



# Billboards



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ADZEN is a popular advertising firm in your city that owns all  $n$  billboard locations on Main street. The city council passed a new zoning ordinance mandating that no more than  $k$  consecutive billboards be up at any given time. For example, if there are  $n = 3$  billboards on Main street and  $k = 1$ , ADZEN must remove either the middle billboard, the first two billboards, or the last two billboards.

Being a for-profit company, ADZEN wants to lose as little advertising revenue as possible when removing the billboards. They want to comply with the new ordinance in such a way that the remaining billboards maximize their total profits (i.e., the total sum of all the billboards left standing on Main street).

Given  $n$ ,  $k$ , and the revenue value of each of the  $n$  billboards, find and print the maximum profit that ADZEN can earn while complying with the zoning ordinance. Assume that Main street is a straight, contiguous block of  $n$  billboards that can be removed but *cannot* be reordered in any way.

## Input Format

The first line contains two space-separated integers,  $n$  (the number of billboards) and  $k$  (the maximum number of billboards that can stand together on any part of the road).

Each line  $i$  of the  $n$  subsequent lines contains an integer denoting the revenue value of billboard  $i$  (where  $0 \leq i < n$ ).

## Constraints

- $1 \leq n \leq 10^5$
- $1 \leq k \leq n$
- $0 \leq \text{revenue value of any billboard} \leq 2 \cdot 10^9$

## Output Format

Print a single integer denoting the maximum profit ADZEN can earn from Main street after complying with the city's ordinance.

## Sample Input 0

```
6 2
1
2
3
1
6
10
```

## Sample Output 0

```
21
```

## Explanation 0

There are  $n = 6$  billboards, and we must remove some of them so that no more than  $k = 2$  billboards are immediately next to one another.

We remove the first and fourth billboards, which gives us the configuration `_ 2 3 _ 6 10` and a profit of  $2 + 3 + 6 + 10 = 21$ . As no other configuration has a profit greater than **21**, we print **21** as our answer.

## Sample Input 1

```
5 4
1
2
3
4
5
```

## Sample Output 1

```
14
```

## Explanation 1

There are  $n = 5$  billboards, and we must remove some of them so that no more than  $k = 4$  billboards are immediately next to one another.

We remove the first billboard, which gives us the configuration `_ 2 3 4 5` and a profit of  $2 + 3 + 4 + 5 = 14$ . As no other configuration has a profit greater than **14**, we print **14** as our answer.

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Max Score: 80

Difficulty: Advanced

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Java 7



```
1 import java.io.*;
2 import java.util.*;
3 import java.text.*;
4 import java.math.*;
5 import java.util.regex.*;
6
7 public class Solution {
8
9     public static void main(String[] args) {
10         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11     }
12 }
```

Line: 1 Col: 1

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