BNF

<program> ::= <statement>*
<statement> ::= <function_definition>
        | <if_statement>
        | <expr>
        | <function_application>

<function_definition> ::= "defun" <identifier> "(" <parameters> ")" "{"
<statement>* "}"
<lambda_expression> ::= "lambda" <parameters> "." <expr>
<parameters> ::= <identifier> ("," <identifier>)*
<function_application> ::= (<identifier> | <lambda_expression>) "(" <arguments>
")"
<arguments> ::= <expr> ("," <expr>)*
<if_statement> ::= "if" "(" <expr> ")" "{" <statement>* "}" ("else" "{" <statement>*
"}")?
<expr> ::= <term> (("+" | "-" | "&&" | "||" | "==" | "!=" | ">" | "<" | ">=" | "<=") <term>)*
<term> ::= <factor> (("*" | "/" | "%") <factor>)*
<factor> ::= <integer>
      | <boolean>
      | "(" <expr> ")"
      | "!" <factor>
      | <function_application>
      | <identifier>
      | <lambda_expression>
      | <if_statement>
      | <function_definition>

<identifier> ::= [a-zA-Z_][a-zA-Z0-9_]*
<integer> ::= [0-9]+
<boolean> ::= "True" | "False"