

# 15 Puzzle Game

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**\*\* Please turn off Device Specific Warnings on CPUlator before playing the game. \*\***  
15 Puzzle is a game where user moves tiles to rearrange them in a particular order.

## Display

- **VGA:** 8 tiles numbered 1-8 will be displayed in a 3x3 block in random order
- **Hex:** the timer value is displayed on hex, counting up (time limit is 3 minutes)

## How to Play

- Type PS2 keyboard Right Arrow or Left Arrow to select the tile you want to move.
  - Right Arrow selects clockwise, Left Arrow selects counterclockwise
  - The selected tile is indicated with a thick black frame
- Type PS2 Enter key to move the tile
  - Selected tile slides to the empty spot
- Repeat until the tiles are sorted in ascending order (shown below)

1	2	3
4	5	6
7	8	

- If user is able to arrange the tiles within the time limit, "You Win" appears on VGA
- If time limit is exceeded, "You Lose" appears on VGA
- Type PS2 Backspace key is used to restart the game (after a game ends) or shuffle the tile arrangement (during the game) and start a new game. This also resets the timer to 0.

## Attribution Table

Name	Work Done	Relative % Work Done
Ruqhia	<ul style="list-style-type: none"><li>• configured timer interrupts and ISR for timer</li><li>• added images for game board, and win/lose page</li><li>• implemented shuffling option</li></ul>	50
Nancy	<ul style="list-style-type: none"><li>• configured PS2 interrupts and ISR for PS2</li><li>• implemented tile selection and swapping logics</li><li>• implemented animation for tile swapping</li></ul>	50