2559. Count Vowel Strings in Ranges

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You are given a **0-indexed** array of strings `words` and a 2D array of integers `queries`.

Each query `queries[i] = [l_i, r_i]` asks us to find the number of strings present in the range l_i to r_i (both **inclusive**) of `words` that start and end with a vowel.

Return an array `ans` of size `queries.length`, where `ans[i]` is the answer to the i [th] query.

Note that the vowel letters are `'a'`, `'e'`, `'i'`, `'o'`, and `'u'`.

User Accepted:	8513
User Tried:	10478
Total Accepted:	8743
Total Submissions:	18982
Difficulty:	Medium

Example 1:

```
Input: words = ["aba","bcb","ece","aa","e"], queries = [[0,2],[1,4],[1,1]]
Output: [2,3,0]
Explanation: The strings starting and ending with a vowel are "aba", "ece", "aa" and "e".
The answer to the query [0,2] is 2 (strings "aba" and "ece").
to query [1,4] is 3 (strings "ece", "aa", "e").
to query [1,1] is 0.
We return [2,3,0].
```

Example 2:

```
Input: words = ["a","e","i"], queries = [[0,2],[0,1],[2,2]]
Output: [3,2,1]
Explanation: Every string satisfies the conditions, so we return [3,2,1].
```

Constraints:

- `1 <= words.length <= 10^5`
- `1 <= words[i].length <= 40`
- `words[i]` consists only of lowercase English letters.
- `sum(words[i].length) <= 3 * 10^5`
- `1 <= queries.length <= 10^5`
- `0 <= l_i <= r_i < words.length`

Discuss (https://leetcode.com/problems/count-vowel-strings-in-ranges/discuss)

JavaScript ▼   ⟨⟩   ↻   ⚙

```javascript
 1  const isVowel = (c) => 'aeiou'.indexOf(c) != -1;
 2
 3  function Bisect() {
 4      return { insort_right, insort_left, bisect_left, bisect_right }
 5      function insort_right(a, x, lo = 0, hi = null) {
 6          lo = bisect_right(a, x, lo, hi);
 7          a.splice(lo, 0, x);
 8      }
 9      function bisect_right(a, x, lo = 0, hi = null) { // > upper_bound
10          if (lo < 0) throw new Error('lo must be non-negative');
11          if (hi == null) hi = a.length;
12          while (lo < hi) {
13              let mid = parseInt((lo + hi) / 2);
14              a[mid] > x ? hi = mid : lo = mid + 1;
15          }
16          return lo;
17      }
18      function insort_left(a, x, lo = 0, hi = null) {
19          lo = bisect_left(a, x, lo, hi);
20          a.splice(lo, 0, x);
21      }
```

```
22 ▾    function bisect_left(a, x, lo = 0, hi = null) { // >= lower_bound
23          if (lo < 0) throw new Error('lo must be non-negative');
24          if (hi == null) hi = a.length;
25 ▾        while (lo < hi) {
26              let mid = parseInt((lo + hi) / 2);
27              a[mid] < x ? lo = mid + 1 : hi = mid;
28          }
29          return lo;
30      }
31 }
32
33 ▾ const vowelStrings = (a, queries) => {
34      let ia = [], res = [], bi = new Bisect();
35 ▾    for (let i = 0; i < a.length; i++) {
36          let s = a[i];
37          if (isVowel(s[0]) && isVowel(s[s.length - 1])) ia.push(i);
38      }
39 ▾    for (const [l, r] of queries) {
40          let lb = bi.bisect_left(ia, l); // >= l
41          let rb = bi.bisect_right(ia, r) - 1; // <= r
42          res.push(rb - lb + 1);
43      }
44      return res;
45 };
```

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