# 472. Concatenated Words

# Difficulty : Hard

https://leetcode.com/problems/concatenated-words

Given an array of strings `words` (**without duplicates**), return *all the **concatenated words** in the given list of* `words`.

A **concatenated word** is defined as a string that is comprised entirely of at least two shorter words (not necessarily distinct) in the given array.

**Example 1:**

```
Input: words = ["cat","cats","catsdogcats","dog","dogcatsdog","hippopotamuses","rat","ratcatdogcat"]
Output: ["catsdogcats","dogcatsdog","ratcatdogcat"]
Explanation: "catsdogcats" can be concatenated by "cats", "dog" and "cats";
"dogcatsdog" can be concatenated by "dog", "cats" and "dog";
"ratcatdogcat" can be concatenated by "rat", "cat", "dog" and "cat".
```

**Example 2:**

```
Input: words = ["cat","dog","catdog"]
Output: ["catdog"]
```

**Constraints:**

- `1 <= words.length <= 10`$^4$
- `1 <= words[i].length <= 30`
- `words[i]` consists of only lowercase English letters.
- All the strings of `words` are **unique**.
- `1 <= sum(words[i].length) <= 10`$^5$