**Release 3**

**What’s Changed?**

The basic version of the Visualizer is completed. It displays the registers, the memory, the program counter, and other various Emulator variables. It also comes with a mini-compiler to test lines of opcodes. As of right now, the Visualizer is merged with the Emulator, and there is no way yet to run the Emulator separately without the Visualizer.

The Emulator had some bugs with its performance since the last release, but now they have all been addressed and fixed. In fact, the Emulator is even able to run faster, up to four times as fast.

We have decided to create two Chip-8 games, Snake and Breakout. They are finished and are ready to be tested.

**What’s Next?**

**Emulator/Visualizer**

Visual aesthetics, minor performance improvements, and other functional improvements are all planned to be ready by the next release.

**Tools**

The Assembler is still in progress and will be done by the end of the semester.

**Games**

With an Assembler, we will begin tests for the games. Hopefully, everything comes out error-free, and the games will be good for the next release.

**Instructions for Running the Provided Software**

*At the moment, the Emulator only runs properly on Firefox and Microsoft Edge.*

1. Double-click on “Chip8.html”.
2. Click on “Load Pong!”.
3. Wait for the game to load.
4. Enjoy.
5. Press F12 to open the web console to see the Emulator’s details.
6. Press the tilde key to pause/resume the Chip-8 program.
7. When paused, press F2 to execute the next opcode in order to advance the program line by line.
8. If not paused, click on “Run Faster!” in order to make the Emulator run faster. It is only able to run up to four times as fast as the normal speed.
9. Close the web browser or the tab in order to stop the Emulator.
10. All done

To run the mini-compiler:

1. Type some opcodes (for example 00E0, 600A, etc.) into the textbox, one opcode per line.
2. Click on “Compile and Run!” in order to run the opcodes.
3. The Emulator will compile and run the set of instructions given by the opcodes.

**Instructions for Running Automated Testing Software**

*At the moment, the Emulator only runs properly on Firefox and Microsoft Edge.*

1. Double-click on “Chip8.html”.
2. Press F12 or open the console to see the testing in action.
3. Click on “Run Automated Testing”.
4. See the results in the console.
5. All done