Problem 1: Bamboozling Big Oil [HackerRank]

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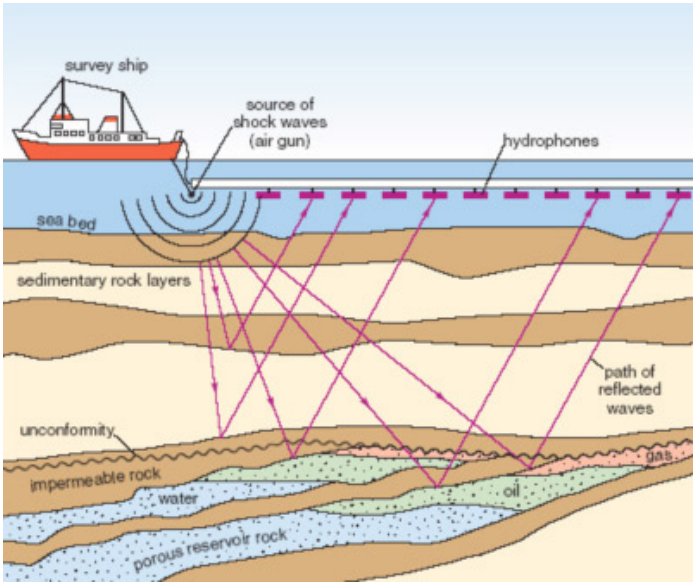
1 Background: How do you know what rock is under you?

(This part is just for fun. Still recommend though!) The titular question is of prime importance to curious geologists, who want to study the rocks beneath us without digging to China, and... oil companies (sigh). Geologists have devised quite a few ways to meet the challenge. One way is to simply examine surface features and take shallow core samples and see if the rock you find is similar to what you'd find if there were an oil trap below. But this is hardly a foolproof method! A more solid way (no pun intended) of doing so is to send a disturbance (wave) of some sort, and measure both where they end up after being reflected, as well as how long it took for them to resurface. It's very much like RADAR, and the measurements can be analyzed to determine both 1) what type of rock lies below, and 2) how deep certain rock types lie.

But how do you create shockwaves to measure? For exploration over water, one can use *compressed-air guns* that shoot air pulses into the water. Over land, techniques all revolve around creating a mini-earthquake: sometimes huge masses are slammed into the ground, and sometimes explosives are burrowed deep into the ground, then detonated... (Image credit below: OpenLearn)



2 Problem Statement

You are an analyst who took up a job at a major oil company — Eggson Mobile — with the intention of convincing them to switch to more renewable sources of energy. You hear about a new potential oil drilling operation that your colleagues are investigating, and decide to write a report to convince your boss to abandon this project by showing them that the associated costs are too high.

Luckily, before actually drilling your company needs to test which of the candidate drilling locations have oil. The potential locations of the new testing operations are a series of sites situated in a row, one after the other. You know that testing any one of the sites prevents you from testing any of its neighboring sites for oil, as the testing shockwaves that are propagated through the bedrock might interfere if sites are too close to one another. (Why? Read the background!) This could lead to inaccurate determinations of whether oil exists at the site, and the last thing you want (since you care about the environment) is to have your company drill at a place where there's no oil.

You decide to sabotage the testing operation. You obtain from your colleague the costs associated with testing for oil at each of these sites and decide to only include in your report (rather maliciously) the highest possible *total* cost of a testing operation that doesn't violate your company's constraint (that test sites can't be adjacent). Also, you need to drill at at least one site. Write a function to compute this maximal cost.

Input
The first line contains a positive integer n. The next line contains n space-separated (definitely non-negative) integers that make up the testing costs associated with each of the sites.

Output
The output should consist of one integer: the maximal cost of an allowed testing operation.

Example 1

Input:

```
5
14 12 15 1 20
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Output:

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49
```

Explanation: The best choice is to recommend testing at sites $1, 3$ and 5, giving you a total cost of $14 + 15 + 20 = 49$.

Example 2

Input:

```
4
100 0 1 99
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Output:

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199
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Explanation: The best choice is to recommend testing at sites 1 and 4, giving you a total cost of $100+99 = 199$.