D. Cats Transport

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Zxr960115 is owner of a large farm. He feeds m cute cats and employs p feeders. There's a straight road across the farm and n hills along the road, numbered from 1 to n from left to right. The distance between hill i and $(i - 1)$ is d_i meters. The feeders live in hill 1.

One day, the cats went out to play. Cat i went on a trip to hill h_i, finished its trip at time t_i, and then waited at hill h_i for a feeder. The feeders must take all the cats. Each feeder goes straightly from hill 1 to n without waiting at a hill and takes all the **waiting** cats at each hill away. Feeders walk at a speed of 1 meter per unit time and are strong enough to take as many cats as they want.

For example, suppose we have two hills $(d_2 = 1)$ and one cat that finished its trip at time 3 at hill 2 $(h_1 = 2)$. Then if the feeder leaves hill 1 at time 2 or at time 3, he can take this cat, but if he leaves hill 1 at time 1 he can't take it. If the feeder leaves hill 1 at time 2, the cat waits him for 0 time units, if the feeder leaves hill 1 at time 3, the cat waits him for 1 time units.

Your task is to schedule the time leaving from hill 1 for each feeder so that the sum of the waiting time of all cats is minimized.

Input

The first line of the input contains three integers n, m, p $(2 \le n \le 10^5, 1 \le m \le 10^5, 1 \le p \le 100)$.

The second line contains $n - 1$ positive integers $d_2, d_3, ..., d_n$ $(1 \le d_i < 10^4)$.

Each of the next m lines contains two integers h_i and t_i $(1 \le h_i \le n, 0 \le t_i \le 10^9)$.

Output

Output an integer, the minimum sum of waiting time of all cats.

Please, do not write the `%lld` specifier to read or write 64-bit integers in C++. It is preferred to use the `cin`, `cout` streams or the `%I64d` specifier.

Examples

input
4 6 2 1 3 5 1 0 2 1 4 9 1 10 2 10 3 12

output
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