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## A gas station too far

P23800\_en

Examen final d'Algorismia, FME (2011-01-12)

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There is just one road connecting the  $n + 1$  cities  $c_0, \dots, c_n$  consecutively. You want to go from  $c_0$  to  $c_n$  stopping at most  $s$  times to fill the tank of the car. There are gas stations at the cities, but none on the roads. The length of each road is  $\ell_0, \dots, \ell_{n-1}$ . Which is the minimum range for your car? Suppose that you start with a full tank.

### Input

Input consists of several cases. Every case begins with  $n$  and  $s$ , which are followed by  $n$  natural numbers  $\ell_0, \dots, \ell_{n-1}$ . Suppose  $1 \leq n \leq 10^5$ ,  $0 \leq s \leq n - 1$ , and  $1 \leq \ell_i \leq 10^4$ .

### Output

For every case, print the minimum range for a car to reach  $c_n$  starting from  $c_0$  stopping at most  $s$  times to fill the tank.

### Hint

Consider a decisional version of this problem.

### Sample input

```
5 0
100 300 500 200 400
5 1
100 300 500 200 400
5 2
100 300 500 200 400
5 3
100 300 500 200 400
5 4
100 300 500 200 400
```

### Sample output

```
1500
900
600
500
500
```

### Problem information

Author : Salvador Roura

Translator : Salvador Roura

Generation : 2024-05-03 14:58:32

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