Problem C. Space Station

In the distant future, Little Cyan Fish is the commander of a high-tech space station on the frontier of human civilization. His station is under constant threat from an alien enemy that attacks at unpredictable intervals. These attacks vary in intensity and can cause severe damage to his station's infrastructure.

As the commander, he has access to advanced defensive systems. Each time an enemy attack is imminent, he can choose to activate the defensive shields, nullifying the attack, or let the attack through, dealing with the damage afterward. However, activating the shields comes at a cost.

Specifically, Little Cyan Fish will be attacked n times. Before each attack, he can choose to spend m dollars to activate the shield, making the attack ineffective (i.e., dealing no damage). After deciding whether to activate the shield for a particular attack, he will learn the current attack's intensity b_i. If Little Cyan Fish did not activate the shield for this attack, he must pay b_i dollars to repair the damage caused by the attack. (Note that activating the shield only makes the current attack ineffective. If he chooses to activate the shield for the next attack, he has to pay the cost again.)

However, the damage b_i caused by each attack is not yet known. Little Cyan Fish only knows that b_i is a random permutation of another known sequence $a_1, a_2, \cdots, a_n$. In other words, $b_i = a_{\sigma_i}$, where $\sigma_1, \sigma_2, \cdots, \sigma_n$ is a permutation of $\{1, 2, \ldots, n\}$ chosen uniformly at random from all $n!$ possible permutations. Note that after each attack, Little Cyan Fish will know the damage of the attack, whether he activated the shield or not.

Given the sequence $a_1, a_2, \cdots, a_n$, determine the expected minimum cost of handling the attacks using the optimal strategy, modulo 998 244 353. More formally, represent the expected minimum cost as an irreducible fraction $E = p/q$. Then, there exists a unique integer $r \in [0, 998\,244\,353)$ such that $r \times q \equiv p \pmod{998\,244\,353}$, so output this integer r.

Input

The first line of the input contains two integers n and m ($1 \le n \le 100$, $1 \le m \le 100$).

The next line of the input contains n integers $a_1, a_2, \cdots, a_n$ ($1 \le a_i \le 200$).

Output

Output a single line containing a single integer, representing the answer.

Examples

standard input	standard output
3 3 2 3 4	499122185
5 1 10 20 30 40 50	5

Note

In the first example, one of the optimal strategies is:

- Activate the shield before the first attack. This will cost 3 dollars.
  - There is a 1/3 of chance that $a_1 = b_1 = 2$. In this case, Little Cyan Fish should activate the shield for all remaining rounds of attacks. This will cost 3×2 more dollars. So the cost in this case will be $3 + 3 \times 2 = 9$

- There is a 1/3 of chance that $a_1 = b_2 = 3$. In this case, Little Cyan Fish should NOT activate the shield in the second round of attack.
  * There is a 1/2 of chance that $a_2 = b_1 = 2$. In this case, Little Cyan Fish needs to pay 2 dollars to repair the damage. Then, Little Cyan Fish should activate the shield in the third round of attack, which will cost 3 dollars. So the cost in this case will be $3 + 2 + 3 = 8$.
  * There is a 1/2 of chance that $a_2 = b_3 = 4$. Little Cyan Fish needs to pay 4 dollars to repair the damage. Then, Little Cyan Fish should NOT activate the shield in the third round of attack, which will cost $a_3 = b_1 = 2$ dollars to repair the damage. So the cost in this case will be $3 + 4 + 2 = 9$.
- There is a 1/3 of chance that $a_1 = b_3 = 4$. In this case, Little Cyan Fish should NOT activate the shield for all remaining rounds of attacks. This will cost $2 + 3$ more dollars to fix the damage in the remaining two rounds of attacks. So the cost in this case will be $3 + 2 + 3 = 8$.

So, the answer in the first test case will be $9 \times \frac{1}{3} + 8 \times \frac{1}{6} + 9 \times \frac{1}{6} + 8 \times \frac{1}{3} = \frac{17}{2} \equiv 499\,122\,185 \pmod{998\,244\,353}$.

In the second example, the optimal strategy is to activate the shield for all rounds.