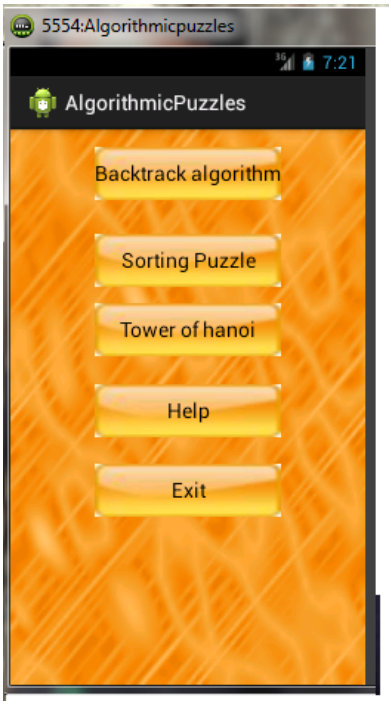
AlgorithmicPuzzles app

USER MANUAL

Contents

1 Instructions to Navigate the app

Algorithmic Puzzles app helps to understand the algorithms in an effecient way.First ,the algorithm is shown for the Backtracking and Tower of hanoi from which the Puzzles built on these can be solved.And for Sorting Puzzle, you have to sort the coloured bubbles in order they disappear just similiar to that of sorting the data.



1. **MainActivity:**

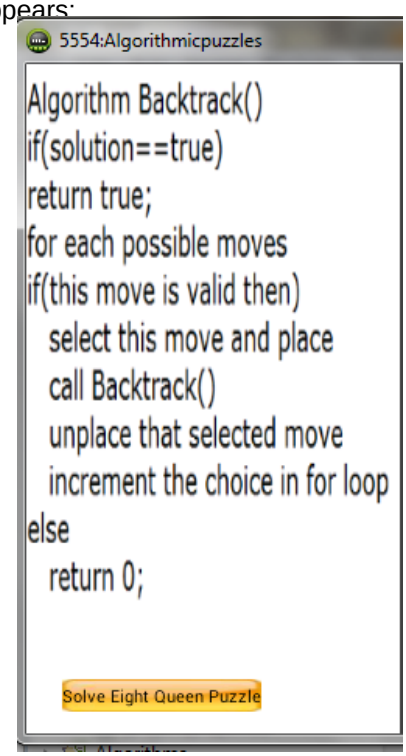
   This is the starting Acitivity of the app where there are 5 buttons present in the interface.These 5 buttons are:

   1. Backtracking Algorithm
   2. Sorting Puzzle
   3. Tower of Hanoi
   4. Help
   5. Exit

- **Backtracing Algorithm:**

  Onclicking this button,the backtrack algorithm will be shown to you which consists of button Solve Eight Queen Puzzle.

  The following interface appears:



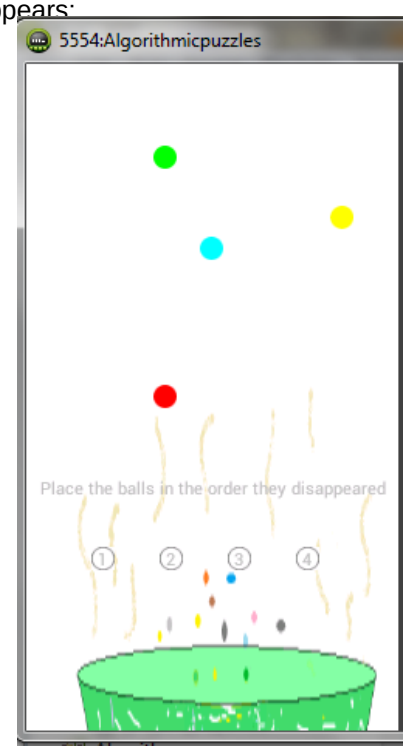
- **Solve Eight Puzzle:**

  On clicking this button, you will be directed to the Eight Queen Puzzle Interface which consists of chessboard on which you have to place the Queens and solve it.Click on the square to place a queen and re-clicking on it will remove the queen from that place.After Solving the Puzzle time required by you to solve the puzzle will be displayed otherwise if there are no moves available then a message stating "There are no moves available.Restart and solve it." appears on the screen with the restart button which on clicking the puzzle starts again freshly.
  The following interface appears:

As we see from the above interface, the chessboard,restart button and timer appears on the screen once we start the Eight queen Puzzle.If we place the at a partcular square click on the respective square to place the queen.On clicking the restart button the puzzle once again starts with new chessboard.

