CS152 Project 2

Grammar rules

Yu-Che Cheng

SID: 861142301

- program → function
- function → funct function | ϵ
- funct → FUNCTION IDENT SEMICOLON BEGINPARAMS declaration ENDPARAMS
  BEGINLOCALS declaration ENDLOCALS BEGINBODY statement ENDBODY
- declaration → declarate SEMICOLON declaration | ϵ
- declarate → ident COLON array
- array → INTEGER | ARRAY L_SQUARE_BRACKET NUMBER R_SQUARE_BRACKET OF
  INTEGER
- ident → IDENT |
  IDENT COMMA ident
- statement → state SEMICOLON |
  state SEMICOLON statement
- state → var ASSIGN expression |
  IF bool_expr THEN statement statement_end |
  WHILE bool_expr BEGINLOOP statement ENDLOOP |
  DO BEGINLOOP statement ENDLOOP WHILE bool_expr |
  FOREACH IDENT IN IDENT BEGINLOOP statement ENDLOOP |
  READ var_loop |
  WRITE var_loop |
  CONTINUE |
  RETURN expression
- statement_end → ENDIF |
  ELSE statement ENDIF
- bool_expr → relation_and_expr |
  relation_and_expr OR bool_expr
- relation_and_expr → relation_expr |
  relation_expr AND relation_and_expr
- relation_expr → relation_expressions |
  NOT relation_expressions

- relation_expressions → expression comp expression |
  TRUE |
  FALSE |
  L_PAREN bool_expr R_PAREN
- comp → EQ | NEQ | LT | GT | LTE | GTE
- expression → multiplicative_expr |
  multiplicative_expr add_or_sub expression
- add_or_sub → ADD | SUB
- multiplicative_expr → term | mult_div_mod multiplicative_expr
- mult_div_mod → MULT | DIV | MOD
- term → term1 | IDENT L_PAREN term2
- term1 → SUB term1a | term1a
- term1a → var | NUMBER | L_PAREN expression R_PAREN
- term2 → expression_loop R_PAREN | R_PAREN
- expression_loop → expression | expression COMMA expression_loop
- var → IDENT | IDENT L_SQUARE_BRACKET expression R_SQUARE_BRACKET
- var_loop → var COMMA | var COMMA var_loop