GREEDY

VIDEO-26

Leetcode -2971

Medium

easy

Facebook
Instagram → codestorywithMIK

Twitter → cswithMIK

→ codestorywithMIK

2971. Find Polygon With the Largest Perimeter

Medium | Topics | Companies | Hint

You are given an array of **positive** integers `nums` of length `n`.

A **polygon** is a closed plane figure that has at least `3` sides. The **longest side** of a polygon is **smaller** than the sum of its other sides.

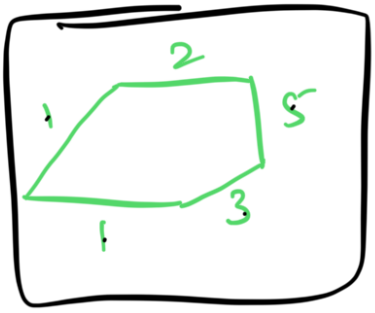
Conversely, if you have `k` (`k >= 3`) **positive** real numbers a_1, a_2, a_3, ..., a_k where $a_1 <= a_2 <= a_3 <= ... <= a_k$ **and** $a_1 + a_2 + a_3 + ... + a_{k-1} > a_k$, then there **always** exists a polygon with `k` sides whose lengths are a_1, a_2, a_3, ..., a_k.

The **perimeter** of a polygon is the sum of lengths of its sides.

Return *the **largest** possible **perimeter** of a **polygon** whose sides can be formed from* `nums`, *or* `-1` *if it is not possible to create a polygon.*

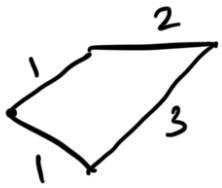
Example :- nums = [5, 5, 5]

Output = 15



nums = [1, 12, 1, 2, 5, 50, 3]

Output = 12



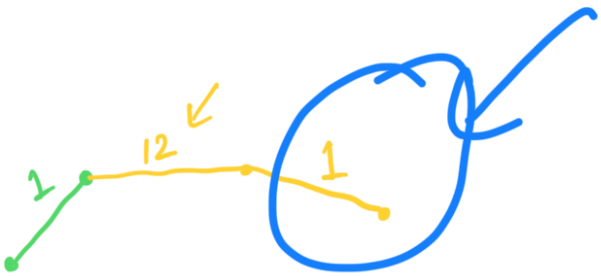
7

nums = [5, 5, 50]

Output = -1

Thought Process :-

[1, 12, 1, 2, 5, 50, 3]



Sum = 1+12+1

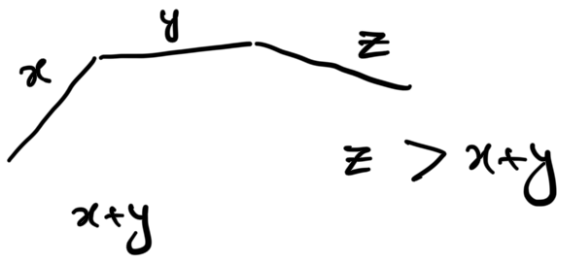
1+12 = 13

12 > 1+1

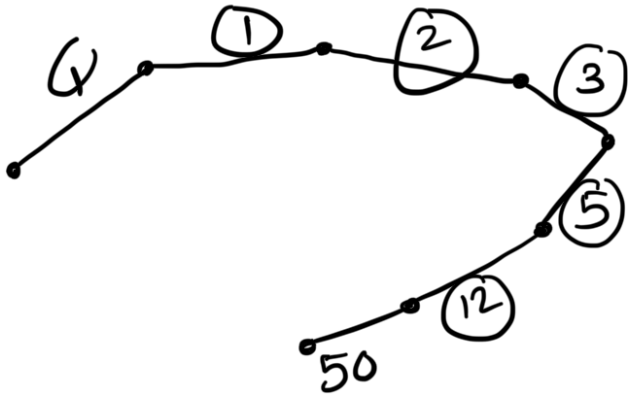
1 < 13

increasing order.

Sorting :-



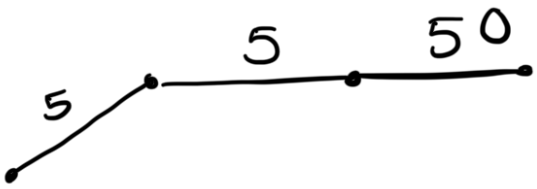
nums = {1, 1, 2, 3, 5, 12, 50}



CumSum = 1+1+2 +3+5+12

cums = 12

nums = {5, 5, 50}



CumSum = 0 + 5 + 5

Ans = -1

(•) Sort

(•) Pick edge 1 by 1

(•) edge (largest)

if (CumSum > edge)

Ans = CumSum + edge;

CumSum += edge;