Problem 388: Longest Absolute File Path

Problem Information

Difficulty: Medium
Acceptance Rate: 48.93%
Paid Only: No
Tags: String, Stack, Depth-First Search

Problem Description

Suppose we have a file system that stores both files and directories. An example of one system is represented in the following picture:

Here, we have `dir` as the only directory in the root. `dir` contains two subdirectories, `subdir1` and `subdir2`. `subdir1` contains a file `file1.ext` and subdirectory `subsubdir1`. `subdir2` contains a subdirectory `subsubdir2`, which contains a file `file2.ext`.

In text form, it looks like this (with ■ representing the tab character):

dir ■ subdir1 ■ ■ file1.ext ■ ■ subsubdir1 ■ subdir2 ■ ■ subsubdir2 ■ ■ ■ file2.ext

If we were to write this representation in code, it will look like this: `"dir\n\tsubdir1\n\t\tfile1.ext\n\t\tsubsubdir1\n\tsubdir2\n\t\tsubsubdir2\n\t\t\tfile2.ext"`. Note that the `\n` and `\t` are the new-line and tab characters.

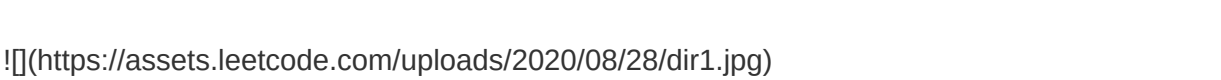
Every file and directory has a unique **absolute path** in the file system, which is the order of directories that must be opened to reach the file/directory itself, all concatenated by `/`s. Using the above example, the **absolute path** to `file2.ext` is `"dir/subdir2/subsubdir2/file2.ext"`. Each directory name consists of letters, digits, and/or spaces. Each file name is of the form `name.extension`, where `name` and `extension` consist of letters, digits, and/or spaces.

Given a string `input` representing the file system in the explained format, return _the length of the**longest absolute path** to a **file** in the abstracted file system_. If there is no file in

the system, return `0`.

Note that the testcases are generated such that the file system is valid and no file or directory name has length 0.

Example 1:



Input: input = "dir\n\tsubdir1\n\tsubdir2\n\t\tfile.ext" **Output:** 20 **Explanation:** We have only one file, and the absolute path is "dir/subdir2/file.ext" of length 20.

Example 2:

Input: input = "dir\n\tsubdir1\n\t\tfile1.ext\n\t\tsubsubdir1\n\tsubdir2\n\t\tsubsubdir2\n\t\t\tfile2.ext" **Output:** 32 **Explanation:** We have two files: "dir/subdir1/file1.ext" of length 21 "dir/subdir2/subsubdir2/file2.ext" of length 32. We return 32 since it is the longest absolute path to a file.

Example 3:

Input: input = "a" **Output:** 0 **Explanation:** We do not have any files, just a single directory named "a".

Constraints:

* `1 <= input.length <= 104` * `input` may contain lowercase or uppercase English letters, a new line character `'\n'`, a tab character `'\t'`, a dot `'.'`, a space `' '`, and digits. * All file and directory names have **positive** length.

Code Snippets

C++:

```
class Solution {
public:
```

```
int lengthLongestPath(string input) {

}
};
```

Java:

```
class Solution {
public int lengthLongestPath(String input) {

}
}
```

Python3:

```
class Solution:
def lengthLongestPath(self, input: str) -> int:
```