# Tarea - Identificación del problema y análisis de requerimientos

## Caso de Estudio :

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| --- | --- |
| Cliente | Snakes and Ladders Inc. |
| Usuario | Players. |
| Requerimientos funcionales | R1. create table  R2. Show game board.  R3. Roll a dice  R4. The player falls into a ladder.  R5. The player falls into a snake.  R6. See ladder and snake.  R7. Calculate score with formula.  R8. Show scores.  R9. register players |
| Contexto del problema | The famous company Snakes and Ladders Inc. has hired him to develop a program that allows you to play and also simulate the famous game Snakes and Ladders.  The game consists of 3 players who start their journey across the board. They all start from square 1, moving in turns along the squares. The player who reaches the last box first wins.  You can represent each player with any of the following symbols: \* ! Or X % $ # + &.  The snakes in the game join a square with any other in a lower square. Snakes are identified by capital letters of the alphabet beginning with A. |
| Requerimientos no funcionales | R1. The grid must be modeled and implemented using linked lists.  R2. It is not possible to use any array, or arraylist, or any Java collection in this program.  R3. It is not possible to use cycles in this program.  R4. All iterations must be done using recursion. All ladders and snakes must be modeled as connections between nodes of the linked structure |

**Requerimiento 1.**

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| --- | --- | --- | --- |
| Nombre o identificador | create table | | |
| Resumen | When the players have registered, they will be asked to enter the number of rows and columns of the table and also the number of ladders and snakes desired, to then automatically create the table. | | |
| Entradas | **Nombre entrada** | **Tipo de dato** | **Condición de selección o repetición** |
| rows | int | input is not null and is a number greater than 0 |
|  | columns | int | input is not null and is a number greater than 0 |
|  | snakes | int | input is not null and is a number greater than 0 |
|  | stairs | int | input is not null and is a number greater than 0 |
| Actividades generales necesarias para obtener los resultados | To carry out the process, the entries must have been entered correctly. | | |
| Resultado o Postcondición | A success message will be displayed if the process was successful, an error message will be displayed. | | |
| Salidas | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |
| massage | String | all the methods of the class were executed successfully |
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**Requerimiento 2.**

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| --- | --- | --- | --- |
| Nombre o identificador | Show the game board. | | |
| Resumen | The game has an option to show the game board to the players. Where it shows both the positions of the players and the entire board in general. | | |
| Entradas | **Nombre entrada** | **Tipo de dato** | **Condición de selección o repetición** |
|  |  |  |
| Actividades generales necesarias para obtener los resultados | That the user has chosen the option to show the game board. | | |
| Resultado o Postcondición | a String named board with the game board. | | |
| Salidas | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |
| board | String | that the user choose the option to show menu again |
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**Requerimiento 3.**

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| --- | --- | --- | --- |
| Nombre o identificador | Roll a dice | | |
| Resumen | The player, through the menu, can choose the option to roll the dice. When you choose this option, a number from 1 to 6 will randomly appear. | | |
| Entradas | **Nombre entrada** | **Tipo de dato** |  |
|  |  |  |
| Actividades generales necesarias para obtener los resultados | The player had to have chosen the roll dice option from the menu. | | |
| Resultado o Postcondición | The number drawn randomly will be displayed | | |
| Salidas | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |
| number | int | all the methods of the class were executed successfully |
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**Requerimiento 4.**

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| --- | --- | --- | --- |
| Nombre o identificador | The player falls on a ladder | | |
| Resumen | After rolling a dice, when the player moves the indicated squares, he is at the beginning of a ladder, he will be promoted to the upper square where the ladder ends and he will wait his turn again. | | |
| Entradas | **Nombre entrada** | **Tipo de dato** |  |
|  |  |  |
| Actividades generales necesarias para obtener los resultados | that the player has thrown the dice and that when moving around the board, has been at the beginning of a ladder. | | |
| Resultado o Postcondición | The player is promoted to the top square where the ladder ends. | | |
| Salidas | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |
| msj | String | all the methods of the class were executed successfully |
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**Requerimiento 5.**

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| --- | --- | --- | --- |
| Nombre o identificador | The player falls into a snake. | | |
| Resumen | After rolling a dice, when the player moves the indicated squares, if he is at the beginning of a snake, he will be promoted to the lower square where the snake ends and will wait his turn again. | | |
| Entradas | **Nombre entrada** | **Tipo de dato** |  |
|  |  |  |
| Actividades generales necesarias para obtener los resultados | that the player has thrown the dice and that when moving around the board, has been at the beginning of a snake. | | |
| Resultado o Postcondición | The player is promoted to the bottom square where the snake ends up. | | |
| Salidas | **Nombre salida** | **Tipo de dato** |  |
| msj | String | all the methods of the class were executed successfully |
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**Requerimiento 6.**

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| --- | --- | --- | --- |
| Nombre o identificador | See the ladders and the snakes. | | |
| Resumen | the user has the option to ask the juice to show the location of the ladders and snakes. | | |
| Entradas | **Nombre entrada** | **Tipo de dato** |  |
|  |  |  |
| Actividades generales necesarias para obtener los resultados | have the player choose the option to show the ladders and snakes before rolling the die. | | |
| Resultado o Postcondición |  | | |
| Salidas | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |
| location | String | the user re-chooses the option to show the location of the stairs and snakes |
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**Requerimiento 7.**

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| --- | --- | --- | --- |
| Nombre o identificador | Calculate score with formula. | | |
| Resumen | At the end of the game, the time in seconds of each player will be taken from when any of the 3 have reached the goal. Taking this time, the final score will be calculated with an equation for each player | | |
| Entradas | **Nombre entrada** | **Tipo de dato** |  |
|  |  |  |
| Actividades generales necesarias para obtener los resultados | some player had to have reached the goal | | |
| Resultado o Postcondición | A success message will be displayed, when all scores are found calculator | | |
| Salidas | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |
| msj | msj | all the methods of the class were executed successfully |
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**Requerimiento 8.**

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| Nombre o identificador | Show the score of the players. | | |
| Resumen | After the player reaches the goal, an ordered list from highest score to lowest score is displayed. | | |
| Entradas | **Nombre entrada** | **Tipo de dato** |  |
|  |  |  |
| Actividades generales necesarias para obtener los resultados | at least one of the players has reached the goal, that is, the game is over. | | |
| Resultado o Postcondición | a String with the list of scores, from the highest to the lowest. | | |
| Salidas | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |
| scores | String | there are no repeat conditions. |
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**Requerimiento 9**

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| Nombre o identificador | register the players | | |
| Resumen | the 3 players have the option to choose their avatar, which can represent each player with any of the following symbols: \* ! Or X % $ # + &. | | |
| Entradas | **Nombre entrada** | **Tipo de dato** |  |
| name and symbol | String | input is different from null |
| Actividades generales necesarias para obtener los resultados | start the game, and have the board generated. | | |
| Resultado o Postcondición | the start of the game with the symbols that represent the characters. | | |
| Salidas | **Nombre salida** | **Tipo de dato** | **Condición de selección o repetición** |
|  |  | there are no repeat conditions. |
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