CS 2401 – Elementary data structures and algorithms

Lab: 5

Spring 2023

Due Date: Monday, March 6 – end of the day.

Objective: In this lab we will be implementing two solutions for each method, an iterative version and a recursive version.

Method 1: Camel Case
Given a string, produce a camelCase version of the string, e.g.,
camelCaseIterative("Hello World") → hElLo wOrLd
camelCaseRecursive("Hello World") → hElLo wOrLd

camelCaseIterative("Welcome to CS 2") → wElCoMe tO cS 2
camelCaseRecursive("Welcome to CS 2") → wElCoMe tO cS 2
Please note, spaces and numbers are ignored.

Method 2: Power N
Given base and n that are both 1 or more, compute the value of base to the n power, e.g.,
powerNIterative(3, 1) → 3
powerNRecursive(3, 1) → 3

powerNIterative(3, 2) → 9
powerNRecursive(3, 2) → 9

Method 3: Clean String
Given a string, return a "cleaned" string where adjacent chars that are the same have been reduced to a single char. e.g., stringClean("yyzzza") → "yza"
stringCleanIterative("abbbcdd") → "abcd"
stringCleanRecursive("abbbcdd") → "abcd"

stringCleanIterative("Hello") → "Helo"
stringCleanRecursive("Hello") → "Helo"

Method 4: All Star
Given a string, compute a new string where all the adjacent chars are now separated by a "*".

allStarIterative("hello") → "h*e*l*l*o"
allStarRecursive("hello") → "h*e*l*l*o"

allStarIterative("abc") → "a*b*c"
allStarRecursive("abc") → "a*b*c"

Method 5: Count Hi
Given a string, compute (no loops) the number of times lowercase "hi" appears in the string.

countHiIterative("xxhixx") → 1
countHiRecursive("xxhixx") → 1

countHiIterative("xhixhix") → 2
countHiRecursive("xhixhix") → 2

Requirements: Please follow the given examples for each method and the expected output to complete your methods. Please note that we will be following the previous lab practices for this lab as well, such as commenting the code, using proper variable names, etc.

Deliverables: You are expected to submit one Java file via Blackboard i.e., (Lab5_LastName_FirstName.java).

Grading Criteria:

- [10 points] Camel Case iterative
- [10 points] Camel Case recursive
- [10 points] Power N iterative
- [10 points] Power N recursive
- [10 points] Clean String iterative
- [10 points] Clean String recursive
- [10 points] All Star iterative
- [10 points] All Star recursive
- [10 points] Count Hi iterative
- [10 points] Count Hi recursive

- Late submission: [**-10**] points for every 24 hours after the deadline.

If you need any clarification, please ask your TA for further details.