Mini-Game Test

ⓘ This is a preview of the published version of the quiz

Started: Nov 28 at 12:55pm

Quiz Instructions

This is the mini-game test. The description of the mini-game is in the question. The question is a "File Upload" type. When finished or time is almost up, upload a .zip file of your folder using that question. Be careful to not "accidentally" upload an incorrect .zip file.

I recommend opening the quiz in one browser (such as Firefox) and using a different browser (such as Chrome) to do the development on the game. This will help you from inadvertently closing the quiz page. However, if that happens, you can return to the quiz in Canvas and it will allow you to Resume the quiz...you don't get more time, it just recovers the previous state.

Have fun!

Question 1 **0 pts**

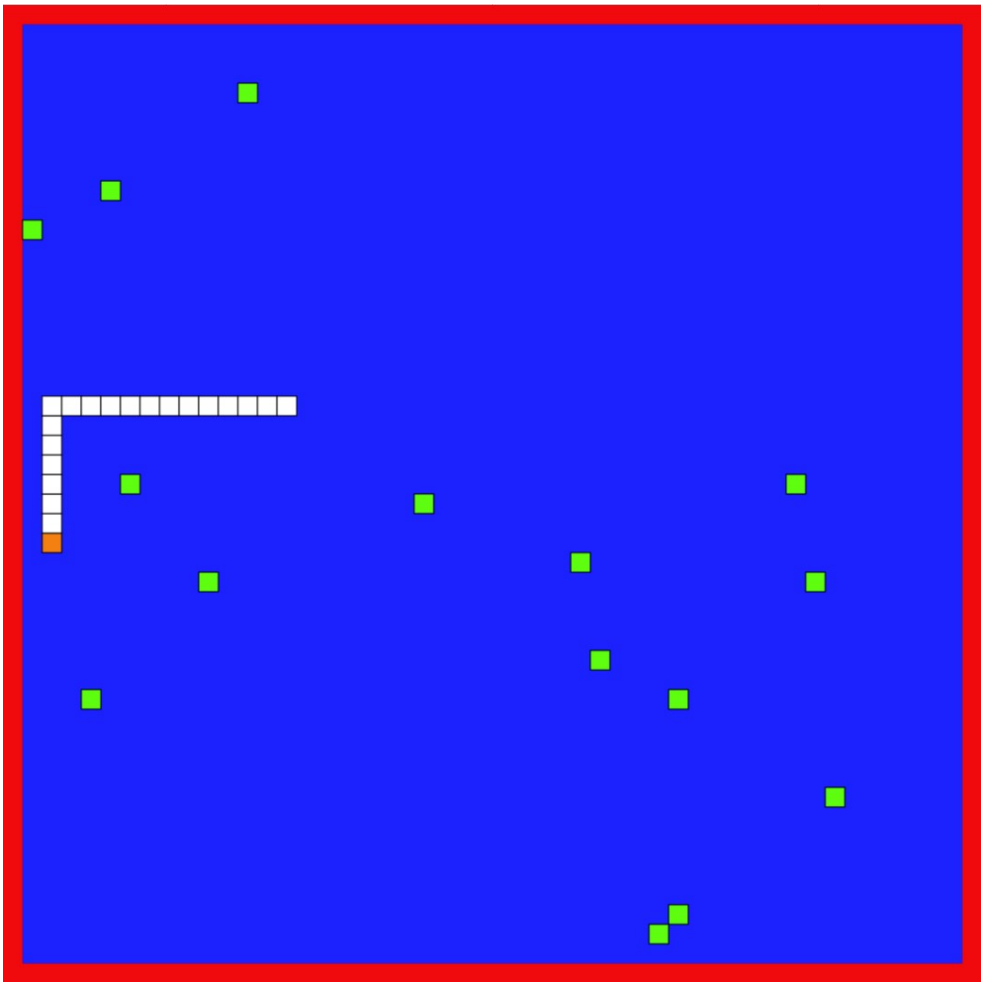
Introduction

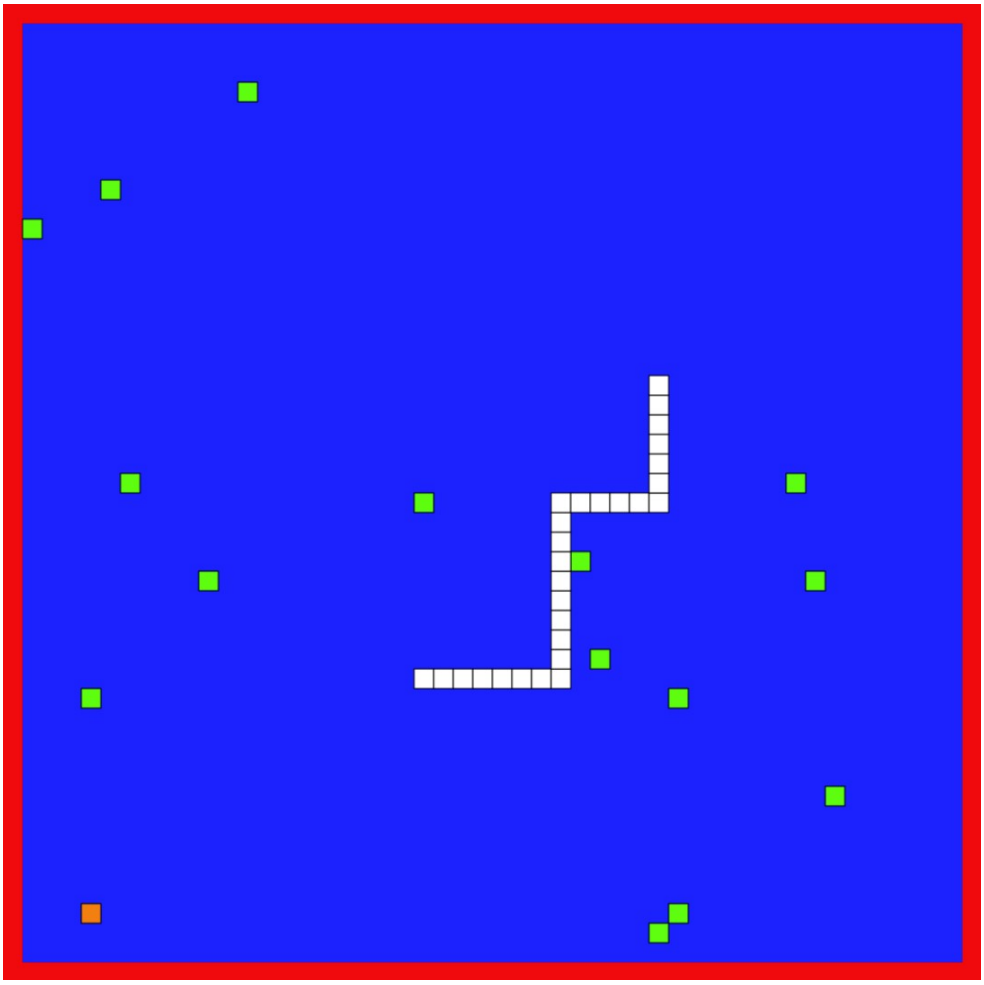
A mini game is a game that lasts only a few seconds to a few minutes per play. Nintendo released an entire “game” made up of mini games called, “WarioWare”. Each mini game lasted at most 5 seconds; actually, these are called micro games.

Mini-Game

You are going to create an HTML5 web-based version of a game that I used to play in my childhood on my TRS-80. The TRS-80 has limited graphics, 128 x 48 (rectangular) pixels, difficult to make graphically engaging games. While it was limited in capability, some good games were made for it, including a snake style game.

Create a mini game that follows the screenshots (from my implementation) shown below and meets the specified gameplay and technical requirements.





