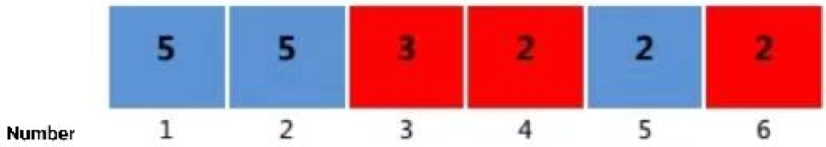
Sum

Problem Description

A long, narrow strip of paper is evenly divided into n squares, numbered from 1 to n. Each square is colored by color_i (represented by an integer in [1,m]) and a number_i is written on it.



Now define a special triplet: (x,y,z), where x, y, z represent the number of the square on the tape. The triplet should satisfy the following two conditions:

x, y, z are integers, $x<y<z$, $y-x=z-y$

colorx=colorz

The score of a triple satisfying the above condition is specified as (x+z)×(number_x+number_z). The score of the whole tape is prescribed as the sum of the scores of all triples that satisfy the condition. This score can be quite large; you should output the remainder of the score of the entire tape divided by 10,007.

Input

The first row is two positive integers n and m separated by a space, where n represents the number of squares on the tape and m represents the number of types of colors on the tape.

The second row has n positive integers separated by spaces, and the i^{th} number is the number written on the i square on the tape.

The third row has n positive integers separated by spaces, and the i^{th} number indicates the color of the i square on the tape.

Output

An integer representing the remainder of the score of the tape divided by 10007.

Sample Input

6 2
5 5 3 2 2 2
2 2 1 1 2 1

Sample Output

82

Hint

[Explanation of sample 1]

The tape is shown in the figure in the problem description.

All triples that satisfy the condition are: (1, 3, 5), (4, 5, 6).

So the score of the tape is (1+5)×(5+2)+(4+6)×(2+2)=42+40=82.

For the data from group 1 to group 2, $1 \leq n \leq 100$, $1 \leq m \leq 5$;
For the data from group 3 to group 4, $1 \leq n \leq 3000$, $1 \leq m \leq 100$;
For the data from groups 5 to 6, $1 \leq n \leq 100000$, $1 \leq m \leq 100000$, and there is no color with more than 20 occurrences;
For the whole 10 data sets, $1 \leq n \leq 100000$, $1 \leq m \leq 100000$, $1 \leq color\_i \leq M$, $1 \leq number\_i \leq 100000$.