

144. Write code to modify bubble_sort function to stop early if the list becomes sorted before all passes are completed.

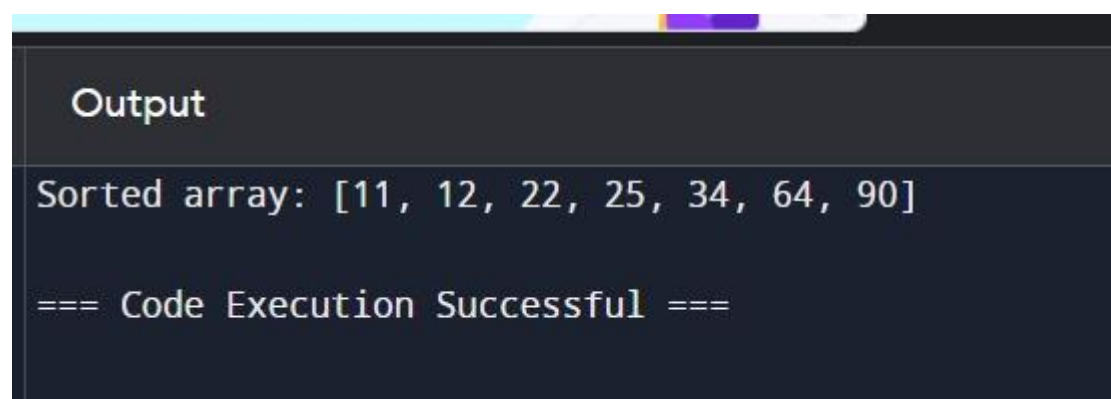
Program:-

```
def bubble_sort_modified(arr):  
    n = len(arr)  
    for i in range(n):  
        swapped = False  
        for j in range(0, n-i-1):  
            if arr[j] > arr[j+1]:  
                arr[j], arr[j+1] = arr[j+1], arr[j]  
                swapped = True  
        if not swapped:  
            break  
    return arr
```

input:-

```
arr = [64, 34, 25, 12, 22, 11, 90]
```

output:-

A screenshot of a code execution environment. At the top, there's a tab with a light blue header and a dark body. The word "Output" is written in white in the header. Below it, the text "Sorted array: [11, 12, 22, 25, 34, 64, 90]" is displayed in a light green monospace font. At the bottom, the text "=== Code Execution Successful ===" is also displayed in the same light green monospace font.

```
Output  
Sorted array: [11, 12, 22, 25, 34, 64, 90]  
=== Code Execution Successful ===
```

Time complexity: $O(n)$