CS 86: Games Systems

Lab 3: 6502 & Stella

DUE February 13th at 11:59 PM

1 SNAKE Pre-Lab [to be done before lab]

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*.

Check in your snake programs as `snake_name1.s` and `snake_name2.s`.

2 Assembling & Disassembling via the CLI

2.1 Using dasm

Use `dasm` to assemble the 10-Print source. And then `stella` to run the binary. In stella, `F2` presses the game reset button on the 2600.

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

2.2 Using distella

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

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

2.3 Using stella and 8-bit workshop

Use `stella` to disassemble the binary and use 8bitworkshop to assemble the code and emulate the binary in the browser. You can also save the `rom` in the web browser to further debug using `stella`.

```
$ stella 10Print-scrolling.bin
stella-prompt> saveDis
```

2.4 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?

3 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, save the ROM using `saveROM`, call me over to show me, then apply some of the techniques to your own hack project.