

<codeClash>2019

Code Clash Official Problem #9 'Bacteria'

Problem statement

There are many types of unique bacteria that are found across the world. These bacteria reproduce over and die over time, so their populations are always fluctuating. Your mission is to estimate the population of several bacteria in an ecosystem after a given number of months. Every type of bacteria will have a starting population, a reproduction rate (each individual bacterium will duplicate every given number of months), and a lifespan (each individual bacterium will die after a given number of months). A bacterium does not give birth in the month that it dies. Assume that each bacterium can reproduce (duplicate) independently and the clock until it duplicates begins as soon as it is born. Assume that the entire population is at the beginning of its lifespan at the start of the population. For each simulation, calculate and print the final population of each bacteria species after a specific number of months.

The first line of input will contain two integers separated by a space. The first integer will be the number of bacteria to follow, and the second integer will be the number of months to run the simulation. A line will follow for each bacteria species, containing three integers separated by a space: the starting population, reproduction rate, and lifespan. All numbers will be non-negative and less than 2^{32} . Print each of your output numbers on its own line in the same order it was provided.

Sample test case

Sample input and output for this problem:

Input	Output
4 24	
10 1 5	78398880
50 2 10	149000
100 3 12	16200
500000 12 50	2000000