

REPORT

과 제 명: Syntax Analyzer 구현



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[Non-ambiguous CFG C]

```
CODE' -> CODE
CODE -> VDECL CODE
CODE -> FDECL CODE
CODE -> CDECL CODE | ''
VDECL -> vtype id semi
VDECL -> vtype ASSIGN semi
ASSIGN -> id assign
RHS -> EXPR
RHS -> literal
RHS -> character
RHS -> boolstr
EXPR' -> EXPR addsub EXPR
EXPR'' -> EXPR multdiv EXPR
EXPR -> lparen EXPR rparen
EXPR -> id
EXPR -> num
FDECL -> vtype id lparen ARG rparen lbrace BLOCK RETURN rbrace
ARG -> vtype id MOREARGS | ''
MOREARGS -> comma vtype id MOREARGS | ''
BLOCK -> STMT BLOCK | ''
STMT -> VDECL
STMT -> ASSIGN semi
STMT -> if lparen COND rparen lbrace BLOCK rbrace ELSE
STMT -> while lparen COND rparen lbrace BLOCK rbrace
COND' -> COND comp COND
COND -> boolstr
ELSE -> else lbrace BLOCK rbrace | ''
RETURN -> return RHS semi
CDECL -> class id lbrace ODECL rbrace
ODECL -> VDECL ODECL ''
ODECL -> FDECL ODECL
```

[SLR parsing table]

		ACTION										SOTO									
State	vtype	id	semi	literal	character	boolstr	addsub	multdiv	lparen	rparen	comma	return	block	stmt	cond	else	while	if	moreargs	block	stmt
0	id																				
1	semi																				
2	literal																				
3	character																				
4	boolstr																				
5	addsub																				
6	multdiv																				
7	lparen																				
8	rparen																				
9	comma																				
10	return																				
11	block																				
12	stmt																				
13	cond																				
14	else																				
15	while																				
16	if																				
17	moreargs																				
18	block																				
19	stmt																				
20	cond																				
21	else																				
22	while																				
23	if																				
24	moreargs																				
25	block																				
26	stmt																				
27	cond																				
28	else																				
29	while																				
30	if																				
31	moreargs																				
32	block																				
33	stmt																				
34	cond																				
35	else																				
36	while																				
37	if																				
38	moreargs																				
39	block																				
40	stmt																				
41	cond																				
42	else																				
43	while																				
44	if																				
45	moreargs																				
46	block																				
47	stmt																				
48	cond																				
49	else																				
50	while																				
51	if																				
52	moreargs																				
53	block																				
54	stmt																				
55	cond																				
56	else																				
57	while																				
58	if																				
59	moreargs																				
60	block																				
61	stmt																				
62	cond																				
63	else																				
64	while																				
65	if																				
66	moreargs																				
67	block																				
68	stmt																				
69	cond																				
70	else																				
71	while																				
72	if																				
73	moreargs																				
74	block																				
75	stmt																				
76	cond																				
77	else																				

[First, Follow]

FIRST / FOLLOW table		
Nonterminal	FIRST	FOLLOW
CODE'	{vtype, class}	{}
CODE	{vtype, class}	{}
VDECL	{vtype}	{vtype, class, id, if, while}
ASSIGN	{id}	{semi}
RHS	{literal, character, boolstr, lparen, id, num}	{}
EXPR'	{lparen, id, num}	{undefined}
EXPR''	{lparen, id, num}	{undefined}
EXPR	{lparen, id, num}	{addsub, multdiv, rparen, }
FDECL	{vtype}	{vtype, class}
ARG	{vtype}	{rparen}
MOREARGS	{comma}	{rparen}
BLOCK	{vtype, id, if, while}	{return, rbrace}
STMT	{vtype, id, if, while}	{vtype, id, if, while}
COND'	{boolstr}	{undefined}
COND	{boolstr}	{rparen, comp}
ELSE	{else}	{vtype, id, if, while}
RETURN	{return}	{rbrace}
CDECL	{class}	{vtype, class}
ODECL	{vtype}	{rbrace}