Team SRS Document

Functional Requirements

1. UVSim shall provide a GUI for interacting with the simulator, allowing users to input machine language, and view program output.
2. The GUI shall allow users to select a text file containing BasicML commands for the UVSim.
3. UVSim shall execute read operations, prompting the user to input values for specific memory registers via a GUI input window.
4. UVSim shall execute write operations, displaying the value stored at a specified memory location via a GUI text output box.
5. UVSim shall execute load operations, loading values from a memory register into the accumulator.
6. UVSim shall execute store operations, storing the value of the accumulator variable into a specific register in memory.
7. UVSim shall handle file loading errors, such as invalid file formats or inaccessible files, and notify users appropriately.
8. UVSim shall read an integer value from the GUI text input box into a specific register in memory.
9. UVSim shall write an integer value from a memory register to the GUI output text box.
10. UVSim shall multiply the value of the accumulator variable by the integer value from a specific memory register.
11. UVSim shall add the integer value from a specific memory register to the value of the accumulator variable.
12. UVSim shall subtract the integer value from a specific memory register 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 write operations and final accumulator values.

Nonfunctional requirements:

1. UVSim shall be implemented in the Python coding language.
2. UVSim's GUI shall be implemented with the Python tkinter package.
3. UVSim shall be supported on any platform that supports Python version 3.10.11.