Lab 16

**Rules:**

1. You are asked to implement two files: **Library.java** & **Scanner.java** as described below.
2. Do not forget to take your work with you when you leave the lab by either copying your work files to your own USB flash disk, or by e-mailing them to yourself.

You are asked to implement the following **public static** methods and put them inside a class named “**Library**”. Here is the list of methods you need to implement and some description as to how they should work:

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| --- | --- |
| int **str2Int**(String str) | Given a string consisting only of digits, converts it to an integer  E.g., str2Int("435065") 🡪 435065 |
| String **thousandSeparator**(int num) | Given an integer num, adds a dot (".") as the thousands separator and return it in string format  E.g. thousandSeparator(1234) --> "1.234" |
| boolean **detectCapitalUse**(String word) | Define the usage of capitals in a word to be correct when one of the following cases holds:  \* All letters in this word are capitals, like "USA"  \* All letters in this word are not capitals, like "google"  \* Only the first letter in this word is capital, like "Google".  Given a string word, return true if the usage of capitals in it is correct.  E.g. detectCapitalUse("USA") --> true  E.g. detectCapitalUse("Google") --> true  E.g. detectCapitalUse("google") --> true  E.g. detectCapitalUse("gooGle") --> false |
| String **makeFancyString**(String s) | A fancy string is a string where **no three consecutive characters are equal**. Given a string s, delete the minimum possible number of characters from s to make it fancy. Return the final string after the deletion.  E.g. makeFancyString("gooogggleee") --> googglee |
| String **capitalizeTitle**(String title) | You are given a string title consisting of one or more words separated by a single space, where each word consists of English letters. Capitalize the string by changing the capitalization of the first letter to uppercase and changing the remaining letters to lowercase (if necessary).  E.g. "FirSt leTTeR of EACH Word" --> "First Letter Of Each Word" |

As the second part of this Lab work, you are asked to implement **MyScanner** class, which works exactly like Java Scanner class and has the following methods:

|  |  |
| --- | --- |
| MyScanner(String str) | Parametrized constructor for MyScanner. “str” is the string to be tokenized. |
| String next() | Returns the next token. A token is any substring of chars delimited by space chars, i.e., chars ' ', '\t', '\n' |
| int nextInt() | Returns the next integer from the string. If the next token can NOT be converted to an integer throw a “InputMismatchException” |
| int nextDouble() | Returns the next integer from the string. If the next token can NOT be converted to a double throw a “InputMismatchException” |
| boolean nextBoolean() | Returns the next boolean from the string. If the next token can NOT be converted to a boolean throw a “InputMismatchException”. A boolean is any string that can be converted to “true” or “false”. Look at how Java Scanner does this conversion. |
| String nextLine() | Returns the next line from the string. The next line is all chars from the current position until you either reach the end of the string or encounter the ‘\n’ char. Do NOT include the ‘\n’ char in the returned string. |

To test your code, we are giving you a driver code (**Test.java**) that tests each of the methods in **Library.java** and **MyScanner** class and prints your score on the screen. Notice that MyScanner works exactly like Java Scanner. You are advised to implement your own test code. When grading, we may use a different Test. Make sure that your code works under all circumstances.

Lab Work Submission:

* You can continue to work on this lab after our lab class, on your own, at home.
* Submit your lab work via Blackboard on or before: **Wednesday, November 1, 2023, 11:59pm**.
* The only accepted submission method!
* Once you submit your assignment you will not be able to resubmit it!
* Make absolutely sure the Java files you want to submit are the Java files you want graded.
* You will not be able to submit your lab work under any circumstances once **Lab16** disappears at **12:00 a.m.** on **Thursday, November 2, 2023**.
* There will be **NO** exceptions to these rules!
* To submit your lab work, upload **Library.java** & **MyScanner.java** files (**with .java extension**) you did for this lab to the **Lab16** assignment in the **Labs** tab in your Lab section’s presence in Blackboard.
* Then, make sure you click the **Submit** button to submit your lab work.
* This lab is worth **6 points**.