

## **Virtualization of a Turing Machine Weekly Report: 3-21-2021**

Outlined in this document details the work and progress toward the making of the Virtualization of a Turing Machine Project for the week of 3-21-2021.

Throughout the week, further optimizations and additional features were worked on the project. These optimizations include fixing overall display bugs through editing JavaScript and CSS respectively. The display bug occurred when hiding window elements with the toggle view buttons. When the Console is hidden, the vertical sizes of the Transition Editor and the Turing Machine windows are not reset to their base sizes. The transition speed was also properly integrated with when the animation is played. The bug was due to not updating the current speed when played, resulting in the default speed for every play action.

There were other optimizations worked on specifically related to the compiler. At this time, details regarding these optimizations are not quite known - but are assuredly being developed.

One feature focused on throughout the week was adding additional accessibility features for first-time users. In each window on the main page, there is now an information icon located in the top-right corner. When clicked on, a small prompt appears with helpful text about the relevant window and the icon is changed to an X. If the X icon is clicked, the relevant help window is also closed and reverted back to its original state. Currently, the helpful information in each window is not complete, but more information will be added to these windows throughout the project lifecycle.

As an additional aid to users, a state transition graph is drawn when an acceptable machine is compiled. Jisue Lee developed methods to draw states based on how many transitions are compiled. There are also edges drawn to connect the direction each transition takes. So far, the states are drawn, but not the edges.

Some problems the team faced during the week include the following. Jisue Lee struggled with the state transition diagram when attempting to draw edges from one state to another. There were multiple methods employed to draw these edges, but none successful so far. The issue is due to the math behind finding points on a circle to draw edges to. Hopefully by fixing this math, drawing edges from one state to another will be possible. James Merenda mentioned last week he was going to research cookies to utilize them in creating accessibility features. In the end, cookies turned out not to be useful in the context James Merenda was expecting. This concept was altogether scrapped in the end in favor of accessibility features not utilizing cookies.

Plans for next week include the following. Continue to develop state diagram generation and continue to add helpful information to the information prompts. Begin to write example programs for the user to compile and run and begin to write the user manual.