题目描述 ✗

There are n iron bars, where the length of the i-th iron bar is a_i. These n iron bars are welded together in the order of $1, 2, 3, \ldots, n$ to form a very long iron bar for some usage. Welding two adjacent iron bars creates a weld point, resulting in a total of $n - 1$ weld points.

Little Q needs to cut this long iron bar back into n iron bars. Each time he can choose an iron bar that has at least one weld point and select a weld point to cut the iron bar into two at that weld point, then let the lengths of the resulting two iron bars be l_1 and l_2. The imbalance of this cut is defined as $|l_1 - l_2|$, and the cost of the cut is defined as $\min\{l_1, l_2\} \times \lceil \log_2(l_1 + l_2) \rceil$. Note that $|x|$ is the absolute value of x, and $\lceil \log_2(y) \rceil$ is the smallest integer z such that $2^z \geq y$.

Little Q hopes that the imbalances of the $n - 1$ cuts, denoted as $b_1, b_2, \ldots, b_{n-1}$, satisfy $b_1 \geq b_2 \geq \cdots \geq b_{n-1}$, and the total cost of these $n - 1$ cuts is minimized. You need to find the minimum total cost for the first cut at the weld point between the i-th and $(i + 1)$-th iron bars, or indicate if it is impossible to cut out n iron bars, for each $i = 1, 2, \ldots, n - 1$.

输入描述:

The first line of the input contains an integer T $(1 \leq T \leq 200)$, indicating the number of test cases. For each test case:

The first line contains an integer n $(2 \leq n \leq 420)$, indicating the number of iron bars.

The second line contains n integers $a_1, a_2, \ldots, a_n$ $(1 \leq a_i \leq 10^9)$, indicating the lengths of the iron bars.

It is guaranteed that the sum of n for all test cases does not exceed 420.

输出描述:

For each test case, output a line containing $n - 1$ integers, the i-th of which indicates the minimum total cost for the first cut at the weld point between the i-th and $(i + 1)$-th iron bars, or -1 if it is impossible to cut out n iron bars.

示例1

输入   复制