1. \<program\> ===> \<otherFunctions\> \<mainFunction\>
2. \<mainFunction\>===> TK_MAIN \<stmts\> TK_END
3. \<otherFunctions\>===> \<function\>\<otherFunctions\> | ∈
4. \<function\>===>TK_FUNID \<input_par\> \<output_par\> TK_SEM \<stmts\> TK_END
5. \<input_par\>===>TK_INPUT TK_PARAMETER TK_LIST TK_SQL \<parameter_list\> TK_SQR
6. \<output_par\>===>TK_OUTPUT TK_PARAMETER TK_LIST TK_SQL \<parameter_list\> TK_SQR| ∈
7. \<parameter_list\>===>\<dataType\> TK_ID \<remaining_list\>
8. \<dataType\>===> \<primitiveDatatype\> |\<constructedDatatype\>
9. \<primitiveDatatype\>===> TK_INT | TK_REAL
10. \<constructedDatatype\>===>TK_RECORD TK_RUID | TK_UNION TK_RUID | TK_RUID
11. \<remaining_list\>===>TK_COMMA \<parameter_list\> | ∈
12. \<stmts\>===>\<typeDefinitions\> \<declarations\> \<otherStmts\>\<returnStmt\>
13. \<typeDefinitions\>===> \<typeDefinition\>\<typeDefinitions\>| \<definetypestmt\> \<typeDefinitions\> | ∈
14. \<typeDefinition\>===>TK_RECORD TK_RUID \<fieldDefinitions\> TK_ENDRECORD
15. \<typeDefinition\>===>TK_UNION TK_RUID \<fieldDefinitions\> TK_ENDUNION
16. \<fieldDefinitions\>===> \<fieldDefinition\>\<fieldDefinition\>\<moreFields\>
17. \<fieldDefinition\>===> TK_TYPE \<dataType\> TK_COLON TK_FIELDID TK_SEM
18. \<moreFields\>===>\<fieldDefinition\>\<moreFields\> | ∈
19. \<declarations\> ===> \<declaration\>\<declarations\>|∈
20. \<declaration\>===> TK_TYPE \<dataType\> TK_COLON TK_ID \<global_or_not\> TK_SEM
21. \<global_or_not\>===> TK_COLON TK_GLOBAL| ∈
22. \<otherStmts\>===> \<stmt\>\<otherStmts\> | ∈
23. \<stmt\>===> \<assignmentStmt\> | \<iterativeStmt\>|\<conditionalStmt\>|\<ioStmt\>| \<funCallStmt\>
24. \<assignmentStmt\>===>\<SingleOrRecId\> TK_ASSIGNOP \<arithmeticExpression\> TK_SEM
25. \<singleOrRecId\>===>TK_ID \<B\>
26. \<B\> ===> TK_DOT TK_FIELDID \<B\> | ∈
27. \<funCallStmt\>===>\<outputParameters\> TK_CALL TK_FUNID TK_WITH TK_PARAMETERS \<inputParameters\> TK_SEM
28. \<outputParameters\> ==> TK_SQL \<idList\> TK_SQR TK_ASSIGNOP | ∈
29. \<inputParameters\>===> TK_SQL \<idList\> TK_SQR
30. \<iterativeStmt\>===> TK_WHILE TK_OP \<booleanExpression\> TK_CL \<stmt\>\<otherStmts\>TK_ENDWHILE
31. \<conditionalStmt\>===> TK_IF TK_OP \<booleanExpression\> TK_CL TK_THEN \<stmt\>\<otherStmts\> TK_ELSE \<otherStmts\> TK_ENDIF
32. \<conditionalStmt\>===> TK_IF TK_OP \<booleanExpression\> TK_CL TK_THEN \<stmt\>\<otherStmts\> TK_ENDIF
33. \<ioStmt\>===>TK_READ TK_OP \<var\> TK_CL TK_SEM | TK_WRITE TK_OP \<var\> TK_CL TK_SEM
34. \<arithmeticExpression\> ===> \<addORsub\>
35. \<addORsub\> ===> \<mulORdiv\> \<ADDSUB\> \<addORsub\> | \<mulORdiv\>
36. \<mulORdiv\> ===> \<brackets\> \<MULDIV\> \<mulORdiv\> | \<brackets\>
37. \<brackets\> ===> TK_OP \<arithmeticExpression\> TK_CL | \<var\>
38. \<MULDIV\> ===> TK_MUL | TK_DIV
39. \<ADDSUB\> ===> TK_PLUS | TK_MINUS
40. \<booleanExpression\>===>TK_OP \<booleanExpression\> TK_CL \<logicalOp\> TK_OP \<booleanExpression\> TK_CL
41. \<booleanExpression\>===> \<var\> \<relationalOp\> \<var\>
42. \<booleanExpression\>===> TK_NOT TK_OP \<booleanExpression\> TK_CL

43. <var>===> <singleOrRecId> | TK_NUM | TK_RNUM
44. <logicalOp>===>TK_AND | TK_OR
45. <relationalOp>===> TK_LT | TK_LE | TK_EQ |TK_GT | TK_GE | TK_NE
46. <returnStmt>===>TK_RETURN <optionalReturn> TK_SEM
47. <optionalReturn>===>TK_SQL <idList> TK_SQR | ∈
48. <idList>===> TK_ID <more_ids>
49. <more_ids>===> TK_COMMA <idList> | eps
50. <definetypestmt>===>TK_DEFINETYPE <A> TK_RUID TK_AS TK_RUID
51. <A> ===>TK_RECORD | TK_UNION

GRAMMER	FIRST()	FOLLOW()
\<program\>	TK_FUNID, TK_MAIN	$
\<main function\>	TK_MAIN	$
