CS390 - Milestone 2

What do we want our language to do?

Assignment - “Am” Maybe:(Am variable = expression)
Arrays - Probably 0 based
Strings
Numbers
Variable Names - Just letters or numbers too?
Order of Operations (PEMDAS)
Logical Operators? &, |
Comparison Operators? < > <= >=
If we do extra credit, I like functions a lot, but I’d like to do what’s easiest.

EBNF:

```
<program> ::= <stmnt-list>

<stmnt-list> ::=
{<array-decl>|<assignment>|<while>|<floop>|<if>|<input>|<output>}

<array-decl> ::= 'array' '[' <literal> ']' <id>

<assignment> ::= 'am' <ref> '=' <expr>

<expr> ::= <term> {‘+’|’-‘} <term>

      | <literal>

      | <ref>

      |<boolean>

      |<string>

      |<char>

<term>::==  <factor> {‘*’|’/’}<factor>

<factor> ::== ‘(‘ <expr> ‘)’

<boolean> ::== ('true' | <digit>) | ('false' | ‘0’)

<logic2> ::== <logic> '=' <logic>

      | <logic> '<>' <logic>

      | <logic>
```

```
<logic> ::== <expr> {'<', ‘>’|’>=’|’<=’} <expr>

      | <expr>

      |<boolean>
```

```
<while> ::= 'while' <boolean> ':'
                  <stmnt-list>
            'end'
```

```
<floop> ::= 'floop' {<id>} <integer> 'to' <integer> ':' <stmnt-list> 'end'
```

```
<if> ::= 'if' <boolean> ':'
            <stmnt-list>
       {'else if' <boolean> ':'
            <stmnt-list> }
       ['else' ':'
            <stmnt-list> ]

<input> ::= 'insert' <ref>

<output> ::= 'say' <ref>

<id> ::= <letter> {<letter>|<integer>}

<ref> ::= <id> '[' <expr> ']'

<literal> ::= <digit>{<digit>}

<char> ::= <letter>|<digit>

<string> ::= <char>{<char>}
```

```
<letter> ::= Any upper or lower case letter A-Z

<digit> ::= Any single digit 0-9

<symbol> ::= Any non letter/digit
```

Test program: count.jtob

```
array[2] A
am A[1] = 1
am A[2] = 1
say “Enter a number to count to.”
insert A[2]

floop A[1] to A[2]:
   say A[2]
   am A[1] = A[1] + 1
end
```