

# **Comparative Performance of Ant Colony Optimization with Genetic Algorithm for Graph Coloring Problem**

**(A MAJOR PROJECT REPORT)**

*Submitted By*

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*In partial fulfillment for the award of the degree  
of*

**BACHELOR OF COMPUTER APPLICATION**



**THE HERITAGE ACADEMY  
MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY**

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## **PROJECT CERTIFICATE**

This is to certify that the following students:

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### **Comparative Performance of Ant colony optimization with Genetic algorithm for Graph Coloring Problem**

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## **ABSTRACT**

The problems which are NP-complete in nature are always attracting the computer scientists to develop some heuristic algorithms, generating optimal solutions in a time-space efficient manner compared to the existing ones. Coloring of the vertices of a graph with a minimum number of colors belongs to the same category, where the algorithm designers are trying to propose some new algorithms for better result. Here, we have done a comparative study of the Ant Colony Optimization algorithm and the Genetic Algorithm for solving the graph coloring problem (GCP). The algorithms have been tested upon a series of benchmarks including a large-scale test case. This project gives a detailed analysis and comparison of both the algorithms which have aided our future work of designing better algorithms to generate a better optimal solution.

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