

1] Given an array A of integers, find a contiguous non-empty subarray within the array that has the largest product, and return the product.

Note: The product fits in a 32-bit integer.

Example

A: [-1, 3, 2, -1, -2, 3, 0, -2]

Result: 36

Explanation: The subarray [3, 2, -1, -2, 3] has a product of 36.

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2] You have k eggs and a building with n floors (labeled 1 to n).

There exists a floor f ( $0 \leq f \leq n$ ) on the building such that any egg dropped from a floor higher than f will break and, any egg dropped at or below f won't break.

Each move you can take an unbroken egg and drop it from any floor x ( $1 \leq x \leq n$ ).

Find the minimum number of moves that you need to determine with certainty what the value of f is.

Example

k: 1

n: 2

Answer: 2

Explanation:

Step 1: Drop from floor 1. If it breaks, f = 0.

Step 2: Drop from floor 2. If it breaks, f = 1. Else, f = 2.

We need atleast 2 moves to know with certainty the value of f.

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3] Given a string s, partition s such that every substring of the partition is a palindrome. Find the minimum cuts needed for palindromic partition of s.

Example:

s: "aabc"

Min cuts: 2

Palindromic partition: ["aa", "b", "c"]

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4] You are given a string s and a word list w which is a list of unique strings. Break the string into a sequence of words where each word is an element in w.

Examples

s: "workattech"

w: ["tech", "work", "problem", "at", "workattech"]

Result: ["work at tech", "workattech"]

s: "roundandround"

w: ["and", "round", "roundand"]

Result: ["round and round", "roundand round"]

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5] You are given an array prices where prices[i] denotes the price of a stock on the ith day. You want to maximize the profit by buying a stock and then selling it at a higher price.

Suppose you can do as many transactions as you want, what is the maximum profit that you can make?

Note:

Return 0 if you cannot make a profit.

You cannot buy/hold more than 1 stock at a time.

You need to sell a stock before buying again.

You can sell a stock and buy it again on the same day.

Examples

prices: [6, 1, 4, 2, 5, 3]

Answer: 6

**Explanation**

Buy on day 2 (price: 1) and Sell on day 3 (price: 4).

Buy on day 4 (price: 2) and Sell on day 5 (price: 5).

Profit:  $(4 - 1) + (5 - 2) = 6$ .

prices: [1, 2, 3, 4, 5]

Answer: 4

**Explanation**

Buy on day 1 (price: 1) and Sell on day 5 (price: 5).

Profit:  $(5 - 1) = 4$ .

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6] Given a string *s*, find the minimum number of characters you need to insert at the beginning in order to make the string a palindrome.

**Example 1**

s: "baaba"

Result: 1

**Example 2**

s: "bab"

Result: 0

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