

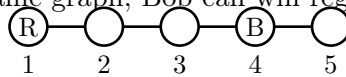
Problem G. Game of Col on Bamboo Forests

Input file: `game.in`
Output file: `game.out`
Time limit: 2 seconds
Memory limit: 512 megabytes

Game of Col is a map coloring game described by John Conway who attributed it to Colin Vout.

The Game is played by two players, Alice and Bob. The game is played on a graph, players make moves in turn by coloring graph vertices, Alice moves first. Each move a player chooses one of yet uncolored vertices and colors it to his/her color. Alice colors vertices red, Bob colors vertices blue. The restriction is that the player is not allowed to color vertices that are adjacent to vertices of his color. The player who cannot make a move loses.

For example, in the position on the graph below (red vertices are marked with “R”, blue vertices are marked with “B”) Alice can make her move by coloring vertex 3 or vertex 5. If she colors vertex 3, Bob can then color vertex 2. Then Alice colors vertex 5, Bob has no moves and loses. However, should the players played optimally on the same graph, Bob can win regardless of Alice’s moves (check it!).



Alice and Bob have decided that they will play the game on bamboo forests. Bamboo forest is a graph that has k connected components, the i -th component is a path — bamboo. The picture below shows bamboo forest composed of bamboos of lengths 2, 2, and 4.



They have prepared n bamboos of length a_1, a_2, \dots, a_n , respectively, and now they want to choose k of them to create a graph and play. Bob thinks that he would win any way, so he allows Alice to choose k bamboos to create a graph to play. Alice wonders, how many ways are there to choose k of the given bamboos, so that she would win the game if played optimally. Help her find the answer and print it modulo 242 121 643.

Input

The input file contains multiple test cases.

The first line of each test case contains n and k ($1 \leq k \leq n \leq 100$). The second line contains n integers: a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10^9$).

The last test case is followed by a line containing two zeroes, it must not be processed. Each input file contains at most 1000 test cases.

Output

For each test case output one integer: the number of ways to choose k bamboos of the given n so that Alice wins the game of Col on the resulting bamboo forest. The answer must be printed modulo 242 121 643.

Examples

<code>game.in</code>	<code>game.out</code>
5 3	6
1 1 3 4 5	0
4 2	
2 2 2 2	
0 0	