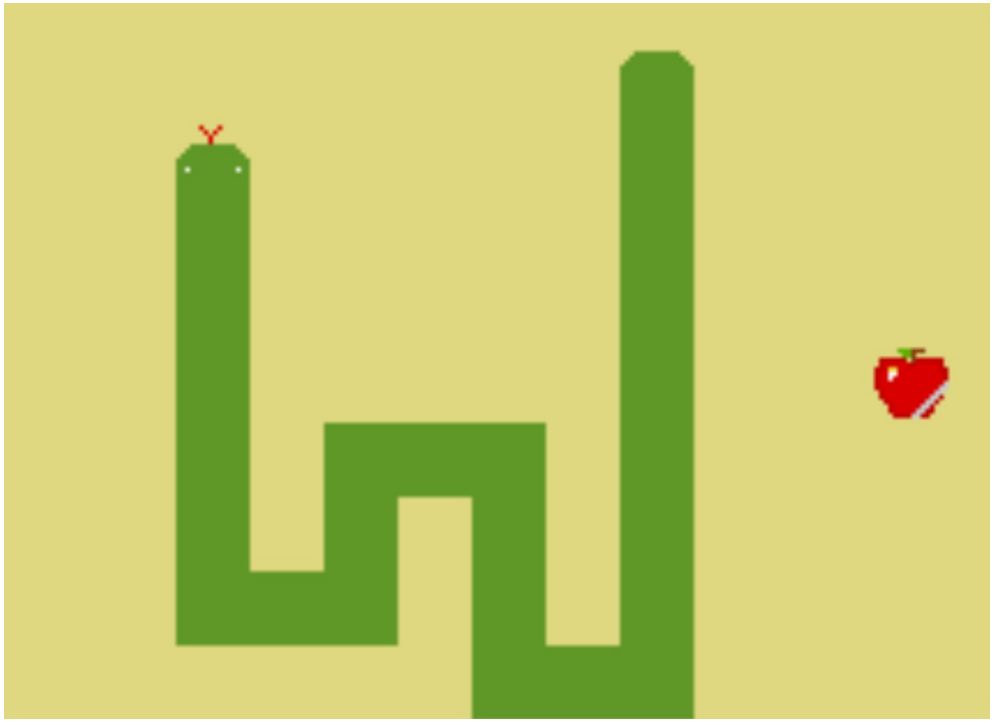
CS 2261 Homework 05: Snake

Instructions

In this assignment, you will be implementing the game Snake in Mode 0 (play the game here!). You are free to extend the game in any way you want, but your final implementation must have the following characteristics of the original game:

- *Randomly populated food that disappears when the snake collides with it*
- *A snake that*
    - *moves left, right, up, and down based on user input*
    - *"grows" in length when it eats a piece of food*
    - *dies when it collides with the screen boundaries*
    - *dies when it collides with itself*
    - *has "fluid" movement*
        - *This means at a give time, the snake could look like the following:*



Your game must have the following additional characteristics:

- *Coded entirely in Mode 0*
- *Meaningful comments throughout the code*
- *The following states: Start, Game, Pause, Win, and Lose*
    - *Enter the win state once a certain number of food has been eaten*
- *Sprites used for the food and the snake*
- *At least one sprite is animated*
- *Transparency in the sprite images*
- *The following controls:*
    - *Left – Moves the snake left*
    - *Right – Moves the snake right*
    - *Up – Moves the snake up*
    - *Down – Moves the snake down*
    - *Start – Pause the game*

Tips

- Start early. This is one of the hardest (and the last) homework of the class. If you realize a problem early, come to office hours
- If you don't feel artistic, find the sprites for this game somewhere online, and copy them onto your spritesheet in Usenti
    - Remember that your spritesheet is 256x256
    - Tips: make a single sprite fit within tiles of size multiply by 8
        - Ex: 8x8, 16x16, 32x32, 64x64 (max size)
- **Get the game working in the following order:**
    1. *Make the state backgrounds in Usenti (very basic, for now)*
    2. *Get the state machine working in-game*
    3. *Make the snake head (and body) sprite in Usenti (very basic, for now)*
    4. *Get the snake moving in-game*
        a. *This can be rigid movement for now; get "fluid" movement working later*
    5. *Make the food sprite(s) in Usenti (very basic, for now)*
    6. *Get the food appearing randomly in game*
    7. *Detect snake-food collision, and increase snake length*
    8. *Get "fluid" snake movement working*
        a. *This will likely be the most challenging and logic-driven task*
    9. *Enter the lose state if the snake collides with the screen boundaries*
    10. *Enter the lose state if the snake collides with itself*

11. *Enter the win state if a certain number of food has been eaten (i.e. the snake is a certain length)*
12. *Double-check all requirements are met*
13. *Make the state screens prettier, if desired*
14. *Make the sprites prettier, if desired*
15. *Add other game advancements, if desired*

Submission Instructions

Compress your entire project folder, including all source files, the Makefile, and everything produced during compilation (including the .gba file) into a single .zip file. Submit this .zip on Canvas. Name your submission HW05_FirstnameLastname, for example: “HW05_MarieZimmerman.zip”.