Task: 4 Date: 23/05/2024

Write a program to implement a snake and ladder game.

- **You can take a player number as input.**
- **Generate dice score using random method from Math class.**
- **Add dice score to the player.**
- **Check for the snake or the ladder if the player goes through.**
- **Update the player score after a snake or a ladder if any.**
- **Check if the player's score is 100, then declare the player is the winner and exit.**
- **Check if the player's score is >100, then reduce the dice score.**
- **Repeat until any one of the players wins the game.**

Code

```
package work;
import java.util.Random;
import java.util.Scanner;

public class SnakeLader {
      static int[] snakes = new int[101];
    static int[] ladders = new int[101];

      public static void main(String[] args) {

            initializeSnakesAndLadders();

        Scanner s = new Scanner(System.in);
        Random r = new Random();

        System.out.print("Enter the number of players: ");

        int players = s.nextInt();
        int[] playerPos = new int[players];

        boolean gameWon = false;
        while (!gameWon) {
            for (int i = 0; i < players; i++) {
                System.out.println("Player " + (i + 1) + "turn.");
                System.out.println();
                System.out.println("Press Enter to roll the dice");
                s.nextLine();

                int diceRoll = r.nextInt(6);
                System.out.println("Player " + (i + 1) + " rolled a dice num = " +
diceRoll);
```

```
                int newPosition = playerPos[i] + diceRoll;
                if (newPosition > 100) {
                    newPosition = playerPos[i];  // Do not move if the roll exceeds
100
                } else {
                    newPosition = SnakesAndLadders(newPosition);
                }

                System.out.println("Player " + (i + 1) + " moves to position " +
newPosition);
                System.out.println();
                playerPos[i] = newPosition;

                if (newPosition == 100) {
                    System.out.println("Player " + (i + 1) + " wins the game!");
                    gameWon = true;
                    break;
                }
            }
        }
    }
      private static int SnakesAndLadders(int position) {
        if (snakes[position] != position) {
            System.out.println("Landed on a snake Going down to " +
snakes[position]);
            return snakes[position];
        } else if (ladders[position] != position) {
            System.out.println("Landed on a ladder Going up to " +
ladders[position]);
            return ladders[position];
        }
        return position;
    }
      private static void initializeSnakesAndLadders() {


        for (int i = 0; i < 101; i++) {
            snakes[i] = i;
            ladders[i] = i;
        }
        snakes[16] = 6;
        snakes[47] = 26;
        snakes[49] = 11;
        snakes[56] = 53;
        snakes[62] = 19;
        snakes[64] = 60;
        snakes[98] = 78;


        ladders[1] = 38;
        ladders[4] = 14;
        ladders[9] = 31;
        ladders[21] = 42;
        ladders[28] = 84;
        ladders[80] = 100;
    }

}
```

Output

```
Player 1turn.

Press Enter to roll the dice

Player 1 rolled a dice num = 4
Player 1 moves to position 17

Player 2turn.

Press Enter to roll the dice

Player 2 rolled a dice num = 0
Player 2 moves to position 99

Player 3turn.

Press Enter to roll the dice

Player 3 rolled a dice num = 4
Player 3 moves to position 52

Player 4turn.

Press Enter to roll the dice

Player 4 rolled a dice num = 5
Player 4 moves to position 97

Player 1turn.

Press Enter to roll the dice

Player 1 rolled a dice num = 5
Player 1 moves to position 22

Player 2turn.

Press Enter to roll the dice

Player 2 rolled a dice num = 0
Player 2 moves to position 99

Player 3turn.

Press Enter to roll the dice

Player 3 rolled a dice num = 3
Player 3 moves to position 55

Player 4turn.

Press Enter to roll the dice

Player 4 rolled a dice num = 3
Player 4 moves to position 100

Player 4 wins the game!
```