

## DAILY PROGRAMMING CHALLENGE



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### Reverse a String Word by Word

You are given a string  $s$  that consists of multiple words separated by spaces. Your task is to reverse the order of the words in the string. Words are defined as sequences of non-space characters. The output string should not contain leading or trailing spaces, and multiple spaces between words should be reduced to a single space.

#### Input:

A string  $s$  of length  $n$  ( $1 \leq n \leq 10^4$ ) consisting of letters, digits, punctuation, and spaces.

#### Output:

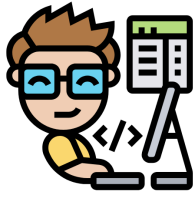
- A string where the words in  $s$  are reversed, with a single space separating the words, and no leading or trailing spaces.

#### Examples:

- Example 1  
Input: "the sky is blue"  
Output: "blue is sky the"  
Explanation: The input string has leading and trailing spaces, which are removed in the output, and the words are reversed.
- Example 2  
Input: " hello world "  
Output: "world hello"  
Explanation: The input string has leading and trailing spaces, which are removed in the output, and the words are reversed.
- Example 3  
Input: "a good example"  
Output: "example good a"  
Explanation: The input string contains multiple spaces between the words. These are reduced to a single space, and the words are reversed in the output.

#### Constraints:

- $1 \leq s.length \leq 10^4$
- The string  $s$  may contain leading or trailing spaces.
- Words in  $s$  are separated by one or more spaces.



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- s contains printable ASCII characters.

### Test Cases:

1. Input: "the sky is blue"  
Output:
2. Input: " hello world "  
Output: "world hello"
3. Input: "a good example"  
Output: "example good a"
4. Input: " "  
Output: ""
5. Input: "word"  
Output: "word"

### Edge Cases:

1. All spaces: If the string consists of only spaces, the output should be an empty string.
2. Single word: If the string contains only one word, the output should be the same word without any additional spaces.
3. Multiple spaces between words: All extra spaces between words should be reduced to a single space.