SRS Final Form

Functional Requirements

The system will handle and display the write operation (11)

The system will handle and prompt the user with the read operation (10)

The system shall load program instructions from text files into memory. (20)

The system shall ADD a word from memory with the word in the accumulator and leave it in the accumulator when the opcode is 30

The system shall SUBTRACT a word from memory with the word in the accumulator and leave it in the accumulator when the opcode is 31

The system shall DIVIDE a word from the accumulator with a word in memory and leave it in the accumulator when the opcode is 32

The system shall MULTIPLY a word from the accumulator with a word in memory and leave it in the accumulator when the opcode is 33

The system shall handle BRANCH operation with opcode 40, 41, 42

The system shall HALT the program with opcode 43

The system shall have an accumulator register to temporarily hold a number string

The system will detect overflow of +999999 and -999999 and cut off the highest digit

The system will take in a 6 digit number and interpret by separating by opcode and operand

The system shall validate each line of the text file for any syntax errors

The system shall store strings 6 digits long with a + or - in front into memory ex: +000000 (21)

The system will store the memory in a 250 length array

The system shall display an error message if the program contains over 250 instructions

The system will handle dividing by zero exceptions by halting the system

The system will display the memory in a distinct section in the GUI as addresses and values

The system shall have a customize button that brings up a window with options to select colors

The system shall let you change the background color to another color by clicking primary color

The system shall let you change the button color to another color by clicking secondary color

The system shall remember your color preferences

The system shall save any text within the program text box to a file named by the user

The system shall open .txt files from anywhere on the user’s computer to be displayed in the program text box

The system shall be able to open multiple text file windows at the same time

The system shall allow editing of files in the UVSim graphical user interface

Nonfunctional Requirements

The system shall run on a machine with JDK 24 installed

The system shall complete operations within 1 second

The system will label all GUI widgets

The system will handle all error messages by notifying the user without crashing