Biskra University   11/02/2024

Computer Science department

Course: Formal Languages (TL)

Practical work 2 (2 weeks)

Objectives:

The objectives of this practical work are:

- To become familiar with implementing text files in the C language.
- To understand the principle of word recognition in a language without using formal recognition models (automata), focusing instead on classical data structures (arrays, lists, trees, stacks, queues).

Input:

Let V = {a,b,c} be an alphabet. We are given a language $L \subset V^*$ consisting of a few words of finite lengths. The language L is represented by a text file.

$L1 = \{ a^n b^m \ / \ n > m > 0 \}$

$L2 = a^n b^n \ / \ n > 0 \}$

L3 ={ w $\in$ {a,b,c}* / W contains as many 'a's as 'b's }

$L4 = \{ w / x \in \{a,b,c\}^* \quad and \quad w = x \, x^R \quad and \quad |x| > 0 \}$

$L1 \subset L \quad , \quad L2 \subset L \quad , \quad L3 \subset L, \quad L4 \subset L$

Questions:

Write a program in C language:

1. Read the file containing the language L and display on screen the words of this language, with four words per line.
2. Display the words of language L1.
3. Display the words of language L2.
4. Display the words of language L3.
5. Display the words of language L4.

Examples of words belong to L:

aaabbb   aaabb   aaabbb   ab ba   aaaabbbb   aabbbb   abbb

 aabccbbccbbaa   aacabbcbba   ccabbacc   acbbbcaa

Remarks :

1- You must use comments and subroutines and functions
2- The same assignments(TP) will not be corrected, therefore, you must work individually