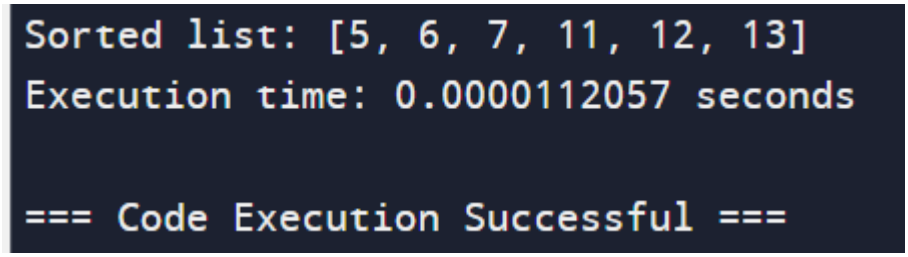
81. Quick sort
PROGRAM:-

```
import time

def quick_sort(arr):
    if len(arr) <= 1:
        return arr
    else:
        pivot = arr[len(arr) // 2]
        left = [x for x in arr if x < pivot]
        middle = [x for x in arr if x == pivot]
        right = [x for x in arr if x > pivot]
        return quick_sort(left) + middle + quick_sort(right)

def find_quick_sort_time(arr):
    start_time = time.time()  # Start time measurement

    sorted_arr = quick_sort(arr)  # Perform quick sort

    end_time = time.time()  # End time measurement
    elapsed_time = end_time - start_time

    return sorted_arr, elapsed_time

# Example usage
example_list = [12, 11, 13, 5, 6, 7]
sorted_list, execution_time = find_quick_sort_time(example_list)

print(f"Sorted list: {sorted_list}")
print(f"Execution time: {execution_time:.10f} seconds")
```

OUTPUT:-



TIME COMPLEXITY:-O(n log n)