**TABLA DE ESPECIFICACIÓN DEL PROBLEMA DE INGENIERÍA DE SOFTWARE**

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| **CLIENTE** | Snakes ladders Inc. |
| **USUARIO** | Clients of Snakes ladders Inc. |
| **REQUERIMIENTOS FUNCIONALES** | 1. Start menu 2. Generate Board 3. Initialize players 4. Show Player menu 5. Player's Actions 6. Report Winner 7. Report Leader board |
| **CONTEXTO DEL PROBLEMA** | The company Snakes ladders wants to develop a program to implement their famous game and has contracted us to do so. |
| **REQUERIMIENTOS NO FUNCIONALES** |  |

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| **Nombre o identificador** | 1. **Start menu** | | |
| **Resumen** | The system shows a menu | | |
| **Entradas** | **Nombre entrada** | **Tipo de dato** | **Condición de selección o**  **repetición** |
| **Actividades generales necesarias para obtener los resultados** | The system shows a menu whit two options 1 play and 2. Leave, them | | |
| **Resultado o postcondición** | the system returns the menu selection by the user | | |
| **Salidas** | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |

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| **Nombre o identificador** | **2.** **generate the board** | | |
| **Resumen** | The user must enter the number of columns and rows that correspond to the game board, then a linked list will be initialized with the given size, where the system will randomly generate S snakes and E ladders. | | |
| **Entradas** | **Nombre entrada** | **Tipo de dato** | **Condición de selección o**  **repetición** |
| Rows | int | must be a natural number |
| Columns | int | must be a natural number |
| **Actividades generales necesarias para obtener los resultados** | After the user has entered the number of rows and columns, a linked list will be initialized with the number of given positions and a fixed numbering of them, which will correspond to the game board, and the position of the snakes and ladders will be randomly created. | | |
| **Resultado o postcondición** | a report message will be returned and if there is no problem the linked list "board" will be created. | | |
| **Salidas** | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |
| message | String |  |

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| **Nombre o identificador** | **3. Initialize players** | | |
| **Resumen** | The system initializes 3 players on the first square of the board | | |
| **Entradas** | **Nombre entrada** | **Tipo de dato** | **Condición de selección o**  **repetición** |
| **Actividades generales necesarias para obtener los resultados** | the system will select without repeating any of the following icons for the 3 players (“!”, “O”, “X”, “%”, “$”, “#”, “+”, “&”), then they will be assigned to the first square on the board | | |
| **Resultado o postcondición** | 3 players will be assigned with their respective symbols. | | |
| **Salidas** | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |

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| **Nombre o identificador** | **4. Show player menu** | | |
| **Resumen** | The system shows a player menu | | |
| **Entradas** | **Nombre entrada** | **Tipo de dato** | **Condición de selección o**  **repetición** |
| **Actividades generales necesarias para obtener los resultados** | the system will display the name of the player in turn and 2 options, 1. roll dice and 2. view ladders and snakes. | | |
| **Resultado o postcondición** | The system returns the player selection | | |
| **Salidas** | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |

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| **Nombre o identificador** | **5. Player's Actions** | | |
| **Resumen** | the system must allow the player to move and interact with the current box, checking if in the current box has a snake, ladder or is the final square of the board. | | |
| **Entradas** | **Nombre entrada** | **Tipo de dato** | **Condición de selección o**  **repetición** |
| **Actividades generales necesarias para obtener los resultados** | The system simulates a dice roll using Random to generate a number, then the system moves the player from his current square + the generated number.  When the player lands on a square the system will check if there is a ladder, a snake or if it is the end of the board.  If the player falls on a ladder the system will advance square by square looking for another ladder with the same id, if the system finds it then it will move the player to that square otherwise it will do nothing.  if the player falls into a snake the system will go back square by square to the beginning of the board, looking for a snake with the same id, if found it will return the player to that square, otherwise it will do nothing.  Finally, the system will check if the current cell is the last one and end the game. | | |
| **Resultado o postcondición** | The system returns a message informing in which box it has fallen or if he falls in a snake or ladder | | |
| **Salidas** | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |
| Message | String | The message that appears depends on which box the player has fallen in. |

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| **Nombre o identificador** | **6. Report Winner** | | |
| **Resumen** | The system shows the score of the winner | | |
| **Entradas** | **Nombre entrada** | **Tipo de dato** | **Condición de selección o**  **repetición** |
| **Actividades generales necesarias para obtener los resultados** | the system will calculate the winner's score using the following formula **score = (600 - t) / 6** them it shows the final score and save it. | | |
| **Resultado o postcondición** | The system returns and save the winners name and is score. | | |
| **Salidas** | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |
| Message | String |  |

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| **Nombre o identificador** | **7. Report leaderboard** | | |
| **Resumen** | The system shows the scores in descending order | | |
| **Entradas** | **Nombre entrada** | **Tipo de dato** | **Condición de selección o**  **repetición** |
| **Actividades generales necesarias para obtener los resultados** | the system accesses to it saved scores and organizes them in descending order (highest to lowest) then displays them. | | |
| **Resultado o postcondición** |  | | |
| **Salidas** | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |
| Message | String |  |