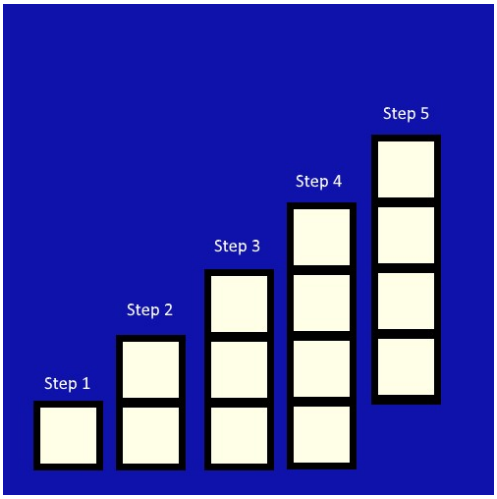
- The green squares are obstacles
- The orange square is the food
- The white squares are the snake segments
- The red is the arena border
- The blue is the arena background

Gameplay Requirements

The goal of the game is to build the longest snake possible. The game starts with the snake of a single block in size and growing by 3 blocks each time a piece of food is eaten. If the snake runs into the border of the arena, an obstacle, or itself, the game ends. The score for the game is how many segments long the snake is when the game completes.

- Grid size is 50 x 50, which also includes the border. You don't have to follow this exactly, but something on that order would be nice.
- There are 15 single square obstacles at the start of the game. These obstacles are randomly placed throughout the arena, and can not occupy the same location.
- Snake
  - The initial size of the snake is 1 segment. The snake does not start on an obstacle or a piece of food.
    - The snake initially is not moving, it only starts moving once the player presses an arrow key in the direction they want it to move. Once started, the snake never stops moving, until the game ends.
  - Snake movement (turning) is controlled by the four arrow keys. You can also map to other keys, but the arrow keys must be mapped (for grading ease).
  - You can choose the speed the snake moves, find the right balance of challenge, not boringly slow and not blisteringly difficult. I recommend a move rate of 150 milliseconds per square.
  - The snake can not turn back on itself. In other words, if it is moving to the left, pressing the right arrow key will do nothing, instead, it keeps moving left.
- There is always 1 piece of food available.

    - The location of a piece of food is randomly chosen.
        - A piece of food can never be on an obstacle.
        - A piece of food can never be located on the snake.
    - As soon as a piece of food is eaten, a new one created.
- When a piece of food is eaten, it adds three segments to the snake. This is done by continuing to move the snake in whichever direction it is moving and adding the segments, one at a time, at the end of the snake as the tail moves forward. In other words, the snake continues to move as normal, but the tail won't appear to move for three times while the three new segments are added, one at a time where the tail is. The next image illustrates how the snake would grow/move after eating its first piece of food; the snake is moving towards the top in this example.
    - Step 1, the food is eaten.
    - Step 2, the snake moves forward, a segment is added.
    - Step 3, the snake moves forward, a segment is added.
    - Step 4, the snake moves forward, a segment is added.
    - Step 5, the snake moves forward.
    - **Important note:** The player can still change the direction of the head, even as new segments are being added at the spot where the food was consumed.



- The game ends when the snake hits an obstacle, a border, or itself.

Technical Requirements

- HTML5 Canvas Rendering & JavaScript based; as we have been doing all semester.
    - No node.js server needed (or wanted).
- Menu and game screen system
    - New Game
    - High Scores
    - Credits
- Visual Components
    - I have provided sample screenshots, you are welcome to use other (not horrible) colors.
    - Rendering of the squares must have a black border around them in order to help them stand out properly from the background. The example screenshots use and demonstrate this.
    - The snake should have a segmented look as the mock-up shows; if the square rendering is done as described above, it will appear this way.
    - Game start countdown 3, 2, 1
- High scores must persist to the browser's local storage; keep the top 5 scores.

Grading Criteria

- Menus : 10 points
- Scoring & High Scores : 10 points
- Game start countdown (the 3, 2, 1 thing) : 10 points
- Random placement of obstacles : 10 points
- Random placement of food : 10 points
- Snake length increase on eating food : 10 points
- Snake movement/control : 10 points
- Rendering of Arena, borders, obstacles, food, snake : 10 points

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