

## Abstract

*Searching for a Maximum Independent Set (MIS) in a graph is one of the NP-Complete problem. The Maximum Independent Set (MIS) in a graph has important applications and needs exact algorithm to find it. The problems found in the existing algorithms are that the execution time complexity of the available exact algorithms to find the MIS tend to be an exponential growth function.*

*An algorithm called Finding Maximum Independent Set (FMIS) has been proposed by Ahmad Shariehin 2008 to find MIS of a graph. The algorithm is able to find the MIS with execution time complexity  $O(n^4)$  for a graph with  $n$  vertices. FMIS algorithm was implemented and tested on an undirected graph with different sizes and densities. Later it will be analyzed to see the efficiency of the algorithm with speed, and space savings parameters.*

*The results show that in terms of time complexity, FMIS algorithm is more efficient than other algorithms to find the MIS. This algorithm gives the correct output and FMIS algorithm execution time is influenced by the size of the graph and the density of the graph.*

**Keywords:** *np-complete, maximum independent set, graph, fnis*