Editorial - Knuckles Range

There are **n** mountain peaks located in a straight line. Use dynamic programming to calculate the maximum number of peaks that can be selected.

$$dp[i] = max(dp[j]) + 1 \text{ such that } abs(h_i - h_j) >= H \text{ and } j<i.$$

To calculate max(dp [j]) you can use a segment tree. But the mountain peak heights are in the range $1 <= h_i <= 10^{15}$ where it is not possible to create a segment tree of that size. But there are a maximum of 10^5 such mountain peaks and you do not need to store every possible height value. You can normalize the heights using another array of size **n** and binary search that array to get the required position of the segment tree for a h_i value.

Time Complexity: $n * log(n)$
Space Complexity: $2 * n$