\<other functions\>	TK_FUNID, epsilon	TK_MAIN
\<function\>	TK_FUNID	TK_FUNID, TK_MAIN
\<input_par\>	TK_INPUT	TK_OUTPUT, TK_SEM
\<output_par\>	TK_OUTPUT, epsilon	TK_SEM
\<parameter_list\>	TK_INT, TK_REAL, TK_RECORD, TK_UNION, TK_RUID	TK_SQR
\<dataType\>	TK_INT, TK_REAL, TK_RECORD, TK_UNION, TK_RUID	TK_ID
\<primitiveDatatype\>	TK_INT, TK_REAL	TK_ID
\<constructedDatatype\>	TK_RECORD, TK_UNION, TK_RUID	TK_ID
\<remaining_list\>	TK_COMMA, epsilon	TK_SQR
\<stmts\>	TK_RECORD, TK_UNION, TK_DEFINETYPE, TK_TYPE, TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL, TK_RETURN	TK_END
\<typeDefinitions\>	TK_RECORD, TK_UNION, TK_DEFINETYPE, epsilon	TK_TYPE, TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL, TK_RETURN
\<typeDefinition\>	TK_RECORD, TK_UNION	TK_RECORD, TK_UNION, TK_DEFINETYPE, TK_TYPE, TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL, TK_RETURN
\<fieldDefinitions\>	TK_TYPE	TK_ENDRECORD, TK_ENDUNION
\<fieldDefinition\>	TK_TYPE	TK_TYPE, TK_ENDRECORD, TK_ENDUNION
\<moreFields\>	TK_TYPE, epsilon	TK_ENDRECORD, TK_ENDUNION
\<declarations\>	TK_TYPE, epsilon	TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL, TK_RETURN
\<delaration\>	TK_TYPE	TK_TYPE, TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL, TK_RETURN
\<globar_or_not\>	TK_COLON, epsilon	TK_SEM
\<otherStmts\>	TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL, epsilon	TK_RETURN, TK_ENDIF, TK_ELSE, TK_ENDWHILE
\<stmt\>	TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL	TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL, TK_RETURN, TK_ENDIF, TK_ELSE, TK_ENDWHILE
\<assignmentStmt\>	TK_ID	TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL, TK_RETURN, TK_ENDIF, TK_ELSE, TK_ENDWHILE
\<singleOrRecId\>	TK_ID	TK_ASSIGNOP, TK_CL, TK_SEM, TK_CL, TK_ADD, TK_SUB, TK_MUL, TK_DIV, TK_LT, TK_LE, TK_EQ, TK_GT, TK_GE, TK_NE
\<B\>	TK_DOT, epsilon	TK_ASSIGNOP, TK_CL, TK_SEM, TK_CL, TK_ADD, TK_SUB, TK_MUL, TK_DIV, TK_LT, TK_LE, TK_EQ, TK_GT, TK_GE, TK_NE
\<funCallStmt\>	TK_SQL, TK_CALL	TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL, TK_RETURN, TK_ENDIF, TK_ELSE, TK_ENDWHILE
\<outputParameters\>	TK_SQL, epsilon	TK_CALL
\<inputParameters\>	TK_SQL	TK_SEM
\<iterativeStmt\>	TK_WHILE	TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL, TK_RETURN, TK_ENDIF, TK_ELSE, TK_ENDWHILE
\<conditionalStmt\>	TK_IF	TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL, TK_RETURN, TK_ENDIF, TK_ELSE, TK_ENDWHILE
\<ioStmt\>	TK_READ, TK_WRITE	TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL, TK_RETURN, TK_ENDIF, TK_ELSE, TK_ENDWHILE
\<aritmeticExpression\>	TK_OP, TK_ID, TK_NUM, TK_RNUM	TK_SEM, TK_CL
\<addORsub\>	TK_OP, TK_ID, TK_NUM, TK_RNUM	TK_SEM, TK_CL
\<mulORdiv\>	TK_OP, TK_ID, TK_NUM, TK_RNUM	TK_PLUS, TK_MINUS, TK_SEM, TK_CL
\<brackets\>	TK_OP, TK_ID, TK_NUM, TK_RNUM	TK_MUL, TK_DIV, TK_PLUS, TK_MINUS, TK_SEM, TK_CL
\<MULDIV\>	TK_MUL, TK_DIV	TK_OP, TK_ID, TK_NUM, TK_RNUM
\<ADDSUB\>	TK_PLUS, TK_MINUS	TK_OP, TK_ID, TK_NUM, TK_RNUM
\<booleanExpression\>	TK_NOT, TK_OP, TK_ID, TK_NUM, TK_RNUM	TK_CL
\<var\>	TK_ID, TK_NUM, TK_RNUM	TK_CL, TK_SEM, TK_CL, TK_ADD, TK_SUB, TK_MUL, TK_DIV, TK_LT, TK_LE, TK_EQ, TK_GT, TK_GE, TK_NE
\<logicalOp\>	TK_AND, TK_OR	TK_OP
\<relationalOp\>	TK_LT, TK_LE, TK_EQ, TK_GT, TK_GE, TK_NE	TK_ID, TK_NUM, TK_RNUM
\<returnStmt\>	TK_RETURN	TK_END
\<optionalReturn\>	TK_SQL, epsilon	TK_SEM
\<idList\>	TK_ID	TK_SQR
\<more_ids\>	TK_COMMA, epsilon	TK_SQR
\<definetypestmt\>	TK_DEFINETYPE	TK_RECORD, TK_UNION, TK_DEFINETYPE, TK_TYPE, TK_ID, TK_WHILE, TK_IF, TK_READ, TK_WRITE, TK_SQL, TK_CALL, TK_RETURN
\<A\>	TK_RECORD, TK_UNION	TK_RUID