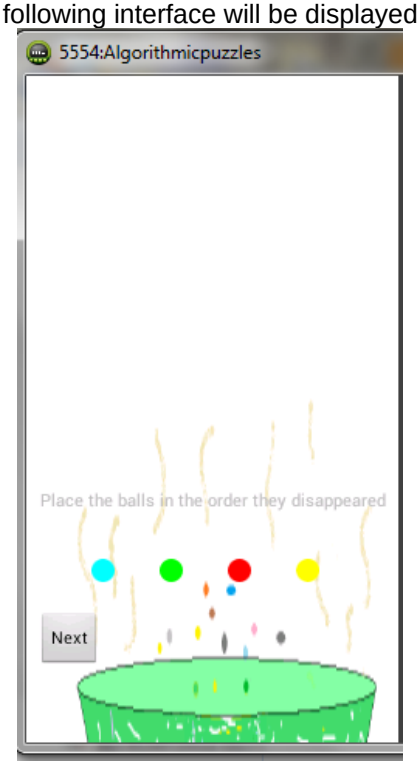
- **Sorting Puzzle:**

  On clicking this button, the sorting Puzzle appears on the screen. This Puzzle consists of 10 levels and if you place the coloured bubbles correctly to the respective circles in the order of disappearance you are directed to next level with the help of Next button otherwise Retry button appears on the screen which onclicking the same level appears on the screen once again.On moving further through the Puzzle,the number of coloured bubbles also goes on increasing.
  The following interface appears:



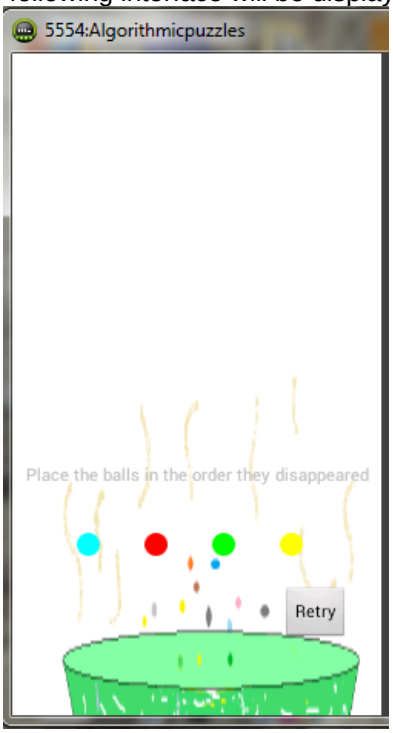
As we see from the interface, on starting the Sorting Puzzle the above interface appears with coloured bubbles and the circles where the coloured bubbles need to be placed. After starting the puzzle the coloured bubbles shown will disappear one by one and after all the bubbles disappear they once again appear on the screen and the user have to drag and drop the coloured bubbles to respective circles.

On Solving the puzzle correctly the following interface will be displayed



Once the Sorting Puzzle starts on the screen, the coloured bubbles starts to disappear one by one with the order of disappear as first blue bubble,then green, then red and then yellow.Afterwards they once again appear on the screen and then you have to place the bubbles as shown in the above inteface. Upon placing the bubbles correctly, Next button appears on the screen as seen in the interface.

