

# Software Requirements for PuzzleQ

## PuzzleQ

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### Overview

This document describes requirements for the software implementation of the game of PuzzleQ. A description of the game plus the requirements of this implementation are provided below.

### The Game

The player is presented with a 3x3 grid of empty spots. When the player presses start, all spots except for one will be filled with a random part of a photo. The photos will then be able to be manipulated and moved around to create one big picture. Once the player has successfully placed all the parts of the photo in the right spot, the player wins.

### Software Implementation

#### UI Elements

The software will present the PuzzleQ game with the UI elements listed below.

- 3x3 grid of picture boxes
- Row of buttons on top of the screen (like a toolbar) that has:
  - A Start Button
  - 4 Buttons to move around the photos in all directions
  - Label to display messages
  - Label to display level
  - Label to display score

### Game Process and Rules

The game starts when the player clicks start. Until then, the direction buttons are all disabled, and the message is "Click Start to begin Game".

After Start is clicked, the message "Try to complete the picture by moving the photos around using the arrow buttons. You can click start anytime to get a new layout, but your score will decrease." is displayed. The player can then move the photos around. By pressing any arrow key, the top, bottom, right or left photo, will be moved to the blank spot, based on which button was clicked. If the user attempts to make a movement that is not possible, the click is ignored, with no effect to the photo spots. When the player has successfully placed all the photos in their correct spots, they have won.

When there is a winner: The empty picture box gets filled in with the remaining part of the picture. The message then changes to "You won! Hooray! Click Start to proceed to the next level". The score will go up by one, as well as the level.

The whole process then repeats, with a different photo for level 2 which is followed by another photo for level 3. After 3 levels, the message will be: "You won! You have successfully completed all three levels. Click Start to begin from level 1."

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The user will then be able to start the game all over again. The level will go back down to 1, but the score will continue increasing.

If the user clicks Start in middle of a game, then the game should interrupt, and begin a new game from the same level, but the score should decrease.