**Merge Sort Practical**

**Input:**

def sort(arr, l, m, r):

n1 = m-l+1

n2 = r-m

L = [0]\*(n1)

R = [0]\*(n2)

for i in range(0, n1):

L[i] = arr[l+i]

for j in range(0, n2):

R[j] = arr[m+1+j]

i = 0

j = 0

k = l

while i < n1 and j < n2:

if L[i] <= R[j]:

arr[k] = L[i]

i += 1

k += 1

else:

arr[k] = R[j]

j += 1

k += 1

while i < n1:

arr[k] = L[i]

i += 1

k += 1

while j < n2:

arr[k] = R[j]

j += 1

k += 1

def mergesort(arr, l, r):

if l < r:

m = int((l+(r-1))/2)

mergesort(arr, l, m)

mergesort(arr, m+1, r)

sort(arr, l, m, r)

# Main Code

arr = [35, 67, 87, 56, 78, 45, 10, 9, 52]

print("Initial array is:", arr)

n = len(arr)

mergesort(arr, 0, n-1)

print("Sorted array is:", arr)

**Output:**

