Rabbit Eat Rabbit

Time Limit: 1 second
Memory Limit: 512 MB

Problem Statement

Whiterabbit eats rabbits. It's a rabbit-eat-rabbit world.

There are N rabbits in a circle, numbered from 1 to N clockwise. The rabbit numbered i has deliciousness A_i. Whiterabbit can eat at most K rabbits before being full, and he wants to maximise the sum of deliciousness of rabbits he eat.

However, if Whiterabbit eats a rabbit, the two rabbits directly next to that rabbit will run away. For example, if rabbit 1 is eaten, rabbits 2 and N will flee. Note that after a rabbit flees or is eaten, it leaves an empty gap. For example, if rabbit 3 is eaten and rabbits 2 and 4 have fled, rabbit 1 is not next to rabbit 5.

Determine the maximum sum of deliciousness of rabbits that Whiterabbit can eat.

Input Format

The first line of input will contain two integers, N and K.

The next line of input will contain N integers, representing the array A.

Output Format

Your output should consist of a single line containing a single integer, the maximum sum of deliciousness of rabbits that Whiterabbit can eat.

Limits

For all test cases, $1 \leq K \leq N \leq 4000$ and $-10^9 \leq A_i \leq 10^9$.

Subtask 1: $K = 1$ (6 marks)
Subtask 2: It is always optimal to eat rabbit 1. (50 marks)
Subtask 3: $N \leq 20$ (20 marks)
Subtask 4: There are no more constraints. (24 marks)

Sample Input

This sample input satisfies the constraints of subtasks 2, 3 and 4.

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6 2
9 4 6 7 5 8
```

Sample Output

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16
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Explanation of Sample Case

It is optimal for Whiterabbit to eat rabbits 1 and 4, for a total deliciousness of 16. Note that he cannot eat rabbits 1 and 6 as one will run away if he eats the other.