```python
def burbuja(n):
    for i in range (0, len(n) -1): i = 0
        for j in range (0, len (n) -1):
            if n[j] > n [j + 1]:
            # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j]  n = [34, 12, 5, 66, 1, 89, 23], j = 0
```

```
n[i]    = 34
n[j] = 34
n[j+1] = 12
```

```python
    for i in range (0, len(n) -1): i = 1
        for j in range (0, len (n) -1):
            if n[j] > n [j + 1]: n = [12, 5, 34, 1, 66, 23, 89], j = 0
            # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j]
```

```
n[i]    = 5
n[j] = 12
n[j+1] = 5
```

```python
    for i in range (0, len(n) -1): i = 2
        for j in range (0, len (n) -1): j = 5, n = [5, 12, 1, 34, 23, 66, 89]
            if n[j] > n [j + 1]:
            # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j]
```

```
n[i]    = 1
n[j] = 66
n[j+1] = 89
```

```python
    for i in range (0, len(n) -1): i = 3
        for j in range (0, len (n) -1): j = 5, n = [5, 1, 12, 23, 34, 66, 89]
            if n[j] > n [j + 1]:
            # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j]
```

```
n[i]    = 23
n[j] = 66
n[j+1] = 89
```

```python
    for i in range (0, len(n) -1): i = 4
        for j in range (0, len (n) -1):
            if n[j] > n [j + 1]: n = [1, 5, 12, 23, 34, 66, 89], j = 0
            # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j]
```

```
n[i]    = 34
n[j] = 1
n[j+1] = 5
```

```python
for i in range (0, len(n) -1): i = 5
    for j in range (0, len (n) -1):
        if n[j] > n [j + 1]: n = [1, 5, 12, 23, 34, 66, 89], j = 0
        # Intercambio de numero si estan en el orden correcto
            n[j], n[j + 1] = n[j+ 1], n [j]
```

```
n[i]    = 66
n[j] = 1
n[j+1] = 5
```

```python
def burbuja(n):
    for i in range (0, len(n) -1): i = 5
        for j in range (0, len (n) -1):
            if n[j] > n [j + 1]: n = [1, 5, 12, 23, 34, 66, 89], j = 5
            # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j]
```

```
n[i]    = 66
n[j] = 66
n[j+1] = 89
```

```python
 2    def burbuja(n):
 3        for i in range (0, len(n) -1):
 4            for j in range (0, len (n) -1):
 5                if n[j] > n [j + 1]:
 6                # Intercambio de numero si estan en el orden correcto
 7                    n[j], n[j + 1] = n[j+ 1], n [j]
 8
 9    # Programa principal
10
11    numeros = [34, 12, 5, 66, 1, 89, 23]
12
13    print(numeros)
14    burbuja(numeros)
15    print(numeros)
```

PROBLEMAS   SALIDA   TERMINAL   PUERTOS   CONSOLA DE DEPURACIÓN

```
PS C:\Users\UsuarioT\Desktop\GALI\PROGRAMACIÓN\1º TRIMESTRE\UNIDAD 2\Ejercicios 5> & C:
uarioT/Desktop/GALI/PROGRAMACIÓN/1º TRIMESTRE/UNIDAD 2/Ejercicios 5/ordenar.py"
[34, 12, 5, 66, 1, 89, 23]
[1, 5, 12, 23, 34, 66, 89]
PS C:\Users\UsuarioT\Desktop\GALI\PROGRAMACIÓN\1º TRIMESTRE\UNIDAD 2\Ejercicios 5>
```

MEJORADO

```python
def burbuja(n):
    for i in range (0, len(n) -1):
        for j in range (0, len (n) -1 - i): i = 0
            if n[j] > n [j + 1]: n = [34, 12, 5, 66, 1, 89, 23], j = 0
                # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j]
```

```
n [i] = 34          i = 0
n [j] = 34          j = 0
n [j+1] = 12     > n = [34, 12, 5, 66, 1, 89, 23]
```

```python
def burbuja(n):
    for i in range (0, len(n) -1):
        for j in range (0, len (n) -1 - i): j = 5, n = [12, 5, 34, 1, 66, 23, 89], i = 0
            if n[j] > n [j + 1]:
                # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j]
```

```
n [i] = 12          i = 0
n [j] = 23          j = 5
n [j+1] = 89     > n = [12, 5, 34, 1, 66, 23, 89]
```

```python
def burbuja(n):
    for i in range (0, len(n) -1):
        for j in range (0, len (n) -1 - i): i = 1
            if n[j] > n [j + 1]:
                # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j] n = [5, 12, 1, 34, 66, 23, 89], j = 4
```

```
n [i] = 12          i = 1
n [j] = 66          j = 4
n [j+1] = 23     > n = [5, 12, 1, 34, 66, 23, 89]
```

```python
def burbuja(n):
    for i in range (0, len(n) -1): i = 2, n = [5, 1, 12, 23, 34, 66, 89]
        for j in range (0, len (n) -1 - i):
            if n[j] > n [j + 1]:
                # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j]
```

```
n [i] = 12          i = 2
n [j] = 23          j = 3
n [j+1] = 34     > n = [5, 1, 12, 23, 34, 66, 89]
```

```
def burbuja(n):
    for i in range (0, len(n) -1):
        for j in range (0, len (n) -1 - i): j = 2, n = [1, 5, 12, 23, 34, 66, 89], i = 3
            if n[j] > n [j + 1]:
            # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j]
```

