Shortest Word Distance

Given a list of words and two words*word1* and *word2*, return the shortest distance between these two words in the list.

For example,
Assume that words = `["practice", "makes", "perfect", "coding", "makes"]`.

Given *word1* = `“coding”`, *word2* = `“practice”`, return 3.
Given *word1* = `"makes"`, *word2* = `"coding"`, return 1.

Note:
You may assume that *word1* **does not equal to** *word2*, and *word1* and *word2* are both in the list.

Solution 1

```
public int shortestDistance(String[] words, String word1, String word2) {
    int p1 = -1, p2 = -1, min = Integer.MAX_VALUE;

    for (int i = 0; i < words.length; i++) {
        if (words[i].equals(word1))
            p1 = i;

        if (words[i].equals(word2))
            p2 = i;

        if (p1 != -1 && p2 != -1)
            min = Math.min(min, Math.abs(p1 - p2));
    }

    return min;
}
```

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Solution 2

```
public int shortestDistance(String[] words, String word1, String word2) {
   int index = -1, minDistance = Integer.MAX_VALUE;
   for (int i = 0; i < words.length; i++) {
      if (words[i].equals(word1) || words[i].equals(word2)) {
         if (index != -1 && !words[index].equals(words[i])) {
            minDistance = Math.min(minDistance, i - index);
          }
          index = i;
      }
   }
   return minDistance;
}
```

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Solution 3

Creating two lists storing indexes of each occurrence of the `word1` and `word2` accordingly. After that finding minimum difference between two elements from these lists.

```
public class Solution {
        public int shortestDistance(String[] words, String word1, String word2) {
            List<Integer> w1occ=new ArrayList<Integer>();
            List<Integer> w2occ=new ArrayList<Integer>();

            for (int i=0; i<words.length; ++i){
                if (words[i].equals(word1)){
                    w1occ.add(i);
                }
                if (words[i].equals(word2)){
                    w2occ.add(i);
                }
            }

            int min=words.length;
            int p1=0;
            int p2=0;
            while (p1<w1occ.size() && p2<w2occ.size()){
                min=Math.min(Math.abs(w1occ.get(p1)-w2occ.get(p2)), min);
                if (w1occ.get(p1)<w2occ.get(p2)){
                    p1++;
                } else
                    p2++;
            }
            return min;
        }
    }
```

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