CS 91S: Games Systems

Assignment 4: 6502 & Stella

DUE October 6th at 11:59 PM

There are two parts of this lab that should **be completed** before the lab period (via google form):

1. a few short answer questions;
2. some number representation refresher exercises.

Then there are three hands-on pieces to be done during lab.

1. an open-ended snake game challenge;
2. stella battle-zone hack;
3. getting to know the Atari CLI tools.

1 Assembling & Disassembling via the CLI

1.1 Using dasm

Use `dasm` to assemble the 10-Print source. And then `stella` to run the binary. I've included the files you'll need, but you can grab them from github otherwise.

```
$ dasm 10Print-scrolling.asm -f3 -v5 -oout.bin
$ stella out.bin
```

NOTE: You can also use 8bitworkshop to assemble the code and emulate the binary in the browser.

1.2 Using distella

Use `distella` to disassemble the the binaries provided by Bogost.

```
$ distella -pas 10Print-scrolling.bin > 10print.s
```

NOTE: You can also use `stella` to disassemble, in the prompt type `saveDis` and save the ROM using `saveROM`.

1.3 Reflection

Write a few sentences on how diassembled code compares with the source code provided. Do they both run the same way within stella? How are the two assembly listings different?

2 Using the Stella Debugger

We will practice using `stella` to understand (and change) how an Atari 2600 game works. Follow along the Battlezone tutorial and complete the 16 steps. Try using trap/break to find where in the game the joystick is polled. For example, you can find where in the game logic the tank fires by running `trapRead INPT4`. Once you have completed the tutorial, call me over to show me, then apply some of the techniques to your own hack project.

3 SNAKE

Follow the 6502 tutorial and modify the snake game in inventive ways. Some suggestions:

- change the color of the snake or apple;
- make the apple move;
- change the keys used to control the snake;
- add an additional apple to eat;
- add a second snake with different controls;
- some other Pippin Barr style *snakism*.

Write about what you attempted, what you accomplished, and include your snake program as a file `snake.s`.