Abstract

In this study, a new algorithm for the traditional pattern matching problem has been proposed. This algorithm is a modified version of KMP algorithm and using bitwise XOR operation to process two characters (or bytes) in parallel, to speed up the pattern matching process. An additional loop to avoid the undesirable comparison(s) also been introduced and let the algorithm to initiate, and continue only the essential comparisons from the required location. As the new algorithm uses the principle of Finite automata which is used by KMP algorithm and Bitwise XOR operation to speed up the character match, it shows some reasonable performance improvement. Also this new algorithm is easy to implement as it doesn’t require any additional/complex data structure(s) and suitable for DNA sequence search.
An Enhanced Version of Pattern Matching Algorithm using Bitwise XOR Operation

References

- Galil, Z., and Giancarlo, R. Improved string matching with k mismatches. SIGACT News 17 (1986), 52-54.

Index Terms

Computer Science
Artificial Intelligence

Keywords

KMP Algorithm  Pattern Matching  Exact Pattern Matching