

Code Congestion

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 1024 megabytes

Little Beth, to commemorate the discontinued Code Jam, prepared a “Code Congestion Memorial Competition.” Beth’s friend, Little Mho, also came to watch, so Beth wants to predict Mho’s score.

The competition lasts for T seconds, with n problems. The score for the i -th problem ($1 \leq i \leq n$) is a_i , and Beth predicts that Mho will need t_i seconds to complete it.

There are two types of problems: results visible and results invisible. The results of the invisible problems are only known after the competition ends, while the results of the visible problems are known immediately after submission. Beth has not yet determined the type of each problem.

Mho will first complete all the results visible problems in order from the smallest index to the largest index, then complete all the results invisible problems in the same order. Mho will spend t_i seconds to complete the i -th problem, and a submission will be made on the i -th problem if and only if the total time spent on the i -th problem and all previous problems does not exceed T .

Since Mho’s submissions are always correct (AC), Beth wants to know, for all 2^n ways to determine the types of n problems, the sum of the total scores Mho can get. Since the answer can be very large, you need to take the answer modulo 998244353.

Input

The first line of the input contains two integers n, T ($1 \leq n \leq 200, 1 \leq T \leq 3 \times 10^5$), representing number of problems and competition time, respectively.

The second line contains n integers $a_1, a_2, \dots, a_n$ ($1 \leq a_i \leq 3 \times 10^5$), representing the score of each problem.

The third line contains n integers $t_1, t_2, \dots, t_n$ ($1 \leq t_i \leq T$), representing the time Mho takes to solve each problem.

Output

Output one line containing an integer, representing the sum of the total scores Mho can get for all ways to determine the types of n problems, modulo 998244353.

Example

standard input	standard output
3 3 2 3 4 1 2 2	40