A validation and verification meeting was held between Utah Valley University and Innovative Education (InnovatED) that involved all the stakeholders. The main concerns regarded the prototype developed for Milestone 2 and whether to throw out the old prototype and start anew, or to maintain and improve the current prototype.

Upon review of the prototype and the requirements of the program the InnovatED is developing, it has been determined that it is in the best interest of both companies to discard most of the initial prototype and start anew. This decision was reached after review of multiple factors. There are a total of 4 major reasons that this conclusion was reached and will here be documented.

Reason 1: The prototype submitted in milestone 1 was written in C++. While the language is versatile, it is un-optimized to build the Graphical User Interface that is required by the program by UVU. We have determined that rebuilding the prototype in the programming language C# will yield a more comprehensive and viable product.

Reason 2: The prototype implemented in milestone 1 used the BasicML Instruction Set Architecture to implement many of the mathematical functions. When porting the whole of the project to C#, the BasicML Instructions that have already been written can simply be carried over to the new build without issue and with virtually no cost. In this instance we would be able to keep that specific part of the former prototype without starting 100% from scratch.

Reason 3: By moving the project to a higher level language, the enhancements required in deliverable 4 can be worked into the code as it is written and developed versus having to completely rework entire sections of code to avoid errors. This will result in code that had a more uniform structure and clearer logic for future editing, should the need arise.

Reason 4: In order to implement the enhancement for milestone 2 to allow the simulator to run two programs simultaneously, it will require the inclusion of threading which would require the implementation p-threading, mutex locking, or some other method to avoid race conditions. This addition would require a significant reworking of the code to ensure proper utilization in parallel taking and require a substantial dedication of time. Starting anew would allow this change to happen naturally in the development of prototype 2.

As you can see from the preceding four reasons it is in both Utah Valley University’s and InnovatED’s best interest in both time and resources to discard all of the C++ that was developed for the initial prototype that was submitted in milestone 1. However, all of the BasicML Instruction Set Architecture instructions will be kept and ported over to the new code. We are committed here at InnovatED to provide excellent, cost-efficient service to our clients.