# Longest Word in Dictionary LeetCode

Given an array of strings words representing an English Dictionary, return *the longest word in* words *that can be built one character at a time by other words in* words.

If there is more than one possible answer, return the longest word with the smallest lexicographical order. If there is no answer, return the empty string.

Note that the word should be built from left to right with each additional character being added to the end of a previous word.

**Example 1:**

**Input:** words = ["w","wo","wor","worl","world"]

**Output:** "world"

**Explanation:** The word "world" can be built one character at a time by "w", "wo", "wor", and "worl".

**Example 2:**

**Input:** words = ["a","banana","app","appl","ap","apply","apple"]

**Output:** "apple"

**Explanation:** Both "apply" and "apple" can be built from other words in the dictionary. However, "apple" is lexicographically smaller than "apply".

**Approach 1: Function to find the longest word that can be built from a list of words**

**Function Purpose:**

Find the longest word that can be built from a list of words.

**Explanation:**

- **TrieNode Class:**
  - Represents a node in the trie with children nodes, an end-of-word flag, and the original word associated with the node.
- **Trie Class:**
  - Manages the trie and provides methods to insert words and check if a word is buildable from its prefixes.
- **insert Method:**
  - Inserts each word into the trie.
- **isBuildable Method:**

    - Checks if a word is buildable by verifying if each character forms a complete word.
- **longestWord Function:**
    - Creates a trie and inserts words.
    - Iterates through the words to find the longest buildable word.

**Time Complexity:**

- **Trie Insertion: O(N * L), where N is the number of words, and L is the average length of a word.**
- **Word Check: O(N * L), where N is the number of words, and L is the average length of a word.**

**Space Complexity:**

- **Trie Storage: O(N * L), where N is the number of words, and L is the average length of a word.**
- **Overall Space Complexity: O(N * L)**