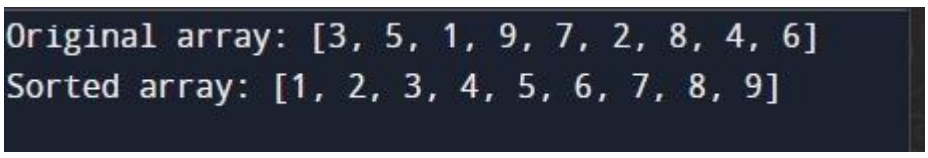
81.Quick Sort

AIM: To sort an array by Quick Sort by using Divide and Conquer method

PROGRAM:

```
def quick_sort(arr):
    _quick_sort(arr, 0, len(arr) - 1)
def _quick_sort(arr, low, high):
    if low < high:
        pivot_index = partition(arr, low, high)
        _quick_sort(arr, low, pivot_index - 1)
        _quick_sort(arr, pivot_index + 1, high)
def partition(arr, low, high):
    pivot = arr[high]
    i = low - 1  # Index of smaller element
    for j in range(low, high):
        if arr[j] < pivot:
            i += 1
            arr[i], arr[j] = arr[j], arr[i]
        arr[i + 1], arr[high] = arr[high], arr[i + 1]
    return i + 1
arr = [3, 5, 1, 9, 7, 2, 8, 4, 6]
print(f"Original array: {arr}")
quick_sort(arr)
print(f"Sorted array: {arr}")
```

OUTPUT:



TIME COMPLEXITY: O(n log n)