n [i] = 23	i = 3
n [j] = 12	j = 2
n [j+1] = 23	> n = [1, 5, 12, 23, 34, 66, 89]

```
def burbuja(n):
    for i in range (0, len(n) -1):
        for j in range (0, len (n) -1 - i): j = 1, n = [1, 5, 12, 23, 34, 66, 89], i = 4
            if n[j] > n [j + 1]:
            # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j]
```

n [i] = 34	i = 4
n [j] = 5	j = 1
n [j+1] = 12	> n = [1, 5, 12, 23, 34, 66, 89]

```
def burbuja(n):
    for i in range (0, len(n) -1):
        for j in range (0, len (n) -1 - i): j = 0, n = [1, 5, 12, 23, 34, 66, 89], i = 5
            if n[j] > n [j + 1]:
            # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j]
```

n [i] = 66	i = 5
n [j] = 1	j = 0
n [j+1] = 5	n = [1, 5, 12, 23, 34, 66, 89]

```
print(numeros)
burbuja(numeros) numeros = [1, 5, 12, 23, 34, 66, 89]
print(numeros)
```

```python
def burbuja(n):
    for i in range (0, len(n) -1):
        for j in range (0, len (n) -1 - i):
            if n[j] > n [j + 1]:
                # Intercambio de numero si estan en el orden correcto
                n[j], n[j + 1] = n[j+ 1], n [j]

# Programa principal

numeros = [34, 12, 5, 66, 1, 89, 23]

print(numeros)
burbuja(numeros)
print(numeros)
```

PROBLEMAS   SALIDA   TERMINAL   PUERTOS   CONSOLA DE DEPURACIÓN

```
[34, 12, 5, 66, 1, 89, 23]
[1, 5, 12, 23, 34, 66, 89]
PS C:\Users\UsuarioT\Desktop\GALI\PROGRAMACIÓN\1º TRIMESTRE\UNIDAD 2\BURBUJA> ^C
PS C:\Users\UsuarioT\Desktop\GALI\PROGRAMACIÓN\1º TRIMESTRE\UNIDAD 2\BURBUJA>
PS C:\Users\UsuarioT\Desktop\GALI\PROGRAMACIÓN\1º TRIMESTRE\UNIDAD 2\BURBUJA>  c:;
GRAMACIÓN\1º TRIMESTRE\UNIDAD 2\BURBUJA'; & 'c:\Python313\python.exe' 'c:\Users\Us
ugpy-2025.16.0-win32-x64\bundled\libs\debugpy\launcher' '65310' '--' 'C:\Users\Usu
ESTRE\UNIDAD 2\BURBUJA\burbuja.py'
[34, 12, 5, 66, 1, 89, 23]
PS C:\Users\UsuarioT\Desktop\GALI\PROGRAMACIÓN\1º TRIMESTRE\UNIDAD 2\BURBUJA> ^C
PS C:\Users\UsuarioT\Desktop\GALI\PROGRAMACIÓN\1º TRIMESTRE\UNIDAD 2\BURBUJA>
PS C:\Users\UsuarioT\Desktop\GALI\PROGRAMACIÓN\1º TRIMESTRE\UNIDAD 2\BURBUJA>  c:;
GRAMACIÓN\1º TRIMESTRE\UNIDAD 2\BURBUJA'; & 'c:\Python313\python.exe' 'c:\Users\Us
ugpy-2025.16.0-win32-x64\bundled\libs\debugpy\launcher' '65330' '--' 'C:\Users\Usu
ESTRE\UNIDAD 2\BURBUJA\burbuja.py'
[34, 12, 5, 66, 1, 89, 23]
[1, 5, 12, 23, 34, 66, 89]
PS C:\Users\UsuarioT\Desktop\GALI\PROGRAMACIÓN\1º TRIMESTRE\UNIDAD 2\BURBUJA>
```