ESO 207A Programming Assignment 3: Due on 23/02/2019

February 9, 2019

The Base Set Problem

Problem Description

Let A be a set of n positive integers (all distinct). Let B denote the set of $N = 2^n$ integers which are the sums of the subsets of A. Given B, Find A.

Input Format

- The first line of the input contains an integer T which is the number of instances of this problem given in the input.
- The first line of each instance contains integer n, the number of elements in A for that instance.
- Second line of each instance contains $N = 2^n$ integers of array B, sorted in non-decreasing order.
- Next instance starts from the next line.

Output Format

For each instance, output n integers of the corresponding set A in a single line, separated by single space. Start the output of each instance in a new line.

Constraints

- $1 \leq T \leq 50$
- $1 \leq n \leq 15$
- Set A is such that each element of B is at most 10^9.
- All inputs are valid and have a solution.

Example

Input

```
3
2
0 3 7 10
3
0 1 2 3 3 4 5 6
4
0 3 5 7 8 9 10 12 12 14 15 16 17 19 21 24
```

Output

```
3 7
1 2 3
3 5 7 9
```