SE-1011 Lab 5: A Variable / Class Name Checker

Due: Tuesday, October 11, 2011 at 23:00

"But choose wisely, for while the true Grail will bring you life, the false Grail will take it from you."[1]

1. Objectives

- Apply string processing to analyze variable and class name definitions
- Use JOptionPanes to manage program input
- Use JOptionPanes to generate program output
- Partition code into methods

2. Overview

In this lab, you will construct a program which will check the properties of a given variable or class name. In specific, the program should:

1. Prompt the user to enter a name of a variable or a class.
2. Asks the user whether the entered name is for a variable or a class
3. Displays whether the name is (1) illegal, (2) legal, but uses poor style, or (3) good for a variable or whether the name is (1) illegal, (2) legal, but uses poor style, or (3) good for a class.
4. If the name is legal but uses poor style, suggest a better alternative.

There are different opinions as to what constitutes good style for a variable name. For this program, check for good style using these rules:

- Only use letters, digits, and underscores
- Use a lowercase letter for the first character.
- Has one or more upper case letter after the first letter if the variable name is longer than 12 characters in length (This would indicate Camel Case and multiple words)

There are different opinions as to what constitutes good style for a class name. For this program, check for good style using these rules:

- Only use letters
- Uses an uppercase letter for the first character.
- Has one or more upper case letter after the first letter if the variable name is longer than 12 characters in length (This would indicate multiple words)

[1] Indiana Jones and the Last Crusade, 1989

3. Design Approach

Overall, the design approach is up to you. However, you should begin by thinking about separating the problem into multiple methods. A method might check to if a given condition is true (for example, isFirstCharacterCapitalized() might be a method within your program that is used in multiple locations. Choose wisely, for partitioning your code too much will make it easier to solve the problem while partitioning your code too much may make it difficult.) It isn't wrong to do this assignment all in main, but using a class and separate methods might make it easier.

4. A Sample session using the console[2]

```
Enter a variable or class name (q to quit): streetAddress2
Is streetAddress2 a variable or class name?: variable
Good!

Enter a variable or class name (q to quit): streetAddress2
Is streetAddress2 a variable or class name?: class
Problem: Classes should start with a capital letter
Solution: A better identifier would be StreetAddress2

Enter a variable name (q to quit): street address2
Is street address2 a variable or class name?: variable
Illegal.  Variables cannot contain a space.

Enter a variable name (q to quit): StreetAddress2
Is StreetAddress2 a variable or class name?: variable
Legal, but uses poor style.
Solution: A better identifier would be streetAddress2.

Enter a variable name (q to quit): StreetAddress2
Is StreetAddress2 a variable or class name?: class
Good!

Enter a variable name (q to quit): 2ndStreetAddress
Is 2ndStreetAddress a variable or class name?: variable
Illegal.  Variables cannot start with a digit.

Enter a variable name (q to quit): street$address$2
Is street$address$2 a variable or class name?: variable
Legal, but uses poor style.
Solution: A better identifier would be streetaddress2

Enter a variable name (q to quit): q
```

[2] Note: The output is shown for a console program. You will need to use JOption panes for your implementation.

5. Lab Deliverables

Submit the following materials in electronically to the course website:

1. A report (in pdf format) which contains the following
    a. A short description of what you did in this lab
    b. Samples of the program executing showing the input and output. (Note: To do screen captures, use either a SCREEN CAPTURE PROGRAM OR US THE Print screen button to capture the screen and crop to the relevant text area.)
    c. A short description of what went wrong and what went right during the lab.
    d. A description of what you learned from this lab.
    e. The Java source code you wrote.
2. The source code file Lab5.java containing the source code for your project.