Streamlining of DFA based Pattern Matchers

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Abstract

This paper presents an efficient algorithm for finding matches to a given regular expression in given text using optimization of DFA. To match a regular expression of length n, a serial machine requires $O(2^n)$ memory and takes $O(1)$ time per text character. The proposed approach requires only $O(n^2)$ space and still process a text character in $O(1)$ time (one clock cycle). The improvement is due to the optimization of DFA that means without converting it into the NFA, directly convert into the DFA. Finite Automaton (DFA) used to perform the matching. Furthermore, the paper presents a simple, fast algorithm that quickly constructs the DFA for the given regular expression.

References

2. Y. Sun, H. Liu, V. Valgenti, and M. S. Kim, “Hybrid regular expression matching for deep


Index Terms

Computer Science

Algorithms

Keywords

DFA, NFA