Given an array A of integers, return true if and only if it is a *valid mountain array*.

Recall that A is a mountain array if and only if:

* A.length >= 3
* There exists some i with 0 < i < A.length - 1 such that:
  + A[0] < A[1] < ... A[i-1] < A[i]
  + A[i] > A[i+1] > ... > A[A.length - 1]

**Example 1:**

**Input:** [2,1]

**Output:** false

**Example 2:**

**Input:** [3,5,5]

**Output:** false

**Example 3:**

**Input:** [0,3,2,1]

**Output:** true

**Note:**

1. 0 <= A.length <= 10000
2. 0 <= A[i] <= 10000