Team SRS Document

Functional Requirements

1. UVSim shall allow users to select a text file containing BasicML commands for the UVSim.
2. UVSim shall execute read operations, prompting the user to input values for specific memory locations in the GUI read program text input box. .
3. UVSim shall execute write operations, displaying the value stored at a specified memory location.
4. UVSim shall execute load operations, loading values from a memory array index into the accumulator.
5. UVSim shall execute store operations, storing the value of the accumulator variable into a specific index in the memory array.
6. UVSim shall handle file loading errors, such as invalid file formats or inaccessible files, and notify users appropriately.
7. UVSim shall provide a GUI for interacting with the simulator, allowing users to input machine language, and view program output.
8. UVSim shall read an integer value from the GUI read text input box into a specific index in the memory array and write an integer value from a memory array index to the GUI output text box.
9. UVSim shall support the execution of programs with varying lengths and complexities, accommodating different input file sizes and instruction sets.
10. UVSim shall multiply the value of the accumulator variable by the integer value from a specific memory index.
11. UVSim shall add the integer value from a specific memory index to the value of the accumulator variable.
12. UVSim shall subtract the integer value from a specific memory index from the value of the accumulator variable.
13. UVSim shall branch to a specific location in memory if the accumulator is negative.
14. UVSim shall Branch to a specific location in memory if the accumulator is zero.
15. UVSim shall log program execution details, including executed instructions and memory changes.

Non functional requirements:

1. UVSim’s GUI shall be implemented in the Python coding language.
2. UVSim shall be scalable, capable of handling increasing user loads and expanding functionality without significant performance degradation.
3. UVSim shall be software-independent and shall be runnable on Windows 10 or above without requiring additional dependencies.