Virtualization of a Turing Machine Weekly Report: 4-11-2021

Outlined in this document details the work and progress toward the making of the Virtualization of a Turing Machine Project for the week of 4-11-2021.

Throughout the week, the team continued to fine tune and finalize features in the project as the deadline looms in the distance. This includes reverting the auxiliary tape feature from last week due to a miscommunication with Dr. Chen, adding additional documentation and error codes to the website, and attempting to fix bugs before the project's release.

Brett George continued to debug the compiler and machine while also thinking about how to implement an "edit on the fly" feature. After deliberation with the group, the team concluded that even if transitions were edited on the fly, it would be no different to recompiling transition code with edited transitions and watching the results. The group intends to communicate their concerns with this concept to Dr. Chen and hear what he has to say.

A bug to note that Brett fixed throughout the week was fixing the reset button to function more as intended. There was also a bug Brett found where multiple machine objects would be created when compiling transitions. This resulted in extremely odd behavior that he and the rest of the team are still clueless on why it happens. Brett mentioned that he would try to edit how machine objects are created and updated by manually nullifying each property inside to see if that would work.

Jisue Lee continued to add error messages to the error handler of the Turing machine. While working on these error messages, she also tried to figure out why multiple machine objects would be generated when compiling transitions more than once. Jisue attempted to fix this issue by creating a destructor to free that memory from being used. In the end, it did not fix the issue and the extra machine objects still persisted.

James Merenda continued to optimize the overall look and feel of the website and continue to add documentation to the website and user manual. While updating documentation in the example programs, there was a bug with how symbols are written to the tape. The issue resulted in retrieving values from an array at a negative index. This produced an undefined value on the tape which would halt the machine unexpectedly. James also created state diagrams of the example programs for the user manual for reference therein.

Some problems the team faced during the week include the following. Implementing a way to edit transitions on the fly seemed useless to the group while thinking of ways to create such a feature. The compiler creates multiple machine objects and the odd behavior associated with the bug. Time constraints due to the project solution deadline coming up.

Plans for next week include the following. Continue to optimize the website's look and feel. Continue to optimize error messages and implement line number references. Continue to develop the auxiliary tape for functionality in the machine. Continue to work on the user manual.