Snakes And Ladders

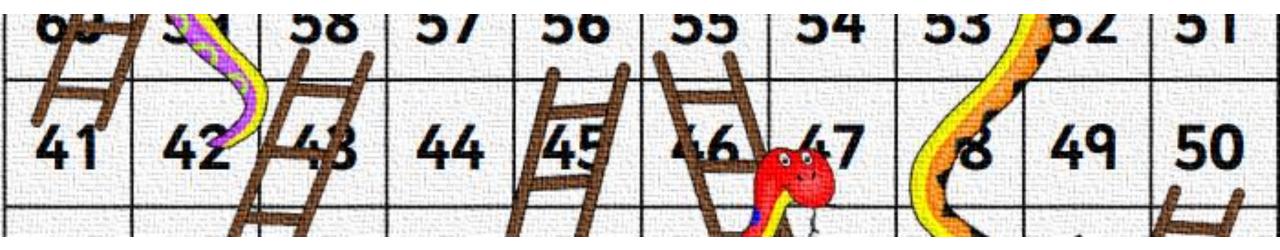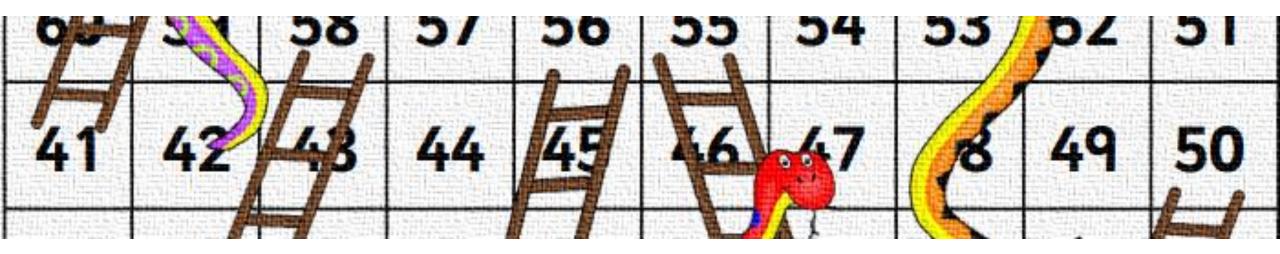Design an application to mock the game of Snakes And Ladders
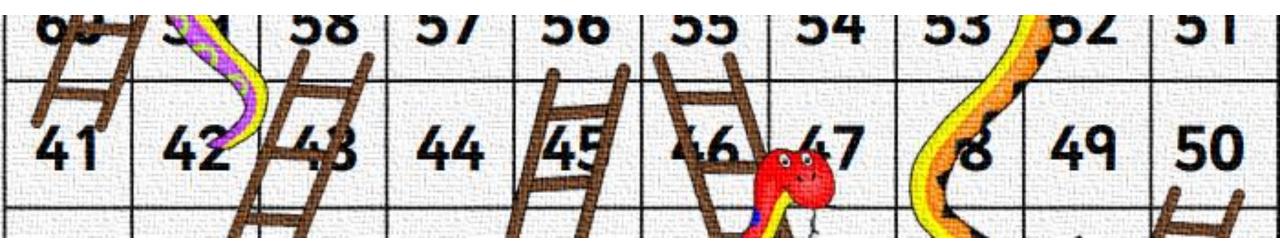
Rules of the Game

- It's a multiplayer game which has a 10x10 board(numbered 1 to 100), a unique colored pin(something to indicate the players' position on the board) for each player and a dice(values 1 to 6) to be rolled which tells the next place for the current player's pin.

- All the pins are initially kept outside of the board. The players participate in a round-robin manner i.e., they initially agree upon a sequence to throw the dice and take subsequent turns

- The dice value indicates the next position the pin should move to. If the new position has a snake head, the player ends up at the square indicated by the snake tail. If it's a ladder head, the player pin ends up at the other ladder head.
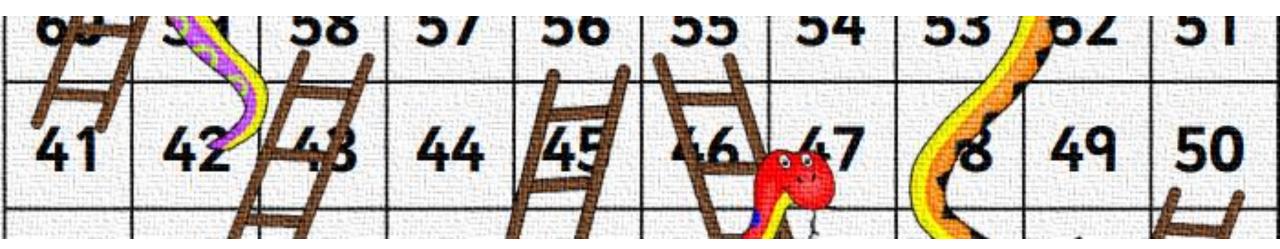
Rules of the Game

- Ladders are meant to be "climbed up". It helps a player to reach the number 100 faster. Snakes are meant to do the opposite. For instance, if a player is at position 61, and gets the number 3 as the dice value, s/he moves the pin to the number 64. If there's a snake head at 64, the snake tail would always point to a number lesser than 64. The player should move the pin to the corresponding value. The situation is vice-versa for ladders, in which the player always moves the pin to a higher value.

- The player who(whose pin) reaches the number 100 first, wins the game. If the dice rolled points to a number greater than 100, the move is not counted and the turn is passed.

Assumptions

- There's at least one possible way to win the game.

- A board block/cell can either have one of the types: snake head, snake tail, any of the ladder ends or nothing

Application requirements

- Snakes, Ladders and number of players are decided before the game begins. Once the game begins, these can't be changed.

- A rolled dice should have a random value.

- The game ends when a player reaches the number 100.

- After the game ends, the system should display the final values of each player and also declare the winner.