

Data Structure Assignment 2

Question 1. String - Palindromes

20 Points

Description: A palindromes is a string that reads the same both forward and backward. Implement a java program that detect if rather a string is palindrome.

Requirement: Implement a method that check for palindrome, output true or false. Without using any built-in methods (eg. reverse()) etc.

- Test case 1:
Input: String s = "aabbba"
Output: true
- Test case 2:
Input: String s = "aba"
Output: array = true
- Test case 3:
Input: String s = "aabb"
Output: array = false

Question 2

30 points

In a tag-based language like *XML* or *HTML*, contents are enclosed between a *start tag* and an *end tag* like `<tag>contents</tag>`. Note that the corresponding *end tag* starts with a `/`.

Given a string of text in a tag-based language, parse this text and retrieve the contents enclosed within sequences of well-organized tags meeting the following criterion:

1. The name of the *start* and *end* tags must be same. The HTML code `<h1>Hello World</h2>` is *not valid*, because the text starts with an `h1` tag and ends with a non-matching `h2` tag.
2. Tags can be nested, but content between nested tags is considered *not valid*. For example, in `<h1><a>contentsinvalid</h1>`, contents is *valid* but invalid is *not valid*.
3. Tags can consist of any printable characters.

Input Format

The first line of input contains a single integer, (the number of lines).

The subsequent lines each contain a line of text.

Constraints

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- Each line contains a maximum of printable characters.
- The total number of characters in all test cases will not exceed .

Output Format

For each line, print the content enclosed within valid tags.

If a line contains multiple instances of valid content, print out each instance of valid content on a new line; if no valid content is found, print None.

Sample Input

```
4
<h1>John loves counseling</h1>
<h1><h1>John has no watch</h1></h1>
<par>So wait for a while</par>
<Amees>Tom codes like a ninja</amees>
<SA premium>Tom likes to read books</SA premium>
```

Sample Output

```
John loves counseling
John has no watch
So wait for a while
None
Tom likes to read books
```