

# BNF Rules

Program ::= Funcs

Funcs ::= Func

Funcs ::= Func Functions

Func ::= Type Ident "(" "[" Params "]" ")" "{"  
Stms "}"

Stms ::= Stm ~~Stms~~ Stms

Stms ::= NULL

Type ::= IntType ~~FloatType~~ | StringType

Params ::= Param

Params ::= Param, "Params"

Param ::= Type Ident

Stm

SDec. Stm ::= Type Ident [ "=" Exp ] ";"

SAssign. Stm ::= Ident "=" Exp ";"

SIf. Stm ::= "if" "(" Exp ")" BlockStms IRest

REmp. IRest ::= NULL

RElse. IRest ::= "else" BlockStms

RElseIf. IRest ::= "else" "if" "(" Exp ")"

BlockStms ::= "block Stms" IRest

BlockStms ::= "{" Stms "}"

BlockStms ::= Stm

SWhile: Stmt ::= "while" "(" Exp ")" Block Stmt  
 SFor: Stmt ::= "for" "(" ~~[Type]~~ Ident ";" [Exp] ";"  
 Ident [= "Exp"] [Ident := "Exp"] ")" Block Stmt  
 Block Stmt

SReturn: Stmt ::= "Return" Exp ;

SExp: Stmt ::= Exp ;

Exp ::= Exp1 R Exp

R Exp ::= BinComp Exp1 R Exp

R Exp ::= NULL

Exp1 ::= Exp2 R Exp1

R Exp1 ::= "+" Exp2 R Exp1

R Exp1 ::= "-" Exp2 R Exp1

R Exp1 ::= NULL

Exp2 ::= Exp3 R Exp2

R Exp2 ::= "\*" Exp3 R Exp2

R Exp2 ::= "/" Exp3 R Exp2

R Exp2 ::= NULL

Exp3 ::= NumTypes | Ident

BE<sub>Exp3</sub>: Exp3 ::= "(" Exp ")"

FE<sub>Exp3</sub>: Exp3 ::= Func Call

BinComp ::= ">" | "<" | ">=" | "<=" | "="

Each of these is token. For example Greater Equal token  
 that is why using Rest is unnecessary



NumTypes ::= Int | ~~Double~~ Float

FuncCall ::= Ident '(['Args])'

Args ::= Arg

Args ::= Arg ";" Args

Arg ::= Exp

~~Arg ::= Ident~~

Stm.

SBreak. Stm ::= "break";

SContinue. Stm ::= "continue";