MARÍA VALENTINA CASTRO VEGA
A00372554

FUNCTIONAL REQUIREMENTS

FR1: Choose the size of the board. The user (s) must be able to choose the number of rows and columns that made up the board.

FR2: Choose the quantity of snakes and ladders. The user (s) must be able to choose the number of snakes and ladders that will be on the board, typing these numbers.

FR3: Indicate the number of players. The user must be able to indicate by typing the number of players.

FR4: Show the menu. The user (s) must be able to watch the menu and pick either of the 2 options that appears there (exit the program or play the game).

FR5: Exit the program. The user (s) must be able to exit the program from the menu option typing the correct key and enter.

FR6: Start the game. The user (s) must be able to start the game from the menu option typing the correct key and enter. Then the user (s) must be able to type the number of rows, columns, snakes, ladders, and players.

FR7: Show the board with the info. After that the users enter the parameters, and press the enter key, he must be able to watch the board with the position of every square and also the ubication of the snakes and ladders.

FR8: Show the board during the game. During the game the user (s) must be able to watch the board with the ubication of snakes and ladders and should be able to see their position as the game progress.

FR9: Play the game. The user (s) should be able to play the game typing the enter key. Each player types the enter when it's he's turn, this action is the same thing that roll the dice and move the token.

FR10: Inform players the score obtained after rolling the dice. After that the player in turn press the enter key, they will be shown a message indicating the score obtained by the player in turn.

FR11: Assign Tokens. Each player must be identified by a different token. The program assigns a random token from a pre-selected list of characters.

FR12: Enter the keyword num. If instead to press the enter key the player types the word num, and press the enter key, the board with the positions of the squares and of the snakes and ladders will be shown. Then the player will have to press the enter key to return to the game.

FR13: Enter the keyword menu. If instead to press the enter key the player types the word menu and press enter, the game is interrupted without finishing and the menu with the options is displayed.

FR14: Inform players if someone won. the game ends when one of the players reaches the last square, if this happens, a message should be displayed indicating the token of the player that won and the number of movements it took.

CLASS DIAGRAM

model

top
0..1

Square

- ladder: char
- snake: char
- position: int
- players: String

+ Square(int): void
+ getPrev(): Square
+ getNext(): Square
+ getTop(): Square
+ getBottom(): Square
+ getLadder(): char
+ getSnake(): char
+ getPosition(): int
+ getPlayers(): String
+ setBottom(Square): void
+ setTop(Square): void
+ setNext(Square): void
+ setPrev(Square): void
+ setPlayers(String): void
+ setLadder(char): void
+ setSnake(char): void
+ setPosition(char): void
+ toString: string

prev
0..1

next
0..1

start
1

0..1
bottom

Board

- n: int
- m: int
- s: int
- e: int

+ Board(int n, int m, int s, int e): void
+ buildBoard(): void
+ addSquareRows(Square prevSquare, int cols, int rows): void
+ addSquareCols(Square prevSquare, int rows): void
+ completeBoardLinks(Square toLink): void
+ printBoard(Square toLink): String
+ getStart(): Square
+ distributeSnakes():void
+ distributeLadders():void

1
gameBoard

Game

- p: int

+ Game(int p): void
+ startGame(): void
+ selectTokens(int p): void
+ rollDice(): void
+ showGameBoard(): void
+ moveTokens(): void

1

game
1

ui

Menu

- br: BufferReader

+showMenu(): int
+executeOptions(int op): void
+getData(): String []
+showGameBoard(): void

menu
1

SnakesAndLadders System

+ main(String args): void