

CPSC 1181 - Lab 1 [40 marks]

Objectives:

- Follow step-by-step how programming instructions are executed when several methods are involved and review material covered in CPSC 1150

Submission

- Submit a zip file containing **only** PatternMatcher.java and TestPatternMatcher.java
- Submissions that are unzipped or that contain only .class files will be automatically given **zero**.

Exercise 1

Download TestPatternMatcher.java and import it into Eclipse. Read through the **unit tests** provided for you. Note the structure of this file, there are 5 test cases provided, one for each method you will write in today's lab. In the same project, create a new class called PatternMatcher

Exercise 2 [18 marks]

In the PatternMatcher.java class write the following methods:

- isPalindrome accepts a string and returns true if it is a palindrome [3]
- containsVowel accepts a string and returns true if it contains at least one vowel [3]
- isVowel accepts a char and returns true if the char is a vowel [3]
- containsRepeats accepts a string and returns true if the string contains two of the same letter in a row [4]
- performSwap accepts a string and returns a new string that has all the original characters of the first string, but with the opposite capitalization [5]

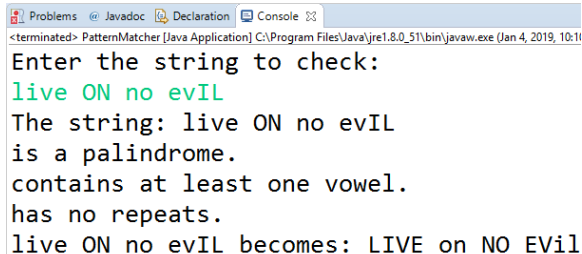
Exercise 3 [10 marks]

Run TestPatternMatcher and ensure all of your methods work correctly and pass all tests.

Exercise 4 [5 marks]

In PatternMatcher.java write a program (main method) that reads a String from the user and prints out the results of performing isPalindrome, containsVowel, containsRepeats, and performSwap on the string.

Ex.



```
<terminated> PatternMatcher [Java Application] C:\Program Files\Java\jre1.8.0_51\bin\javaw.exe (Jan 4, 2019, 10:11)
Enter the string to check:
live ON no evIL
The string: live ON no evIL
is a palindrome.
contains at least one vowel.
has no repeats.
live ON no evIL becomes: LIVE on NO EVil
```

Exercise 5 [7 marks]

- Write the JavaDoc style documentation for each method in the PatternMatcher class
- Ensure PatternMatcher.java follows good coding style and conventions (see Appendix E at the back of the textbook)