

Question 1:

You are at the first cell in an array of length N . Each cell has a number a_i . At cell i , you can either jump to cell $i + a_i$, or $i + h$, where h is the length of your most recent jump ($h = h_0$ if you have not made any jumps so far). You cannot leave the array.

How many paths are there to the last cell? Two paths are different if their set of visited cells are different. Print the answer modulo $10^9 + 7$.

$$N \leq 100000$$

$$h_0, a_1, a_2, \dots, a_n \leq N - 1.$$

Question 2:

You are given a tree with N nodes. Let $D(i, j)$ represent the number of edges in the unique shortest path from i to j . Count the number of (unordered) triples (a, b, c) where $D(a, b) = D(b, c) = D(a, c) > 0$.

$$N \leq 100000$$