Functional Requirements

1. Allow users to input a basicML program via a text editor / file uploader
2. Allow for the program to be inputed into memory starting from location 00
3. Will execute BasicML instructions sequentially, unless control instrucitons modifies execution flow
4. Will support reading a word from the keyboard into memory via the READ command 10XX
5. Will uspport writing a word from the memory to the screen via the WRITE command 11xx
6. Will support loading a word from memroy into the accumulator via LOAD 20XX
7. Will support storing a word from the accumulator into memory via STORE 21XX
8. Will support the addition instruction via ADD 30XX
9. Will support the subtraction instruction via SUBTRACT 31XX
10. Will support the multiplciation instruction via MULTIPLY 33XX
11. Will support the division instruction via DIVIDE 32XX
12. Will support unconditional branching to a new memory location via BRANCH 40XX
13. Will support conditional branhcing if the accumulator is negative via 41XX
14. Will support conditional branching if the accumulator is zero via 42XX
15. Will support halting successfully when the HALT command is executed via 43XX
16. The system will dispaly memory contents in a structured format in the GUI
17. The system will allow for saving/loading of BasicML programs
18. The system will support validation of all BasicML syntax before execution

Non-Functional Requirements

1. The system will have a responsive and intuitive GUI to allow users to interact with the program
2. Will perform instructions within 10 ms per operation
3. Will provide error messages for invalid instructions or invalid memory writes