

## Stacks

### (Assignment Questions)

**Question 1** : Given the head of a singly linked list, return true if it is a Palindrome or false otherwise. [\[Go to Qs\]](#)

*Examples :*

*Input: head = [1,2,2,1]*

*Output: true*

*Input: head = [1,2,3]*

*Output: false*

**Note** - Use a stack to solve this problem.

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**Question 2** : Given an encoded string, return its decoded string.

The encoding rule is:  $k[\text{encoded\_string}]$ , where the `encoded_string` inside the square brackets is being repeated exactly  $k$  times. Note that  $k$  is guaranteed to be a positive integer.

You may assume that the input string is always valid; there are no extra white spaces, square brackets are well-formed, etc. Furthermore, you may assume that the original data does not contain any digits and that digits are only for those repeat numbers,  $k$ . For example, there will not be input like `3a` or `2[4]`. [\[ Go to Qs \]](#)

*Examples :*

*Input: s =*

*"3[a]2[bc]"*

*Output:*

*"aaabcbc"*

*Input: s =*

*"2[abc]3[cd]ef"*

Output:

"abcabccdcdcdef"

**Question 3 :** We have an absolute path for a file(Unix-style), simplify it. Note that absolute path always begins with '/'(rootdirectory), a dot in path represents current directory and double dot represents parent directory.[ [Go to Qs](#) ]

Examples :

Input: path =

"/home//foo/"Output:

"/home/foo"

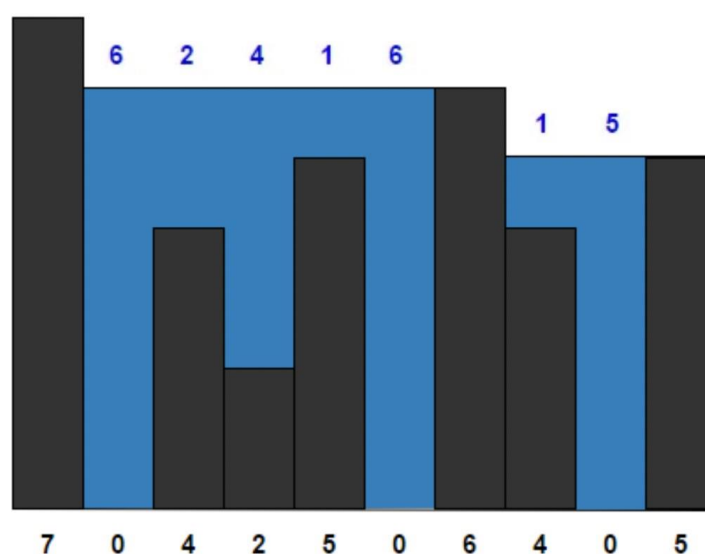
Explanation: Multiple consecutive slashes are replaced by a single one.

Input: path = "/home/user/Documents/../Pictures"

Output: "/home/user/Pictures"

Explanation: A double period ".." refers to the directory up a level.

**Question 4 :** Given n non-negative integers representing an elevation map where the width of each bar is 1, compute how much water it can trap after raining.[ [Go to Qs](#) ]



Examples :

Input: height = [7, 0, 4, 2, 5, 0, 6, 4, 0, 5]

Output: 25

*Explanation: The above elevation map (black section) is represented by the array [7, 0, 4, 2, 5, 0, 6, 4, 0, 5]. In this case, 25 units of rain water (blue section) are being trapped.*

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