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

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Lab 11 (Evaluation 3): 22nd April, 2017

Time: 170 minutes **Marks: 20 + 10 = 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. 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 2 of 2

Expected Time: 50 minutes **Marks: 10**

Problem Statement

Implement a compareSuffixes operation that takes two strings **s1** and **s2**, and a trie **T** and verifies whether **s1** and **s2** have the same suffix set or not. A suffix set is what is returned by the findPrefix operation.

Input format

Each line will start with a one of the following key values (0, 1, 2, 3, 4, -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	Format	Description
0	createTrie	0 sequence	Same as Problem 1
1	printTrie	1	Same as Problem 1
2	find	2 str	Same as Problem 1
3	findPrefix	3 pre	Same as Problem 1
4	compareSuffixes	4 str1 str2	Compare suffix trees of str1 and str2. Print 1, if the suffix trees are same, 0 otherwise.
-1	stop		stop the program

Test Case 1:

Input	Output
0 AAGC ATTC CATT GCAT X 1 2 CAT 2 ACT 3 A 4 AA AT -1	A A G C T T C C A T T G C A T 1 -1 A A G C T T C 0

Test Case 2:

Input ➔

```
0
CAAGC CAAGA CATTC CCATT CGCAT AAAGC AAAGA AATTC ACATT AGCAT X
1
2 CAA
3 AA
3 A
4 C A
-1
```

Output ➔

```
A A A G A C T T C C A T T G C A T C A A G A C T T C C A T T G C A T
1
A A G A C T T C
A A A G A C T T C C A T T G C A T
1
```