

# 281. Zigzag Iterator

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Given two vectors of integers `v1` and `v2`, implement an iterator to return their elements alternately.

Implement the `ZigzagIterator` class:

- `ZigzagIterator(List<int> v1, List<int> v2)` initializes the object with the two vectors `v1` and `v2`.
- `boolean hasNext()` returns `true` if the iterator still has elements, and `false` otherwise.
- `int next()` returns the current element of the iterator and moves the iterator to the next element.

### Example 1:

**Input:** `v1 = [1,2], v2 = [3,4,5,6]`  
**Output:** `[1,3,2,4,5,6]`  
**Explanation:** By calling `next` repeatedly until `hasNext` returns false, the order of elements returned by `next` should be: `[1,3,2,4,5,6]`.

### Example 2:

**Input:** `v1 = [1], v2 = []`  
**Output:** `[1]`

### Example 3:

**Input:** `v1 = [], v2 = [1]`  
**Output:** `[1]`

### Constraints:

- $0 \leq v1.length, v2.length \leq 1000$
- $1 \leq v1.length + v2.length \leq 2000$
- $-2^{31} \leq v1[i], v2[i] \leq 2^{31} - 1$

**Follow up:** What if you are given `k` vectors? How well can your code be extended to such cases?

### Clarification for the follow-up question:

The "Zigzag" order is not clearly defined and is ambiguous for `k > 2` cases. If "Zigzag" does not look right to you, replace "Zigzag" with "Cyclic".

### Follow-up Example:

**Input:** `v1 = [1,2,3], v2 = [4,5,6,7], v3 = [8,9]`  
**Output:** `[1,4,8,2,5,9,3,6,7]`

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Yes

No

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