Group C UVSim SRS Document (3/25 Version)

Combined Functional Requirements:

1. The “Load File” button will prompt the user to pick a filename.
2. The UVSim shall take the input file and parse it into BasicML four-digit words.
3. The UVSim shall have a memory.
4. The UVSim shall take the parsed words and put them into memory.
5. The UVSim shall inform the user of invalid words when parsing a file.
6. The UVSim will display the contents of its memory in a section of the GUI.
7. The system shall display all memory as signed four digit BasicML.
8. The UVSim will attempt to run the program stored in memory when the run button is clicked.
9. The UVSim will determine if a word in memory is an instruction and throw an error if it’s not.
10. The UVSim shall take a READ function in BasicML that allows the user to input a word into a specific index in the memory.
11. The UVSim shall inform the user of invalid keyboard input.
12. The UVSim shall allow the user to retry keyboard input if it is invalid.
13. The UVSim shall take a WRITE function in BasicML that will write a word from memory to screen.
14. The UVSim allows the user to perform addition using BasicML.
15. The UVSim allows the user to perform subtraction using BasicML.
16. The UVSim allows the user to perform multiplication using BasicML.
17. The UVSim allows the user to perform division using BasicML.
18. The UVSim shall branch to another position in a user-authored program when and as specified by the user-authored program.
19. The UVSim shall take a STORE function that will take the value in the accumulator and store it in an index of memory.
20. The UVSim shall take a LOAD function in BasicML that will take a word from memory and put it into the accumulator.
21. The UVSim shall take a HALT operation in BasicML, which shall pause the program, terminating it.
22. The UVSim shall inform the user when a program ends successfully.
23. The UVSim shall warn the user if the program ends without a halt instruction.
24. The UVSim shall allow users to copy the contents of the GUI memory editor by clicking the Copy button.
25. The UVSim shall allow users to cut the contents of the GUI memory editor by clicking the Cut button.
26. The UVSim shall allow users to alter the contents of a specific memory location using a text box in the GUI.

27. The UVSim shall allow users to pick the main color of the UVSim window using a color picker menu.
28. The UVSim shall allow users to pick the accent color of the UVSim window using a color picker menu.
29. The UVSim GUI shall have a clear button that clears the text in the output area, leaving only the default message.
30. The UVSim shall have a save as button that allows the user to save the contents of the GUI memory editor to a file designated by the user.
31. The UVSim shall have a save button that allows the user to save the contents of the GUI memory editor to the file that is currently open in UVSim.

Combined Non-functional Requirements

1. The system shall load files within one second.
2. The software shall present itself as a GUI window by default.
3. The system GUI shall have all buttons labeled or have a symbol.
4. The UVSim's memory capacity shall be 100 words.
5. The UVSim shall have an accumulator that holds a 4-digit word.
6. The UVSim shall complete the execution of the program in less than 5 seconds after being initialized, excluding time for user keyboard inputs.
7. By default, the UVSim's GUI colors shall be the school colors of Utah Valley University.