

Machine Snakes_Ladders

SETS & CONSTANTS

```
MESSAGES = {Moved_to_a_Normal_Square, Moved_down_a_Snake,
             Moved_up_a_Ladder, Value_is_too_high_to_FINISH,
             Game_FINISHED_and_WON, Start_a_new_GAME };

STAT_ALERTS = {Square_Occupy,Current_Position,
               No_of_SNAKES_faced, No_of_LADDERS_faced,
               No_of_Turns};

GAME_STATE = {Game_Won, Game_not_over}

Board, Snakes, Ladders, StartPosition, WinPosition
```

DiceRoll

VisitedSquares

PROPERTIES

```
Board <: NAT1 & Board = 1..100 &
Snakes = {31|->4, 16|->13, 47|->25, 63|->60, 66|->52,
          97|->75} &
Ladders = {3|->39, 10|->12, 27|->53, 56|->84, 72|->90,
          61|->99} &
StartPosition = 1 &
WinPosition = 100
```

GameStat

NewGame

VARIABLES

```
currentPosition, snakesFaced, laddersFaced, turnsCount, route,
lastDiceValue, gameStatus
```

INVARIANT

```
currentPosition : Board &
snakesFaced : NAT &
laddersFaced : NAT &
turnsCount : NAT &
lastDiceValue : NAT &
route : seq(Board) &
gameStatus <: GAME_STATE
```