الاسم: ندى سامح عبدالله زهران   سكشن: 10

Bubble Sort

10	7	3	9	2

$J = 10$ $J+1 = 7$

7	10	3	9	2

$J = 10$ $J+1 = 3$

7	3	10	9	2

$J = 10$ $J+1 = 9$

7	3	9	10	2

$J = 10$ $J+1 = 2$

7	3	9	2	10

$J = 7$ $J+1 = 3$

3	7	9	2	10

$J = 9$ $J+1 = 2$

3	7	2	9	10

$J = 7\!3$ $J+1 = 2$

3	2	7	9	10

$J = 3$ $J+1 = 2$

2	3	7	9	10

→ Insertion Sort

1	2	3	4	5	6	7	8
2	3	5	7	9	11	12	4

A

key = 2   A[2] = 3   i = 1   A[1] = 2

key > i → Array sorted

1	2	3	4	5	6	7	8
2	3	5	7	9	11	12	4

key = 3   A[3] = 5 i = 2   A[2] = 3   → Sorted

1	2	3	4	5	6	7	8
2	3	5	7	9	11	12	4

Key = 4   A[4] = 7   i = 3   A[3] = 5 → sorted

1	2	3	4	5	6	7	8
2	3	5	7	9	11	12	4

key = 5   A[5] = 9   i = 4   A[4] = 7 → Sorted

1	2	3	4	5	6	7	8
2	3	5	7	9	11	12	4

key = 6   A[6] = 11   i = 5   A[5] = 9 → Sorted

1	2	3	4	5	6	7	8
2	3	5	7	9	11	12	4

key = 7   A[7] = 12   i = 6   A[6] = 11 → Sorted

1	2	3	4	5	6	7	8
2	3	5	7	9	11	12	4

key = 8   A[8] = 4   → Swap

1	2	3	4	5	6	7	8
2	3	4	5	7	9	11	12

```python
def selection_sort(array):
    n = len(array)
    for i in range(n - 1):
        minimum_index = i
        for j in range(i + 1, n):
            if array[j] < array[minimum_index]:
                minimum_index = j
        array[i], array[minimum_index] = array[minimum_index], array[i]
array = [65, 20, 10, 22, 9]
selection_sort(array)
print("New array is:",array)
```

PROBLEMS 1   OUTPUT   DEBUG CONSOLE   **TERMINAL**   PORTS

PS C:\Users\Check-in\Desktop\project> & 'c:\Users\Check-in\AppData\Local\Programs\Python\Python312\p
-2025.0.1-win32-x64\bundled\libs\debugpy\launcher' '57165' '--' 'c:\Users\Check-in\Desktop\project\n.
new array is : [9, 10, 20, 22, 65]