Functional

1. The system shall prompt the user to select a .txt file that contains BasicML.
2. The system shall load the user-selected file into memory starting from memory location 00 up to 99.
3. The system shall read a word from the keyboard into a specific location in memory when the instruction code is ‘10’.
4. The system shall write a word from a specific location in memory to the screen when the instruction code is ‘11’.
5. The system shall load a word into the accumulator from a memory location when the instruction code is ‘20’.
6. The system shall store a word into a specific memory location from the accumulator when the instruction code is ‘21’.
7. When the instruction code is ‘30’, the system shall add a word in the accumulator to a word in a specific memory location, loading the sum into the accumulator.
8. When the instruction code is ‘31’, the system shall subtract the word in a specific memory location from the word in the accumulator, loading the difference into the accumulator.
9. When the instruction code is ‘32’, the system shall divide the word in the accumulator by the word in a specific memory location, loading the result into the accumulator.
10. When the instruction code is ‘33’, the system shall multiply the word in a specific memory location by the word in the accumulator, loading the result into the accumulator.
11. The system shall branch to a designated memory location when the instruction code is ‘40’.
12. The system shall branch to a designated memory location when the instruction code is ‘41’ and the accumulator is negative.
13. The system shall branch to a designated memory location when the instruction code is ‘42’ and the accumulator is ‘0’.
14. The system shall stop program execution when the instruction code is ‘43’, or when prompted by the user.
15. In the case of arithmetic overflow, the system shall truncate the value to the final 4 digits.
16. The system shall have a maximum of 100 memory locations available.
17. The GUI shall display error messages for invalid operations
18. The system shall prompt the user to either run a new file or quit after a halt command
19. The system shall prompt the user to either run a new file or quit after a program has passed memory location 100.
20. The system shall read and display the value at a specified memory location when prompted.
21. The system shall have a default color scheme.
22. The system shall have the ability to create a custom color scheme.

Non-Functional

1. GUI shall have high contrast colors.
2. GUI must have a defined window size to make sure all elements are visible.

3. The application must execute on any PC or Mac computer operating system.