

2015 SDSU Program Design Competition Problem Description

Block Dude

In the “Block Dude” game, the playable world expands off screen as a world of blocks and puzzles is loaded. A single player’s **goal is to reach the exit on each level to go to the next level.** The player does this by picking up one movable block at a time which they find lying around and placing them in strategic points allowing them to advance through the level. The player can only move up one block at a time but can fall any number of blocks without consequence. Blocks can also only be placed up to one above the player directly in front of them.

An example of the game-play is as follows:

Initial state: the location of the level exit might be out of view and it is easy to tell between moveable and unmovable blocks.

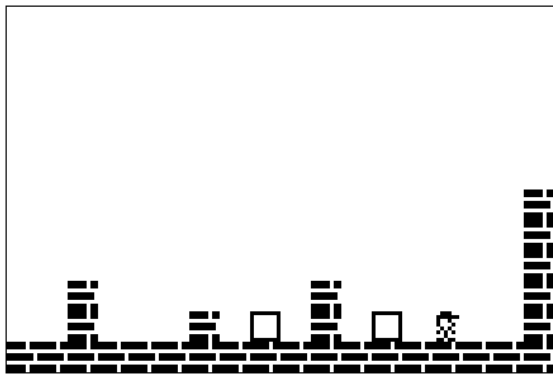


Fig1. Initial State

The block pick up: the player moves over to the block and picks it up while standing in front of it.

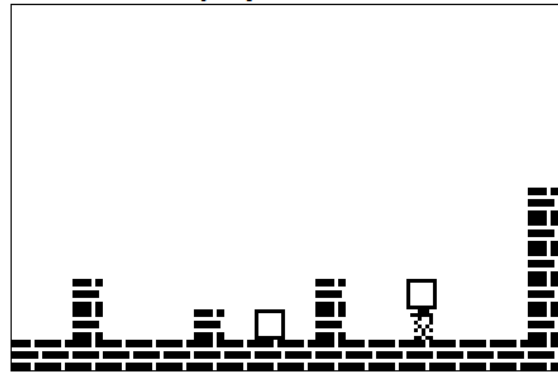


Fig2. Block Pick Up.

The block placement: carrying the block on top of him/her the player moves over one space and drops the block in front of them.

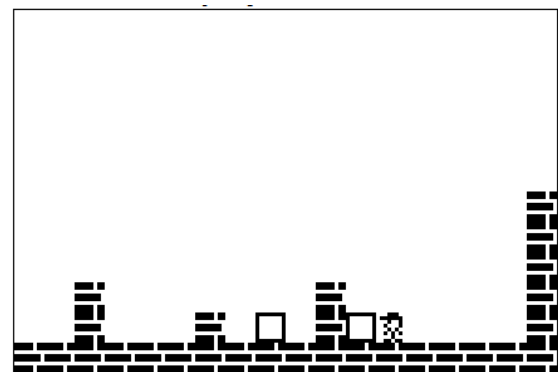


Fig3. Block Placement.

Climbing: the player is now able to climb up the newly created “stairs”.

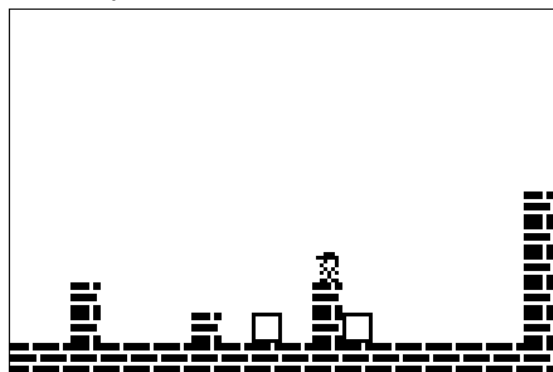


Fig4. Climbing.

Many moves later, by utilizing the above capabilities, the player reaches the level exit (looks like a door) and “walks” into it. **The level is then cleared, and the player is promoted to the next level.**

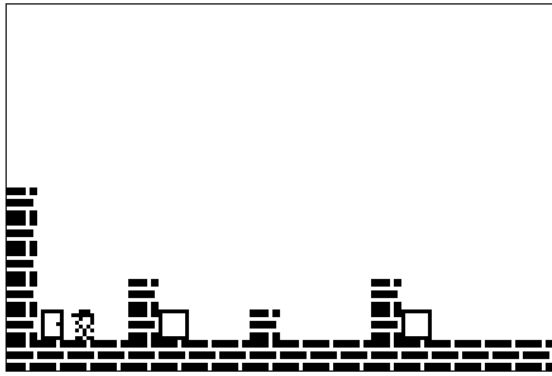


Fig5. Level Exit.

The next level is a new puzzle and the “world” may be completely rearranged. The difficulty should also be somewhat increased each level. Please design at least 5 levels to challenge the player. Additional obstacles and challenges can be worked in as the player advances past the first level.

Please additionally provide:

- A way to “select” the level to play if the player has reached the level.
- Level restart: as the player progresses, mistakes can make the levels impassable; provide a way to restart the level whenever the player wishes to.
- Competitive play: provide a timer for each play through or a move counter. Keep track of the top 10 high scores (shortest time to reach level exit or fewest moves required).

You can develop this game using any software tools available to you. You may create a web based application, a C/C++ program, a Visual Basic/C++/C# program, Java, some other programming environment, or a combination of multiple programming languages. Your program MUST be able to run on at least one Windows platform: a Windows XP or Windows7 or Windows8 computer using standard installation. If you choose a browser-based

solution, it MUST work on at least one Web browser: Internet Explorer, Firefox or Google Chrome. **It is recommended you bring your own laptop to SDSU for demonstration and presentation during the competition day.**

Your work will be judged on:

1. Correctness of the solution
2. Uniqueness of the design
3. Completeness of solution
4. User-interface design

All team members are encouraged to participate during the presentation. All parts of the presentation and source code should be burned to a clearly-labeled CD and submitted to the program design competition committee on the day of the competition.

If you have any questions regarding the problem, please do not hesitate to ask us, sung.shin@sdstate.edu.

Good luck and have fun!