Slithermaze

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What is Slithermaze?

Slithermaze is a browser-based puzzle app with desktop and mobile support. The goal of the game is to place lines around a lattice of dots such that one large loop is weaved around the board, without branches or dead ends. The number inside each cell dictates how many lines must surround it.

Features

- Pre-made and generated puzzles
- Auto-solving
- Validate submitted puzzles
- Leaderboard
- Shade cells of grid
- Auto-crossing and other QOL features
- Save and load
- Undo and redo
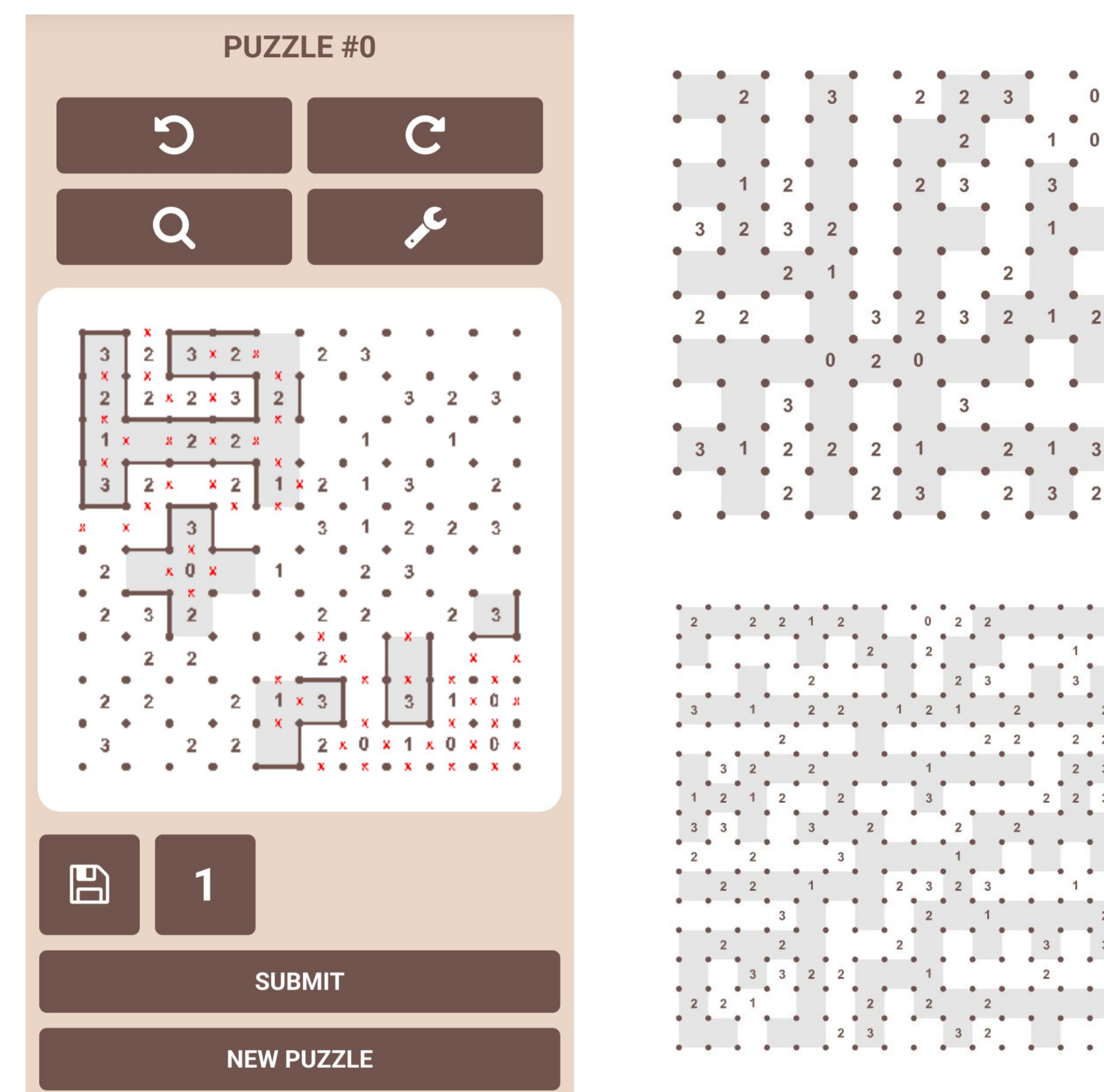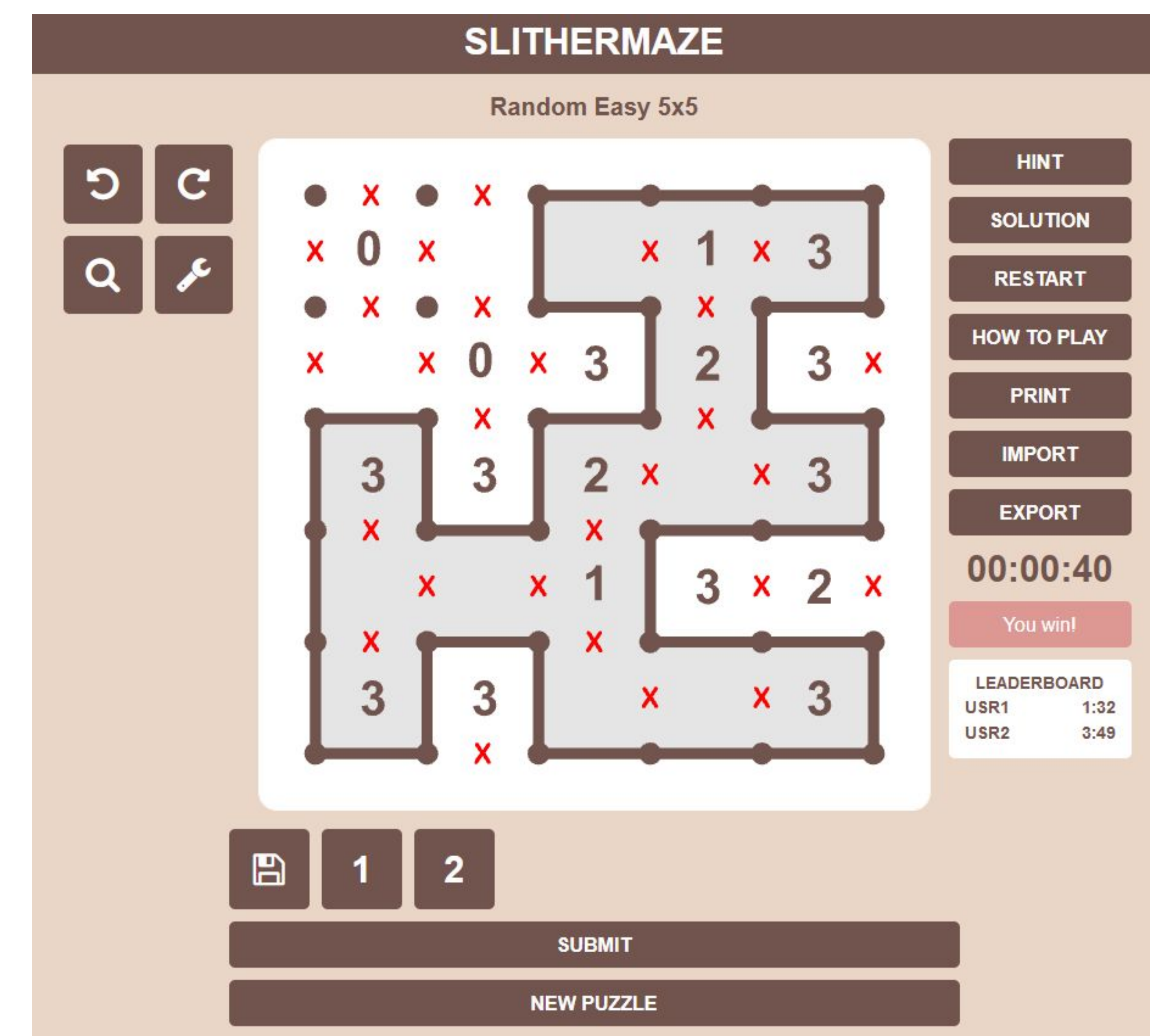- Zoom
- Printing

Technologies

HTML5 JS CSS3

mongoDB WebGL™

Website and Contact

Play now at slithermaze.com, or scan the QR code to the right!

You can also reach us at slithermaze@cs.csub.edu.

Slithermaze in Action

Major Algorithms

Solution Verification

- Checks that all cells are surrounded by the right number of lines
- Follows the main loop around grid, ensuring each node has only 2 connected lines
- Final search around grid for stray lines and subloops

Puzzle Generation

- Selects random starting cell near center of grid
- Expands in tree formation until 55% of grid is selected
- Places numbers with probability dependant on difficulty

Auto-solver

- Pattern recognition and deductive reasoning to place lines and crosses
- Best guess and backtrack to eliminate possible line placements

Challenges

- Low-level JS and WebGL: No frameworks or large libraries for frontend; everything created from scratch
- Browser and device compatibility: Different resolutions and browser WebGL support
- Puzzle design: Ensure consistent difficulty and satisfaction
- Database connection and backend: Many interconnected technologies

Future Plans

- Pre-made puzzles that create animated pixel art
- Simultaneous multiplayer mode
- Create more puzzle types (Slitherslide, Stitches)