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Day 18: Queues and Stacks

by blondiebytes

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Welcome to Day 18! Today we're learning about Stacks and Queues. Check out the Tutorial tab for learning materials and an instructional video!

A *palindrome* is a word, phrase, number, or other sequence of characters which reads the same backwards and forwards. Can you determine if a given string, , is a palindrome?

To solve this challenge, we must first take each character in , *enqueue* it in a *queue*, and also *push* that same character onto a *stack*. Once that's done, we must *dequeue* the first character

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Need Help?

from the *queue* and *pop* the top character off the *stack*, then compare the two characters to see if they are the same; as long as the characters match, we continue dequeueing, popping, and comparing each character until our containers are empty (a non-match means isn't a palindrome).

Write the following declarations and implementations:

1. Two instance variables: one for your , and one for your .
2. A *void pushCharacter(char ch)* method that pushes a character onto a stack.
3. A *void enqueueCharacter(char ch)* method that enqueues a character in the instance variable.
4. A *char popCharacter()* method that pops and returns the character at the top of the instance variable.
5. A *char dequeueCharacter()* method that dequeues and returns the first character in the instance variable.

Input Format

You *do not* need to read anything from stdin. The locked stub code in your editor reads a single line containing string . It then calls the methods specified above to pass each character to your instance variables.

Constraints

- is composed of lowercase English letters.

Output Format

You are *not* responsible for printing any output to stdout.
If your code is correctly written and is a palindrome, the locked stub code will print ; otherwise, it will print

Sample Input

```
racecar
```

Sample Output

```
The word, racecar, is a palindrome.
```

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Suggest Edits

Current Buffer (saved locally, editable) Python 3

```
import sys


class Solution:
    # Write your code here
    def __init__(self):
```

```
        self._queue = ""
        self._stack = ""


    def pushCharacter(self, char):
        self._stack = self._stack + char
        return None


    def enqueueCharacter(self, char):
        self._queue = self._queue + char
        return None


    def popCharacter(self):
        char = self._stack[-1]
        self._stack = self._stack[0:-1]
        return char


    def dequeueCharacter(self):
        char = self._queue[0]
        self._queue = self._queue[1:]
        return char

```

```
# read the string s
s=input()
#Create the Solution class object
obj=Solution()

l=len(s)
# push/enqueue all the characters of string s to stack
for i in range(l):
    obj.pushCharacter(s[i])
    obj.enqueueCharacter(s[i])

isPalindrome=True
'''
pop the top character from stack
dequeue the first character from queue
compare both the characters
'''
for i in range(l // 2):
    if obj.popCharacter()!=obj.dequeueCharacter():
        isPalindrome=False
        break
#finally print whether string s is palindrome or not.
if isPalindrome:
    print("The word, "+s+", is a palindrome.")
else:
    print("The word, "+s+", is not a palindrome.")
```

Line: 30 Col: 1

Upload Code as File Test against custom input Run Code

Run Code Submit Code

Congrats, you solved this challenge!

Challenge your friends:

- Test Case #0
- Test Case #1
- Test Case #2
- Test Case #3
- Test Case #4
- Test Case #5
- Test Case #6

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