

## Homework Assignment 7: Fifteen Puzzle

### EXTRA FEATURES

The following are **extra features** you can complete to add new functionality to your program. The first extra feature you complete is worth **+1 extra point** on HW7; this can be used to make up for a -1 you might receive on some other part of the program. But you cannot get more than 100% on HW7, and the extra point cannot be applied to any other programs besides HW7. If you choose to complete more than one extra feature, each additional feature you complete is worth **+1 late day**, up to a max of +3 total. If you choose to do any of these extra features, in your JavaScript file's comment header, indicate which one(s) you did.

Regardless of how many additions you write, the page behavior and appearance **should still work as specified**. You may not modify the HTML file provided; each feature must be done through your own CSS and JavaScript. If you have a different idea for an addition to the program, please ask us and we may approve it.

#### Extra Feature #1. End-of-game Notification

Provide some sort of visual notification when the game has been won; that is, when the tiles have been rearranged into their original order. An **alert** is not sufficient; you should modify the appearance of the page. You may display an image(s) if you like, but there is no way to turn them in, so put them on your Webster space and use full path URLs when linking to them.

#### Extra Feature #2. Ability to Slide Multiple Squares at Once

Make it so that if you click any square in the empty square's row or column, even ones more than one spot away from the empty square, all squares between it and the empty square slide over. (Much more pleasant to play!) If you do this extra feature, make it so that all movable squares (including ones several rows or columns away from the empty square) highlight on hover as described before.

#### Extra Feature #3. Animations and/or Transitions

Instead of each tile immediately appearing in its new position, make them animate. You can do any sort of animation or other styling, as long as the game ends up in the proper state after a reasonable amount of time.

#### Extra Feature #4. Game Time

Keep track of the game time elapsed in seconds and the total number of moves, and when the puzzle has been solved, display them along with the best time/moves seen so far.

#### Extra Feature #5. Multiple Backgrounds

Provide several background images (at least 4) to choose from. The game should choose a random background on start-up, and should have a UI (such as a select box) by which the player can choose a different image while playing. Host your additional backgrounds on the Webster server and link to them using full path URLs.

#### Extra Feature #6. Different Puzzle Sizes

Place a control on the board to allow the game to be broken apart in other sizes besides 4x4, such as 3x3 or 6x6.