PYTHON PROGRAM

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#Program to implement Merge Sort
def print_array(a):
    for i in a:
        print("%2d" % (i), end="  ")
    print("\n")
def merge(a, l, m, r):
    n1 = m - l + 1;n2 = r - m
    L = [0] * (n1);R = [0] * (n2)
    for i in range(0, n1):
        L[i] = a[l + i]
    for j in range(0, n2):
        R[j] = a[m + 1 + j]
    i = 0;j = 0;k = l
    while (i < n1 and j < n2):
        if (L[i] <= R[j]):
            a[k] = L[i]
            i += 1
        else:
            a[k] = R[j]
            j += 1
        k += 1
    while (i < n1):
        a[k] = L[i]
        i += 1;k += 1
    while (j < n2):
        a[k] = R[j]
        j += 1;k += 1
def merge_sort(a, l, r):
    if (l < r):
        m = ((l + (r)) // 2)
        merge_sort(a, l, m)
        merge_sort(a, m + 1, r)
        merge(a, l, m, r)
import random
n = 10;a = []
for i in range(n): a.append(random.randint(3, 100))
print("Before Sorting: ");print_array(a)
merge_sort(a, 0, n - 1)
print("After Sorting: ");print_array(a)
```