

**CS 1400-03 Introduction to Programming and Problem Solving**  
**Project #3**  
**(Due: 11:59 PM, Monday, 3/1/2021)**

A palindrome is any word, phrase, or sentence that reads the same forward and backward. The following are some well-known palindromes.

Kayak  
Desserts I stressed  
Able was I ere I saw Elba

Write an advanced version of the `PalindromeTester` Program so that spaces, numbers, and punctuations are not considered when determining whether a string is a palindrome. The only characters considered are roman letters, and case is ignored. Therefore, the `PalindromeTester` program will also recognize the following palindromes:

A man, a plan, a canal, Panama  
Madam, I'm Adam  
Desserts, I stressed  
Able was I, ere I saw Elba  
Never odd(5,7) or even(4,6)

The `PalindromeTester` will continue to run until the user enters a blank line. It will then print out how many palindromes were found. The following are sample interactions, where the user's input is shown in bold (notice where the user hit the enter key, marked with **<enter>**, without entering any text):

```
fcsang@abbott ~/cs1400/project $ java PalindromeTester
enter a word, phrase, or sentence (blank line to stop):
Kayak
palindrome

enter a word, phrase, or sentence (blank line to stop):
k , a ' y " a ( ) k $
palindrome

enter a word, phrase, or sentence (blank line to stop):
ada
palindrome

enter a word, phrase, or sentence (blank line to stop):
Never odd(5,7) or even(4,6)
palindrome

enter a word, phrase, or sentence (blank line to stop):
<enter>
You found 4 palindromes.
Thank you for using PalindromeTester.
```

```
fcsang@abbott ~/cs1400/project $ java PalindromeTester
enter a word, phrase, or sentence (blank line to stop):
foobar
Not a palindrome

enter a word, phrase, or sentence (blank line to stop):
Desserts, I stressed
palindrome

enter a word, phrase, or sentence (blank line to stop):
<enter>
You found 1 palindromes.
Thank you for using PalindromeTester.
```

```
fcsang@abbott ~/cs1400/project $ java PalindromeTester
enter a word, phrase, or sentence (blank line to stop):
able was i erer i saw elba
Not a palindrome

enter a word, phrase, or sentence (blank line to stop):
the last sentence
Not a palindrome

enter a word, phrase, or sentence (blank line to stop):
<enter>
You found 0 palindromes.
Thank you for using PalindromeTester.
```

#### Tips:

Remember to break down the problem in pieces. Try to first write the code that inputs one sentence and decides whether it is a regular palindrome where each character counts. Then write the code to ignore spaces, numbers, and punctuations. Finally write the code to loop until the user enters a blank line and count how many palindromes are found.

Test your program thoroughly! Don't test for just the simple cases. If you wanted to break someone else's program, how would you try to do it?

If you can't figure out why your code isn't behaving the way you expected, try printing out intermediate results.

#### Submission:

In your cs1400/project directory, create a Java Source Code file named PalindromeTester.java. Your Java program must begin with the comments below and follow the naming and coding conventions posted on Blackboard.

```
// your name
// CS1400, section 03
// Project 3 - Palindrome Tester
// date
```

Generate a script file `pj3.txt` with appropriate time stamps and the following steps visible:

1. a `pwd` to show the current working directory
2. an `ls -l` to show in long format the files in your `cs1400/project` directory
3. a `cat` to display `PalindromeTester.java`
4. compile `PalindromeTester.java`
5. run `PalindromeTester` (run your program many times using all the above test cases on previous pages)

Submit the file `pj3.txt` on Gradescope.