



Scheduler

Time limit: 1280 ms
Memory limit: 264 MB

This is an easier version of the [Scheduler Redux](#) problem.

In this challenge you must figure out how quickly N jobs can be completed by M workers. Each job will take 2^x amount of time, where x is a non-negative integer.

Since the amount of time could be quite large, you should indicate the amount of time needed modulo $10^9 + 7$.

In this easier version of the problem, no two jobs will have the same time to finish.

Standard input

Each input has a single test case.

The input begins with a line containing two space-separated integers, N and M . N specifies the number of jobs, and M specifies the number of workers.

The next line of input contains N integers, where the i th integer, X_i , indicates that job i takes 2^{X_i} time.

Standard output

Output the minimum amount of time required to complete all of the jobs, modulo $10^9 + 7$.

Constraints and notes

- $1 \leq N \leq 100,000$
- $1 \leq M \leq 20$
- $0 \leq X_i < 100,000$
- For any $i \neq j$, $X_i \neq X_j$

Input	Output	Explanation
4 3 0 1 2 4	16	The job times, respectively, are 1, 2, 4, 16. One strategy is to give job 1 and 3 to Worker 1, Job 2 to Worker 2, and Job 4 to Worker 3. Worker 1 would complete the jobs in 5 time units (1 + 4). Worker 2 would complete the job in 2 time units, and worker 3 would complete the job in 16 units. So, the time needed is 16.
2 1 1 2	6	
5 5 1 2 4 9999 10000	905611805	