Comparative Analysis of three closely related pathfinding algorithms:

Abstract

Pathfinding is one of the most classical problem in graph theory, which aims to finds the path between two nodes in the network. Pathfinding problem has very wide range of application which includes network routing algorithms, game design, artificial intelligence and so on. This paper represents comparative analysis of three closely related algorithms which are slight modifications of each other – Dijkstra, A\* and HPA\*. The analysis includes theoretical as well as practical comparison. Theoretical comparison includes time and space complexity analysis and for practical comparison I have tested these algorithms on 20 different datasets. At the end paper summarizes three algorithms based on their performance in the graphical manner (only practical comparison is considered).