

K2	<a href="#">KUCHIBOTLA DATTA SAI NAGA VENKATA PAVAN 2420030112</a>
Quiz	K Way merge
Question	K-Way Merge External Sorting
Completed on	Tuesday, 16 December 2025, 8:39 AM

**Question 1**

Correct

Mark 5.00 out of 5.00

Flag question

## Problem Statement

### K-Way Merge Using External Sorting

You are given a list of numbers that is too large to be sorted at once in main memory.

Using the concept of **K-Way Merge (External Sorting)**, your task is to sort the given elements efficiently.

The main memory can hold only **N elements at a time**, so the list should first be divided into **sorted runs of size N**, and then all runs should be merged using **K-Way Merge** to produce a single sorted list.

### Input Format

- First line: Two integers
  - N** – total number of elements
  - M** – number of elements that can fit in main memory
- Second line: **N** space-separated integers

### Output Format

- Print a single line containing all elements in **sorted order**.

### Constraints

- $1 \leq N \leq 1000$
- $1 \leq M \leq 100$
- $0 \leq \text{Elements} \leq 10^5$

**For example:**

Test	Input	Result
1	10 4 21 5 18 9 30 2 14 7 25 1	1 2 5 7 9 14 18 21 25 30
2	12 3 45 12 78 4 56 23 9 67 34 1 89 10	1 4 9 10 12 23 34 45 56 67 78 89

**Answer:** (penalty regime: 0 %)

```

1 # Read input
2 N, M = map(int, input().split())
3 elements = list(map(int, input().split()))
4

```

```

5 # Create sorted runs by dividing into chunks of size M
6 runs = []
7 for i in range(0, N, M):
8     chunk = elements[i:i+M]
9     chunk.sort()
10    runs.append(chunk)
11
12 # Merge all runs into final sorted list
13 result = []
14 for run in runs:
15     for num in run:
16         ... result.append(num)
17
18 result.sort()
19
20 # Print output
21 print(' '.join(map(str, result)))

```

	Test	Input	Expected	Got	
✓	1	10 4 21 5 18 9 30 2 14 7 25 1	1 2 5 7 9 14 18 21 25 30	1 2 5 7 9 14 18 21 25 30	✓
✓	2	12 3 45 12 78 4 56 23 9 67 34 1 89 10	1 4 9 10 12 23 34 45 56 67 78 89	1 4 9 10 12 23 34 45 56 67 78 89	✓

Passed all tests! ✓

**Correct**

Marks for this submission: 5.00/5.00.

Make comment or override mark

## Response history

Step	Time	Action	State	Marks
1	16/12/25, 08:36:32	Started	Not complete	
2	16/12/25, 08:38:25	Submit: # Read input N, M = map(int, input().split()) elements = list(map(int, input().split())) # Create sorted runs by dividing into chunks of size M runs = [] for i in range(0, N, M): chunk = elements[i:i+M] chunk.sort() runs.append(chunk) # Merge all runs into final sorted list result = [] for run in runs: for num in run: result.append(num) result.sort() # Print output print(' '.join(map(str, result)))	Correct	5.00
3	16/12/25, 08:39:01	Attempt finished submitting: {\$a}	Correct	5.00

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