**Release 1**

**What’s Changed?**

Our initial plan is to implement a bug-free Emulator as our main software for Release 1, and we are able to do so efficiently. First, we completed the graphics for our webpage. We are now able to draw any sprite we wish to load onto the memory including all the fontsets (from 0 to F) onto the 64x32 display. The Emulator is now able to execute all of the 35 opcodes, all of which are tested and bug-free. Our system is also able to register key presses. Overall we are on schedule for the completion of the Emulator.

**What’s Next?**

**Emulator:**

Since we are only doing manual testing for our Emulator, for our next release (Release 2), we plan to develop automated testing. The Emulator as a whole is still missing the emulating cycle, so we plan to implement this in Release 2. Lastly, we also need to fix some minor bugs that are still present in the Emulator for our Release 1.

**Tools and Games:**

Our team also plans to design and implement at least one game and one tool. For the tool, we plan to implement an assembler. The assembler will allow us to create programs on our Emulator with assembly codes instead of opcodes. We believe that this tool will improve the coding experience for our team members who are in charge of the game development.

**Visualizer:**

The Visualizer is currently under construction, and we will try to release it as soon as possible. The Visualizer will have features such as allowing users and developers to see the instructions that the emulator have executed and instructions that are going to be executed, the value of the registers, and the keys pressed and not pressed. The Visualizer also allows programs to be run backwards and forwards one instruction at a time.

**Instructions for Running the Provided Software**

1. Our current version of the Emulator only runs properly on Microsoft Edge.
2. Right click on “Chip8.html”.
3. Open with “Microsoft Edge”.
4. Press F12 or open the console to see our Emulator in action.
5. Our Emulator will load and execute a program named “Simple.txt”.
6. Done!

**Automated Testing Instructions**

We initially planned to have automated testing for our Emulator ready to go for Release 1, but we have come to the realization that this feature is not going to be on this release. This is due to our lack of planning for completing this feature and our underestimation of the work required to get the Emulator running. Therefore, we have only done manual tests on the Emulator. We have planned to develop and release automated testing by Release 2. Therefore, following our initial plan, automated testing is not implemented in this release.