Going to the Movies

Rob Kolstad, 2008

Farmer John is taking some of his cows to the movies! While his truck has a limited capacity of C (100 <= C <= 5000) kilograms, he wants to take the cows that, in aggregate, weigh as much as possible without exceeding the limit C.

Given N (1 <= N <= 16) cows and their respective weights W_i, determine the weight of the heaviest group of cows that FJ can take to the movies.

Input

- Line 1: Two space-separated integers: C and N
- Lines 2..N+1: Line i+1 contains a single integer: W_i

Output

- Line 1: A single integer that is the weight of the heaviest group of cows that can go to the movies

Example

Input:
259 5
81
58
42
33
61

Output:
242

81+58+42+61 = 242; this is the best possible sum