	4

j = 0 a 1

17	26	54	77	93
0	1	2	3	4

tam	i	j	temp
5	2	0	26
5	2	1	

Simulação – Exemplo – Ordenação Bubble Sort

```
def bubbleSort (lista):
```

```
    tam = len(lista)
```

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

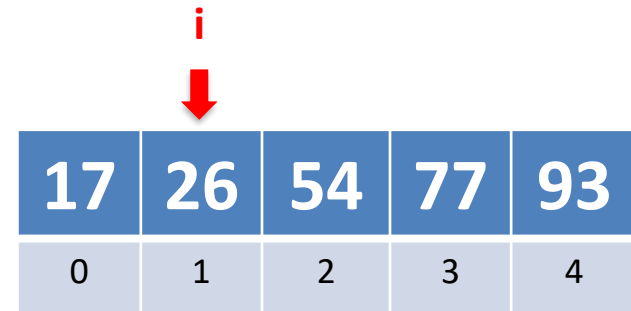
```
        for j in range(i):
```

```
            if lista[j] > lista[j+1]:
```

```
                temp = lista[j]
```

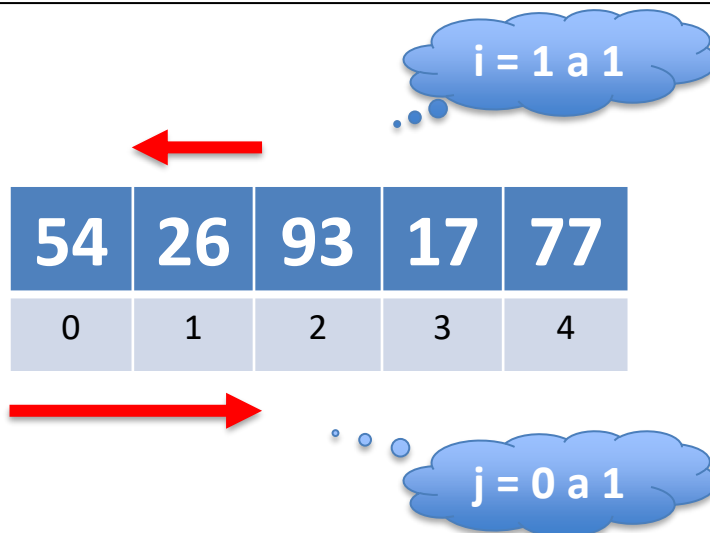
```
                lista[j] = lista[j+1]
```

```
                lista[j+1] = temp
```



17	26	54	77	93
0	1	2	3	4

tam	i	j	temp
5	1		



Simulação – Exemplo – Ordenação Bubble Sort

```
def bubbleSort (lista):
```

```
    tam = len(lista)
```

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

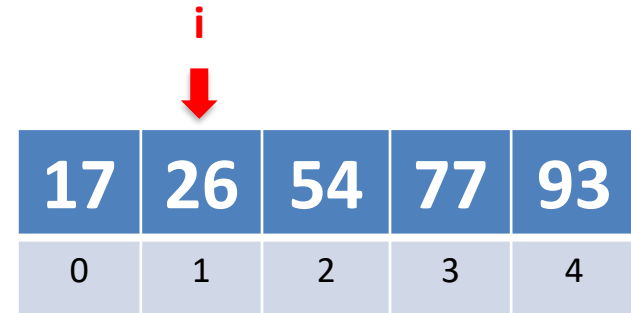
```
        for j in range(i):
```

```
            if lista[j] > lista[j+1]:
```

```
                temp = lista[j]
```

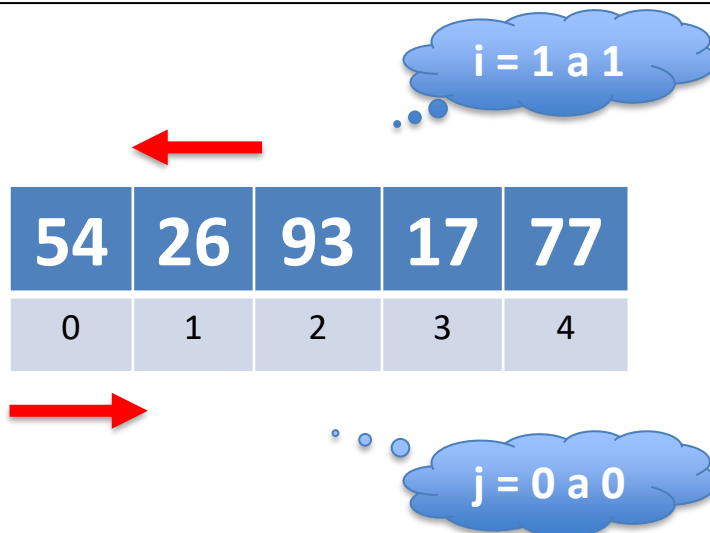
```
                lista[j] = lista[j+1]
```

```
                lista[j+1] = temp
```



17	26	54	77	93
0	1	2	3	4

tam	i	j	temp
5	1	0	



Simulação – Exemplo – Ordenação Bubble Sort

```
def bubbleSort (lista):
```

```
tam = len(lista)
```

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

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

17 > 26

```
if lista[j] > lista[j+1]:
```

```
temp = lista[j]
```

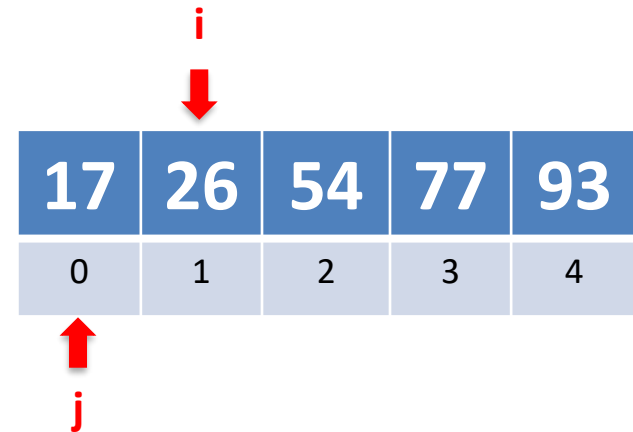
```
lista[j] = lista[j+1]
```

```
lista[j+1] = temp
```

i = 1 a 1

54	26	93	17	77
0	1	2	3	4

j = 0 a 0

[illegible]