



## 1. Undo last move

<b>Actors</b>	Player
<b>Description</b>	The player might need to undo his current and previous moves.
<b>Data</b>	-
<b>Stimulus</b>	Clicking on the button.
<b>Response</b>	The last piece moved goes back to its previous position.
<b>Comments</b>	If the player tries to click on the button on the first move, it does nothing since there is no pieces that were moved. In order to obtain the last move information, the program has access to the moves' file.

## 2. Show the next best move

<b>Actors</b>	Player
<b>Description</b>	If the player is stuck in the game, he can use this button to ask for help in order to bring him closer to the solution.
<b>Data</b>	-
<b>Stimulus</b>	Clicking on the button
<b>Response</b>	The program decides whether it can directly move the necessary piece or go back a step and performs the action.
<b>Comments</b>	Not necessary for it to be an intelligent algorithm, but it must at least allow to make a path from start to finish.

## 3. Quit game

<b>Actors</b>	Player
<b>Description</b>	Button that allows player to interrupt the program.
<b>Data</b>	-
<b>Stimulus</b>	Clicking on the button.
<b>Response</b>	The program shows an alert window asking the player if they're sure about quitting, if they want to save the current game state or if they want to return to the game (cancel).
<b>Comments</b>	The window is closed only if the player chooses "Don't Save".

## 4. Reset the puzzle

<b>Actors</b>	Player
<b>Description</b>	If the player wants to restart the game he can go back with the same initial configuration.
<b>Data</b>	-
<b>Stimulus</b>	Clicking on the button.
<b>Response</b>	The program resets the puzzle and sets to 0 the moves' counter.

#### 4. Reset the puzzle

<b>Comments</b>	The configuration reset by the program has to be the same as current match's initial configuration that was chosen by the player.
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#### 5. Save the current state of the puzzle

<b>Actors</b>	Player
<b>Description</b>	Button that allows player to save the moves up until the current puzzle state.
<b>Data</b>	File containing all the moves done by the player up until current state.
<b>Stimulus</b>	Choosing the "Save" button.
<b>Response</b>	A window opens where the player has to give a name to the current match.
<b>Comments</b>	In addition to saving the moves, the program also saves the current state of the game. The save file is created when the button is pressed.

#### 6. Open a saved state of the puzzle

<b>Actors</b>	Player, moves' file
<b>Description</b>	If there is an already saved game, the player can open and load it into the puzzle to continue playing.
<b>Data</b>	File with a presaved game.
<b>Stimulus</b>	Choosing the "Load Game" button.
<b>Response</b>	A window appears with all the presaved matches from which the player can choose one to open. The game opens with the pieces in the saved position and the counter set to the number of moves that were made.
<b>Comments</b>	When a presaved game is loaded, it updates the moves' file.

## 7. Move puzzle pieces

<b>Actors</b>	Player
<b>Description</b>	There are three ways to move the pieces. The player might want to use the 4 buttons representing the 4 keyboard arrows, the mouse or the 4 keyboard arrows directly to move the selected piece in correspondence with the desired direction.
<b>Data</b>	-
<b>Stimulus</b>	Clicking on the arrow, dragging the piece with the mouse or pressing the keyboards' arrows.
<b>Response</b>	The piece moves by one adjacent cell in correspondence with the selected arrow.
<b>Comments</b>	The movement is constrained to the board and by the position of the other pieces. If the move is not allowed, the piece doesn't proceed.

## 8. Choose a start configuration

<b>Actors</b>	Player, configurations file.
<b>Description</b>	When (re)starting the game, the player can choose one of the three available configurations.
<b>Data</b>	File containing three starting configurations the program loads into the puzzle.
<b>Stimulus</b>	Choosing the "Config_x" load button, where x is in {1, 2, 3}, when the game is started.
<b>Response</b>	The pieces on the board are arranged according to the chosen configuration. The counter is set to 0.
<b>Comments</b>	In order to obtain the chosen configuration of the puzzle, the program has access to the configurations' file.

## 9. Win game

<b>Actors</b>	Player
<b>Description</b>	The player might try to win the game, by bringing the 2x2 red square at the red line at the bottom of the board.
<b>Data</b>	-
<b>Stimulus</b>	The 2x2 square touches the red line with all his bottom side.
<b>Response</b>	An alert box opens that informs the player about winning.
<b>Comments</b>	The alert box also shows in how many moves the player won the game.