

Coding Assignment

Duration: 3 Hours

Instructions

- This assignment has to be implemented using your preferred programming language.
- Use of Internet is allowed for referring to programming language related syntax and troubleshooting.
- After finishing the assignment, candidates are requested to PUSH the codebase and related artifacts to GitHub Public Repository and share the public link of GitHub Repository with the respective coordinator from Flentas Solutions.

Problem Statements

There are N people in village, who wants to visit Temple outside the village. To reach the temple, villagers need to cross the river. So, they hire the only available boat which can carry at most two people. Villagers decided to hire this boat to reach safely by sailing it by themselves. Every part of journey from village to temple and temple to village has some cost associated with it which is given by an array A[] elements. Array A[] has n elements, where A(i) represents the cost ith person has to pay if they sail the boat alone. If two people sail the vehicle, the cost of travel will be the maximum of cost of two people. Calculate the minimum total cost so that all N people can reach Temple safely.

Input Format

The first line contains, T, denoting the number of test cases. Each test case contains 2 lines each. The first line has an integer N, denoting the number of persons. Next line contains N space separated distinct integers denoting the cost of ith person.

Constraints

$$1 \leq T \leq 10$$

$$1 \leq N \leq 100000$$

$$1 \leq A[i] \leq 1000000$$

Output Format

For each test case, print the minimum cost required so that all people can reach kingdom.

Sample Input

```
3
4
4
300 400 600 700
2
1321 2450
3
500 123 873
4
600 800 150 700
```

Sample Output

2200
2450
1496
2400

Explanation

- In the 1st testcase, 300 and 400 go together (which costs 400) and 300 comes back (total cost 700 now). Now 600 and 700 go (total cost 1400) and 400 comes back (total 1800) and now 300 and 400 go (total cost 2200)!
- In the 2nd testcase, both can reach the temple in 2450 as $\max(1321, 2450) = 2450$.
- In the 3rd testcase, second and third will go first. So, cost will be $\max(123, 873) = 873$. Now second person will come back and take the first along with him. So, coming back cost is 123. Then taking first one along costs $\max(123, 500) = 500$.
Therefore, total cost = $500 + 123 + 873 = 1496$