**ASSIGNMENT 7 – Merge Sort & Quick Sort in Python**

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# Merge Sort

def merge\_sort(lst):

    if len(lst) <= 1:

        return lst

    mid = len(lst) // 2

    left = lst[mid:]

    right = lst[:mid]

    left = merge\_sort(left)

    right = merge\_sort(right)

    return merge(left, right)

def merge(left, right):

    merged = []

    left\_idx = right\_idx = 0

    while left\_idx < len(left) and right\_idx < len(right):

        if left[left\_idx] < right[right\_idx]:

            merged.append(left[left\_idx])

            left\_idx += 1

        else:

            merged.append(right[right\_idx])

            right\_idx += 1

    merged.extend(left[left\_idx:])

    merged.extend(right[right\_idx:])

    return merged

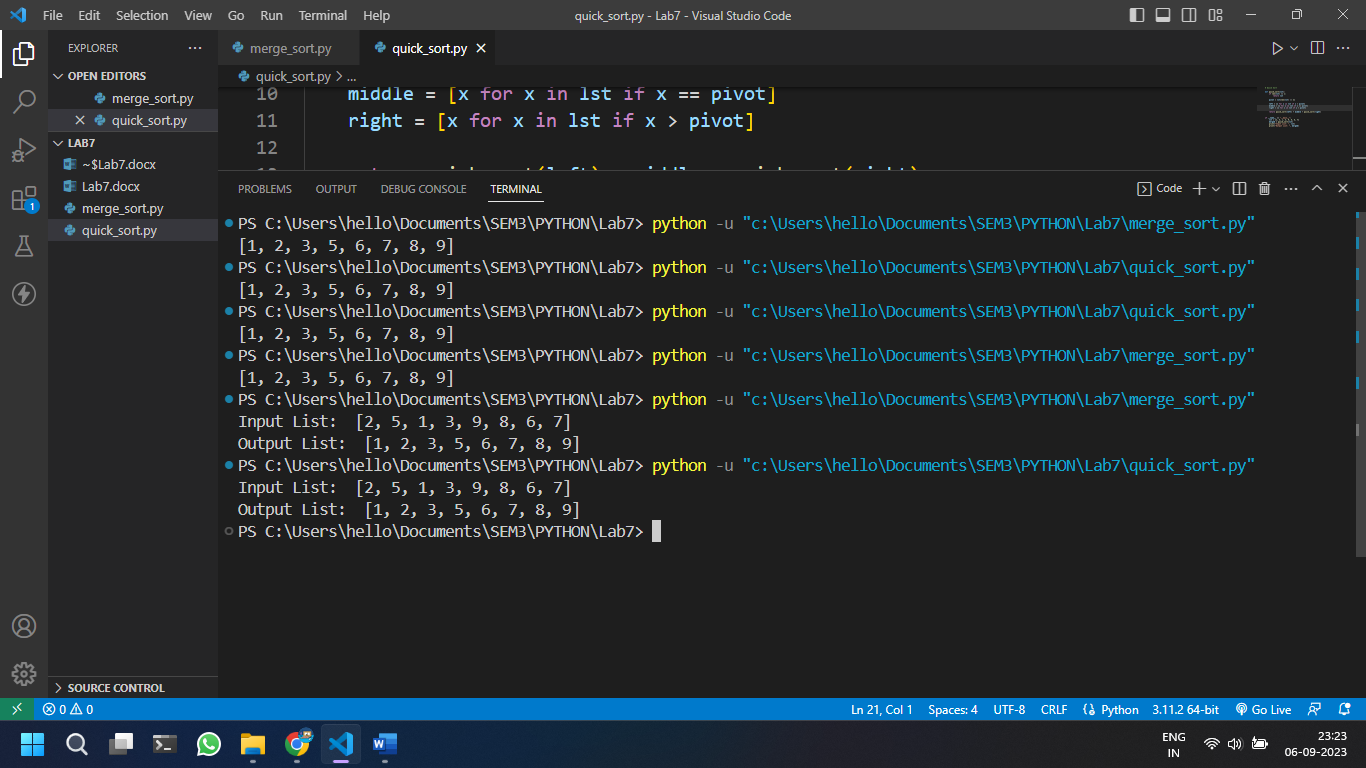
if \_\_name\_\_ == "\_\_main\_\_":

    lst = [2,5,1,3,9,8,6,7]

    merged = merge\_sort(lst)

    print(merged)

**OUTPUT**



# Quick Sort

def quick\_sort(lst):

    if len(lst) <= 1:

        return lst

    pivot = lst[len(lst) // 2]

    left = [x for x in lst if x < pivot]

    middle = [x for x in lst if x == pivot]

    right = [x for x in lst if x > pivot]

    return quick\_sort(left) + middle + quick\_sort(right)

if \_\_name\_\_ == "\_\_main\_\_":

    lst = [2, 5, 1, 3, 9, 8, 6, 7]

    merged = quick\_sort(lst)

    print(merged)

**OUTPUT**

