CS 86: Games Systems

Lab 5: 10 Print NES Remake

DUE October 30th at 11:59 PM

In this lab we will remake `10 PRINT` for the NES. Here are useful example programs on 8bitworkshop:

1. Name Tables
2. Scrolling
3. Input

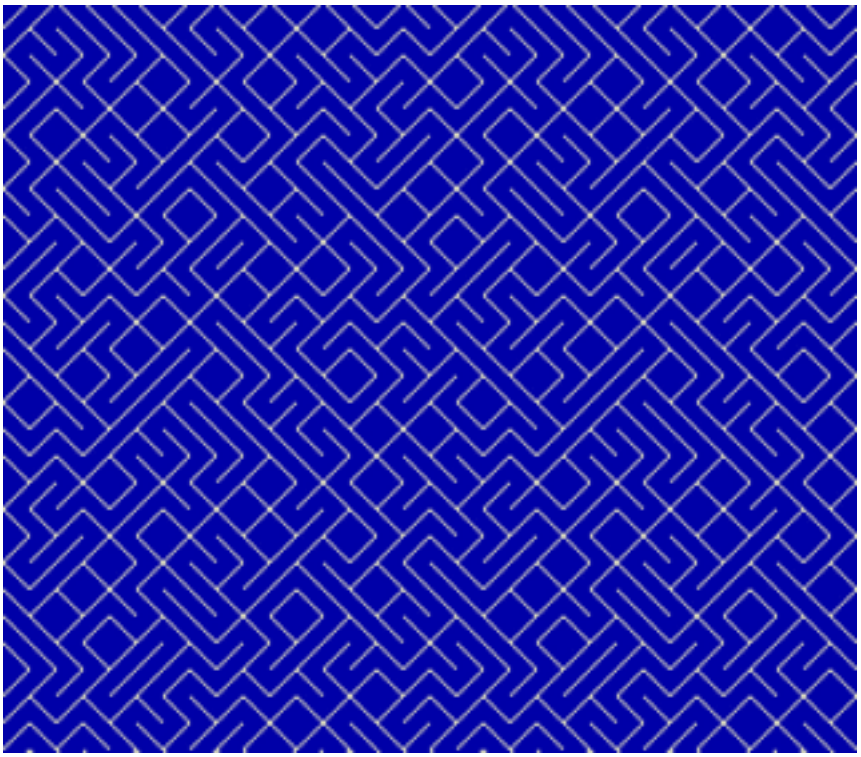


Figure 1: 10 print scrolling

1 WARMUP: NES C-API

Answer the code reading questions about the Scrolling example and NES API.

1. How are `vram_adr` and `vram_write` used together?
2. How are `vram_put` and `vram_write` different?
3. Why is `put_str` necessary when we have `vram_write`?
4. Why does the boundary condition on `y` use 479, when the screen is 240 pixels high?
5. Provide an example of an invalid number argument for the `NTADR_A` macro.
6. Why are `x` and `y` declared as `int` and not byte?
7. When should you use `vrambuf_put` rather than `vram_put`? (might have to read ahead for this one.)

2 NES 10PRINT

You are free to interpret the remake as you wish, but it must at least use a name table to create a scrolling 10PRINT image. Run the demos using `/usr/games/fceux` and examine the name and pattern tables.

0. Fill a nametable with the maze pattern (demo).
1. Implement scrolling (demo):
    - use the `scroll` neslib function and the two A&C nametables, or;
    - use your own buffer strategy with a single nametable, or;
    - use the vram-buffer technique (demo).

Additional challenges:

- Use a different color palette (demo).
- Respond to the gamepad in some fashion (e.g., move the maze up or down, or left to right) (demo).

3 Demake

- Chat with Keith about your demake ideas.
- Start working on your nametable background tiles.
- If you aren't a fan of web-based 8-bit workshop (the emulator isn't as good as `fceux`), feel free to use the vscode-extension or nes-starter-kit using the command-line tools.

4 Deliverables

1. Commit the c-source file to the repo (`10print.c`).
2. Write a small reflection (as a markdown document) about what you were able to accomplish in this mini-lab.
3. Also include a link to your 8bitworkshop project in the markdown document (link can be retrieved in the `share` menu).
4. Write a little about what you'd like to do in the demake project.