Abstract

The Four-Color Mapping Problem has been solved using different optimization algorithms. Harmony Search (HS) is one of those algorithms, which is based on the imitation of the behavior of musicians when composing their music. The HS algorithm can be summarized in three steps... initialization, improvisation, and selection. We introduced in this paper an approach to enhance the performance of HS algorithm, in solving the Four-Color Mapping Problem. A modification has been applied to the initialization section of the HS algorithm, which affects the improvisation process, resulting in a boost in the performance of the improvisation process, and consequently, reducing the time and number of cycles taken to solve the Four-Color Mapping Problem compared to the HS algorithm. In this paper, tests have been carried out on maps with different numbers of regions, using both HS and Modified Harmony Search (MHS) algorithms. The obtained results of the MHS algorithm are better than those of the original HS one.

**Index Terms**

Computer Science  
Algorithms
Keywords

Optimization  Four-Color Mapping Problem  Harmony Search Algorithm.