**Interpreter Class:**

The Interpreter class allows the program to run functionality based on the logic within a body of Forth code. These Forth functions are responsible for controlling the computer AI Robots on their turn. The interpreter works by traversing the list of forth code and running equivalent functions from the InterpreterFunctions class based on what is found. The purpose of the interpreter is to allow the system to run code as specified by the RoboSport370 Language document. This provides the functionality which is necessary when sharing a code standard among many different systems, meaning that any robots that are created by this program can be used by all other RoboSport370 applications.

Interactions:

The interpreter is meant to act as an intermediary between the controller and computer AI controlled Robots. It will be Instantiated in the GameMaster class before the game begins. The GameMaster will then call on it to initialize the local variable storage within each Robot. Once the game begins, the Interpreter will be called by GameMaster each time it is a computer AI’s turn. The Interpreter will then call a sequence of InterpreterFunction functions to act out robot’s turn. There are also cases where the Interpreter will have to access the Robot’s JSON object to access its stored variables and functions.

Variables:

* forthWords: holds a LinkedList of Strings which represent individual words of Forth code.
* functions: holds an instance of the InterpreterFunctions class.

Functions

* Interpreter(): Initializes the above variables.
* loadVariables(Robot): Stores the needed local functions and variables within the Robot’s JSON object.
* LinkedList<string> lookUp(String): Looks up the corresponding function or variable in the Robots JSON object. If it is setting the variable, pop from the InterpreterFunctions stack and set the value in the JSON object. If it’s getting the variable or function definition, return a LinkedList where each element is one word of the found definition.

* void play(Robot): calls functions.setRobot(Robot) to let it know which Robot we are currently working on. It will call lookUp and adds its output to the forthWords list, at which point it will begin traversing the list.

Traversing the list:

Ex.

"2 dup 1 shoot! "

will be translated to the following sequence of IntepreterFunctions function calls:

push(2), dup(), push(1), shoot()

These functions all are done using postfix evaluation on a stack.

Further information on the forth code can be found in the RoboSport370 Language document which can be found in the references section.

If a word is encountered that is not recognized, lookUp() must be called with that word given as an arguments. The output List of parse should be added to the forthWords list in place of the variable.