ABSTRACT

Comparison of Breadth-First Search and Depth-First Search algorithm in Onet game Application with Platform Android

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Onet Fruit is a game with simple objective where player tries to match two images based on some kind of rules. The rules are that the images must be of the same kind, and they can be reached within three lines, without obstruction from other images. These rules add some complexity on the game play, because player should try to match similar images, and s/he should do it wihtin time limit.

Onet Fruit needs some kind of algorithm to search for the solution. This final project will explain the implementation of breadth-first search (BFS) and depth-first search (DFS) algorithm on Android platform in solving problems found in Onet Fruit.

Some tests will be done where player choose a starting point and a destination point on Onet board, and then the system will try to solve the problem using breadth-first search and depth-first search algorithm. If the board is there no more that can be paired, then the system will automatically randomize.

The test result will be number of lines, cell, time, and visited nodes than can be used as a benchmark for both algorithms. The search for optimal use of BFS if the position of starting point (x1,y1) and destination point (x2, y2) adjacent either horizontal (y1=y2), vertical (x1=x2) or diagonal (x2 – x1 <= 2 atau y2 – y1 <= 2). And the search for optimal use of DFS if the position of starting point and destination point are far or destination point position is on the left or above the starting point, because seacrh begins from left, top, right, and then bottom.

Keywords: *Game*, Onet Fruit, *breadth-first search*, *depth-first search*, Android.