3032. Maximize Value of Function in a Ball Passing Game

Difficulty : Hard

https://leetcode.com/problems/maximize-value-of-function-in-a-ball-passing-game

You are given an integer array `receiver` of length `n` and an integer `k`. `n` players are playing a ball-passing game.

You choose the starting player, `i`. The game proceeds as follows: player `i` passes the ball to player `receiver[i]`, who then passes it to `receiver[receiver[i]]`, and so on, for `k` passes in total. The game's score is the sum of the indices of the players who touched the ball, including repetitions, i.e. `i + receiver[i] + receiver[receiver[i]] + ... + receiver`$^{(k)}$`[i]`.

Return the **maximum** possible score.

Notes:

- `receiver` may contain duplicates.
- `receiver[i]` may be equal to `i`.

Example 1:

Input: receiver = [2,0,1], k = 4

Output: 6

Explanation:

Starting with player `i = 2` the initial score is 2:

Pass	Sender Index	Receiver Index	Score
1	2	1	3
2	1	0	3
3	0	2	5
4	2	1	6

Example 2:

Input: receiver = [1,1,1,2,3], k = 3

Output: 10

Explanation:

Starting with player `i = 4` the initial score is 4:

Pass	Sender Index	Receiver Index	Score
1	4	3	7
2	3	2	9
3	2	1	10

Constraints:

- `1 <= receiver.length == n <=` 10^5
- `0 <= receiver[i] <= n - 1`
- `1 <= k <=` 10^{10}