

Problem 1425: Constrained Subsequence Sum

Problem Information

Difficulty: Hard

Acceptance Rate: 56.37%

Paid Only: No

Tags: Array, Dynamic Programming, Queue, Sliding Window, Heap (Priority Queue), Monotonic Queue

Problem Description

Given an integer array `nums` and an integer `k`, return the maximum sum of a **non-empty** subsequence of that array such that for every two **consecutive** integers in the subsequence, `nums[i]` and `nums[j]`, where `i < j`, the condition `j - i ≤ k` is satisfied.

A **subsequence** of an array is obtained by deleting some number of elements (can be zero) from the array, leaving the remaining elements in their original order.

Example 1:

Input: `nums = [10,2,-10,5,20]`, `k = 2` **Output:** 37 **Explanation:** The subsequence is `[10, 2, 5, 20]`.

Example 2:

Input: `nums = [-1,-2,-3]`, `k = 1` **Output:** -1 **Explanation:** The subsequence must be non-empty, so we choose the largest number.

Example 3:

Input: `nums = [10,-2,-10,-5,20]`, `k = 2` **Output:** 23 **Explanation:** The subsequence is `[10, -2, -5, 20]`.

Constraints:

`1 ≤ k ≤ nums.length ≤ 105` `-104 ≤ nums[i] ≤ 104`

Code Snippets

C++:

```
class Solution {  
public:  
    int constrainedSubsetSum(vector<int>& nums, int k) {  
  
    }  
};
```

Java:

```
class Solution {  
    public int constrainedSubsetSum(int[] nums, int k) {  
  
    }  
}
```

Python3:

```
class Solution:  
    def constrainedSubsetSum(self, nums: List[int], k: int) -> int:
```