Birla Institute of Technology & Science, Pilani
2nd Semester 2016-17 - CS F211 – Data Structures and Algorithms

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Lab 4 (Evaluation 1) : 11th Feb 2017

Time: 170 minutes **Marks: 8 + 22 = 30**

Instructions:

- *This test consists of two problems (Problem 1 and Problem 2) specified in two different files.*
- All input expressions should be read from stdin (scanf) and output should be printed on stdout (printf).
- For first 150 minutes, only a subset of test cases will be visible to students after submitting the code on the portal. Only in last 20 minutes, all test cases will be made visible.
- At the end of 170 minute period, the online system will stop evaluating the submissions but it will accept it for additional 10 minutes (Portal's clock won't be visible and submissions will show "TOO-LATE" status during this period). At the end of 180 minute period, it will stop accepting the submissions.
- Only the last submission by the student for each problem will be considered for evaluation, irrespective of earlier correct submission.
- Assuming that a problem contains M marks, in case of (Run-error/Compiler-error/Timelimit-error), evaluation will be done for M/2 marks only.
- Total marks of each problem contains some marks for modularity and proper structuring of code.
- All submitted source code will be later checked manually by the instructor and final marks will be awarded. Any case of plagiarism and/or hard coding of test cases will fetch 0 marks for the problem/evaluation component.
- Make sure to return 0 from the main() function in case of normal termination.

Problem 1 of 2

Expected Time: 50 minutes **Marks: 8**

Problem Statement

A word can be represented as a linked list of characters (say, CharList) and a sequence of words can be represented by a linked list of linked-list-of-characters (say, WordList). Given a set of words as specified in input format, write a program to store them in a linked list of linked list of characters representation.

Input format

Each line will start with a one of the following key values (1, 2, 3, or -1). Each key corresponds to a function and has a pattern. Implement following function according to given pattern and write a driver function which can call the functions according to given key value.

Key	Function to call	Input Format	Description
1	readWords	1 N $word_1$ $word_2$ …… $Word_N$	"1" shows start of a set of words. "N" represents number of words to come. Next N lines will have a single word consisting of either all upper case characters or all lower case characters (at most 20 characters).
2	printCharList	2 K	Print K^{th} word (starting from 1) on a new line such that each character is tab separated.
3	printWordList	3	Print all words in the WordList such that each word is printed on a new line (tab separated characters).
-1		-1	stop the program.

Test Case 1:

Input	Output
1 4 some stories are good 2 2 2 4 3 -1	s t o r i e s g o o d s o m e s t o r i e s a r e g o o d