



# A Novel Approach to Classify Nondeterministic Finite Automata Based on Single Loop and its Position

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**Abstract:** The Finite Automata consists of two major categories, which are NFA and DFA. In this paper we propose a novel idea to classify NFA based on single loop into two major categories 1) Unlooped 2) Looped (Single Loop). The looped NFA is further classified as 1) Loop at the starting position 2) Loop at the ending position 3) Loop between starting and ending position. The Loop at the starting position NFA is termed as NFA that ends with sub string. The Loop at the ending position NFA is termed as NFA that starts with sub string. The Loop between starting and ending position NFA is termed as NFA that starts with sub string and ends with sub string.

**Keywords:** NFA, DFA, REGULAR EXPRESSION, UNLOOPED, LOOPED.

