

CS1020 Take-home Lab #1

Exercise #2: Palindromes

http://www.comp.nus.edu.sg/~cs1020/3_ca/labs.html

Objectives:

1. Using **String** class
2. Writing user-defined methods
3. Problem solving

Task statement:

(Note that unless otherwise stated, you may assume that all input data are valid and hence there is no need for you to perform input data validation.)

A string which reads the same backward as forward – ignoring case and non-letters – is called a *palindrome*. The following are some examples:

- radAR
- aibohphobia (do you know what it means?)
- Race-car 7...
- Madam, I'm Adam
- A man, a plan, a canal - Panama!

You are to write a program **Palindromes.java** to do the following:

- Read in several lines of text;
- For each line of text, check if it is a palindrome;
- Output the number of palindromes among the lines of text read.

Your program should be modular. It should contain at least one method **isPalindrome** that returns true if the text is a palindrome, or false otherwise.

You should make use of appropriate methods in the **String** class, some of which might not have been taught in class. You are to explore on your own.

Refer to the sample runs for the output format.

Number of submissions:

You are given **15** submissions. Only the final submission will be graded.

Sample run #1:

```
Enter text: Race-car 7...
Enter text: I like CS1020
Enter text: 12 noon
Enter text: Madam, I'm Adam
Enter text: (user pressed ctrl-d here)
Number of palindromes = 3
```

Sample run #2:

```
Enter text: Don't nod
Enter text: Never odd or even
Enter text: Too bad - I hid a boot
Enter text: Madam, in Eden I'm Adam
Enter text: Oozy rat in a sanitary zoo
Enter text: (user pressed ctrl-d here)
Number of palindromes = 5
```

Notes:

- You are advised NOT to use recursion here. There will be a lab on recursion later.
- You are also NOT to use array, as **String** is the main objective of this exercise.
- You are advised to do all take-home exercises by yourself so that you can truly learn, or you may have difficulty with the sit-in labs later.
- You may raise your doubts on the IVLE forum, but please do NOT post your codes (partial or complete) on the forum before the deadline. You may post your codes after the deadline.

Exploration (do not submit)

What if the input is terminated when the user enters a blank line of text, instead of pressing *ctrl-d*? How would you modify your program? You do NOT need to submit this.