Goodland Electricity

Goodland is a country with n cities, and each city c_i is sequentially numbered from 0 to $n-1$. These cities are connected by $n-1$ roads, and each road connects city c_i to its neighboring city, c_{i+1}. The distance between any two cities c_i and c_j is $|i-j|$.

Goodland's government started a project to improve the country's infrastructure and bring electricity to its citizens. It built *at most* one electrical tower in every city, but they haven't turned any of them on yet. Once switched on, each tower produces enough power to provide electricity to all neighboring cities at a distance $< k$ from the tower.

Help the goverment by finding and printing the minimum number of towers they must switch on to ensure that all Goodland's cities have electricity. If this task is not possible for the given value of k and configuration of towers, print -1.

Input Format

The first line contains two space-separated integers denoting the respective number of cities in Goodland, n , and the tower's range constant, k.
The second line contains n space-separated binary integers where each integer i $(0 \leq i < n)$ denotes the number of electrical towers in city c_i. Recall that the number of towers in a city will always be either 0 or 1 .

Constraints

- $1 \leq k \leq n \leq 10^5$
- It is guaranteed that the number of electrical towers in each city will be either 0 or 1.

Subtask

- $1 \leq k \leq n \leq 1000$ for 40% of the maximum score.

Output Format

Print a single integer denoting the minimum number of changes the government must make so that all Goodland's cities have electricity; if this is not possible for the given value of k, print -1.

Sample Input

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6 2
0 1 1 1 1 0
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Sample Output

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2
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Explanation

Cities c_1, c_2, c_3, and c_4 have towers that can be switched on, and each tower will have a range of $k = 2$ once switched on. If we switch on the towers in cities c_1 and c_4, then all cities will have electricity. Thus, we print 2 as our answer.