| CLIENTE | Snakes and Ladders incorporated |
| --- | --- |
| USUARIO | Player |
| REQUERIMIENTOS FUNCIONALES | Req 1: Create the board  Req2: Create player  Req3:Roll dice  Req4:Visualize ladders  Req5:Visualize snakes  Req6:Create Game Counter  Req7: Calculate score  Req8: Create binary tree ranking top 3 |
| CONTEXTO DEL PROBLEMA | Create a game of snakes and ladder with player characters and an interactive visual to play the game. |
| REQUERIMIENTOS NO FUNCIONALES | * Must be simple and intuitive for the user * Must have cleared all the rules and the instructions for the user. * Must be responsive and efficient |

| NOMBRE O IDENTIFICADOR | Req 1: Create the board | | |
| --- | --- | --- | --- |
| RESUMEN | Creates a board with a determined x and y size with data provided by the user. | | |
| ENTRADAS | Nombre de entrada | Tipo de dato | Condición de selección o repetición |
| x | int | Has to be between 2-10 |
| y | int | Has to be between 2-10 |
| RESULTADO O POSTCONDICIÓN | Creates a series of nodes that compose the board and has descriptions ranging from position, snake id or ladder id. | | |
| SALIDAS | Nombre de salida | Tipo de dato | Condición de selección o repetición |
| board | String |  |

| NOMBRE O IDENTIFICADOR | Req2: Create player | | |
| --- | --- | --- | --- |
| RESUMEN | Create a node that represents the player character ( \* ! O X % $ # + &) by a symbol and a score that changes if the character wins the game. | | |
| ENTRADAS | Nombre de entrada | Tipo de dato | Condición de selección o repetición |
| Symbol | int | Between 1-9 to choose a symbol. |
| RESULTADO O POSTCONDICIÓN | Creates player node and places him in head of the board. | | |
| SALIDAS | Nombre de salida | Tipo de dato | Condición de selección o repetición |
| board | String |  |

| NOMBRE O IDENTIFICADOR | Req3:Roll dice | | |
| --- | --- | --- | --- |
| RESUMEN | Rolls dice | | |
| ENTRADAS | Nombre de entrada | Tipo de dato | Condición de selección o repetición |
| Turn | int | Must choose 1 to roll dice |
| RESULTADO O POSTCONDICIÓN | Rolls dice 1-6 and based on the result the player moves that amount of spaces. | | |
| SALIDAS | Nombre de salida | Tipo de dato | Condición de selección o repetición |
| board | String |  |

| NOMBRE O IDENTIFICADOR | Req 4:Visualize ladders | | |
| --- | --- | --- | --- |
| RESUMEN | Prints board with ladders as E. | | |
| ENTRADAS | Nombre de entrada | Tipo de dato | Condición de selección o repetición |
|  |  |  |
| RESULTADO O POSTCONDICIÓN | Creates spaces on board in which the id is replaced with E1 and teleports to another E1 that's connected to but only in an upward direction. | | |
| SALIDAS | Nombre de salida | Tipo de dato | Condición de selección o repetición |
| board | String |  |

| NOMBRE O IDENTIFICADOR | Req 5:Visualize snakes | | |
| --- | --- | --- | --- |
| RESUMEN | Prints board with Snakes represented as S. | | |
| ENTRADAS | Nombre de entrada | Tipo de dato | Condición de selección o repetición |
|  |  |  |
| RESULTADO O POSTCONDICIÓN | Creates spaces on board in which the id is replaced with S1 which teleports player to another S1 which it is connected to and only moves character in a downward direction. | | |
| SALIDAS | Nombre de salida | Tipo de dato | Condición de selección o repetición |
| board | String |  |

| NOMBRE O IDENTIFICADOR | Req 6:Create Game Counter | | |
| --- | --- | --- | --- |
| RESUMEN | Creates a counter that ticks down every second and reduces the final score depending on value. | | |
| ENTRADAS | Nombre de entrada | Tipo de dato | Condición de selección o repetición |
| counter | int |  |
| RESULTADO O POSTCONDICIÓN | Shows a counter that gradually lowers every second. | | |
| SALIDAS | Nombre de salida | Tipo de dato | Condición de selección o repetición |
| counter | int |  |

| NOMBRE O IDENTIFICADOR | Req 7: Calculate score | | |
| --- | --- | --- | --- |
| RESUMEN | Calculates score after the player wins the game. | | |
| ENTRADAS | Nombre de entrada | Tipo de dato | Condición de selección o repetición |
| Player | int | Id of first player that reaches the end |
| RESULTADO O POSTCONDICIÓN | Calculates score based on record time and reduces score if it lasts more than 10min. | | |
| SALIDAS | Nombre de salida | Tipo de dato | Condición de selección o repetición |
| score | int | Shows score to the player that wins and saves it. |

| NOMBRE O IDENTIFICADOR | Req 8: Create binary tree ranking top | | |
| --- | --- | --- | --- |
| RESUMEN | Creates a top players ranking from highest to lowest score. | | |
| ENTRADAS | Nombre de entrada | Tipo de dato | Condición de selección o repetición |
| endGame | String | At least 3 players must have finished the game. |
| RESULTADO O POSTCONDICIÓN | The ranking of the players is printed from the highest to the lowest score. | | |
| SALIDAS | Nombre de salida | Tipo de dato | Condición de selección o repetición |
| endGame | String |  |