Firefighters and grannies (2) P65894_en

The firefighters of a distant country want to protect the grannies inside n schools. All the schools are in a row on a street, numbered in order from 1 to n. At each school j there are i_j grannies. The firefighters can form g groups, and each group can only go to a single school. If a group goes to school j, it protects all the grannies there. In addition, it also indirectly protects half the grannies in school $j-1$, assuming that it exists and that it is not already fully protected by another group; and similarly with school $j+1$.

What is the maximum number of grannies that can be protected?

Input

Input consists of several cases, each one with g and n, followed by the i_j's. You can assume $1 \leq g \leq n \leq 3000$, and that all the i_j's are even natural numbers between 2 and 10^5.

Output

For every case, print how many grannies can be protected.

Hint

The expected solution for this problem is a dynamic programming code with two mutual recurrences and cost $O(g \cdot n)$.

Sample input 1

```
1 1  100000
1 2  10 20
1 3  10 80 20
1 3  10 20 80
3 3  10 20 80
3 9  4 8 2 4 8 8 6 2 8
9 9  2 2 2 2 2 2 2 2 2
```

Sample output 1

```
100000
25
95
90
110
36
18
```

Problem information

Author: Salvador Roura
Translator: Salvador Roura

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