On Solving the puzzle incorrectly the following interface will be displayed

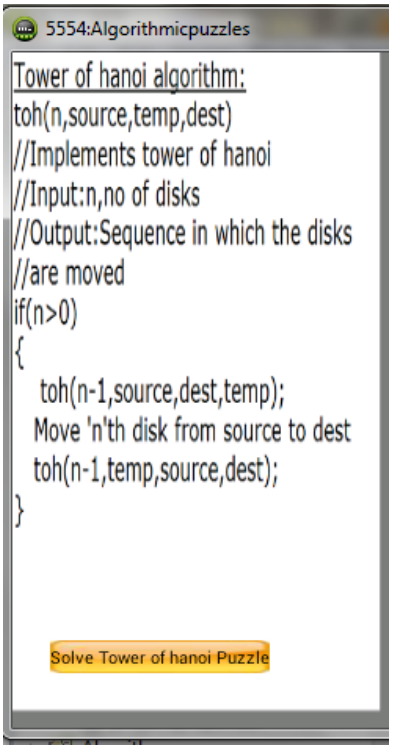


If the coloured bubbles are not placed in their respective circles as shown in the above interface,then the Retry button appears on the screen.

- **Tower of Hanoi:**

  Onclicking this button,you will shown the Tower of hanoi algorithm with the button Solve Tower of hanoi puzzle.

The following interface appears:

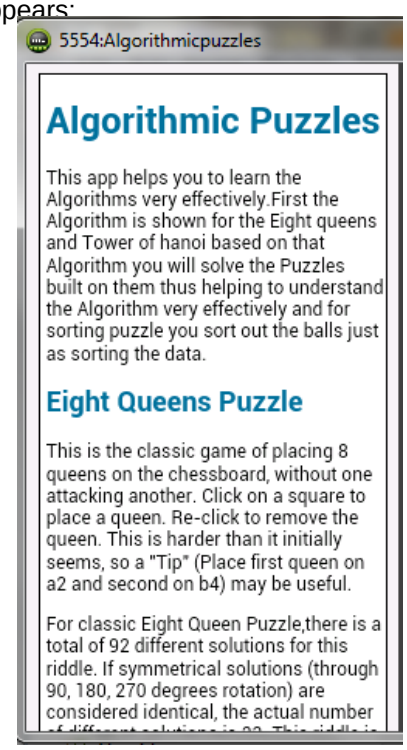


- **Solve Tower of hanoi puzzle**

  Onclicking this Button, The Tower of hanoi puzzle with the landscape view appears on the screen.This Puzzle consists of 1 level with the 3 rings.After solving the Puzzle correctly, the Game over dialog and a message that contains the number of moves taken by you to solve the puzzle appears on the screen.

- **Help:**

  Onclicking this button, the help to how to solve the problem will be displayed.Help gives all instructions to solve the problem.
  The following interface appears:



- **Exit:**

  Onclicking this button, you will exit from the application.

2 How to Solve the Puzzles

2.1 Eight Queen Puzzle:

In this Puzzle,the logic is to place the 8 Queens on the board such that no two Queens attack each other that is no two queens should be in same row, same column and diagonally and place all the Queens.In the app, you have to click on the square in which you would like to place a Queen and Reclick to remove the Queen and solve the puzzle.Once you start placing the queen on the board the timer starts and restart button appears on the screen and after you solve the puzzle correctly,the time required by you will be shown on the screen.If the puzzle is not solved correctly or if there is no moves available to solve the puzzle correctly then a message containing "There are no moves available.Restart and solve it." appears on the screen.

2.2 Sorting Puzzle:

This is a typical puzzle where it uses the drag and drop feature in which you have to place the coloured bubbles to respective circles in the order they disappear from the screen.Once you start the puzzle you have to wait until all the coloured bubbles disappear from the screen. After all the coloured bubbles disappear , they once again appear on the screen in which you have to drag the coloured bubbles and drop the respective circle on the screen. This puzzle consists of 10 levels.Solving a level correctly Next button appears on the screen which upon clicking it you will move to next level otherwise Retry button appears on the screen which on clicking the same level appears on the screen.Upon moving to higher levels the number of bubbles also increases.

2.3 Tower of Hanoi:

This is a classic Tower of hanoi problem with 3 rings in which you have to place the 3 rings from the first tower to third tower such that at any time the smaller ring should be above the larger rings. In the app, you have to guide the ring to collide the tower in which you have to place the ring and solve the puzzle. This Puzzle consists of 1 level only with 3 rings which on solving the Puzzle correctly Game over dialog and a message that contains the number of moves taken by you to solve the puzzle appears on the screen.