

1. First(program) \rightarrow First(declaration-list) $\rightarrow \{Iow, SIow, Chlo, Chain, Iowf, SIowf, worthless, /, ///, include\}$
2. First(declaration-list) \rightarrow First(declaration) $\rightarrow \{Iow, SIow, Chlo, Chain, Iowf, SIowf, worthless\}$
3. First(declaration-list') \rightarrow First(declaration) $\mid \epsilon \rightarrow \{", ", " ", " ", " ", " ", \epsilon\}$
4. First(declaration) \rightarrow First(var-declaration) $\rightarrow \{", ", " ", " ", " ", " ", " ", \epsilon\}$
5. First(var-declaration) \rightarrow First(type-specifier) $\rightarrow \{Iow, SIow, Chlo, Chain, Iowf, SIowf, worthless\}$
6. First(type-specifier) $\rightarrow \{Iow, SIow, Chlo, Chain, Iowf, SIowf, worthless\}$
7. First(params) \rightarrow First(param-list), First(param) $\rightarrow \{Iow, SIow, Chlo, Chain, SIowf, Iowf, worthless\}$
8. First(param-list) \rightarrow worthless, First(param-list') $\rightarrow \{worthless, \epsilon\}$
9. First(param-list') $\rightarrow \epsilon$
10. First(param) \rightarrow First(type-specifier) $\rightarrow \{Chlo, Chain, Iow, Iowf, SIow, SIowf, worthless\}$
11. First(fun-declaration) \rightarrow First(type-specifier), First(comment) $\rightarrow \{SIow, Iow, Iowf, SIowf, Chlo, Chain, Chlo, worthless, /, ///\}$

12. First(Compound-stmt) $\rightarrow \{$
13. First(local-declarations) \rightarrow First(local-declarations') $\rightarrow \{Iow, SIow, Chain, Chlo, SIowf, Iowf, worthless\}$
14. First(local-declarations') \rightarrow First(var-declaration), $\epsilon \rightarrow \{Iow, SIow, Chain, Chlo, Iowf, SIowf, worthless, \epsilon\}$
15. First(statement-list) \rightarrow First(statement-list') $\rightarrow \{ID, if, ;, \{, Loopwhen, Turnback, Stop, Iteratewhen, \epsilon\}$
16. First(statement-list') \rightarrow First(statement), $\epsilon \rightarrow \{ID, if, ;, \{, Loopwhen, Turnback, Stop, Iteratewhen, \epsilon\}$
17. First(statement) \rightarrow First(expression-stmt), First(Compound-stmt), First(selection-stmt), First(iteration-stmt), First(jump-stmt) $\rightarrow \{ID, ;, if, \{, Loopwhen, Iteratewhen, Stop, Turnback\}$

18. First(expression-stmt) \rightarrow First(expression), $;$ $\rightarrow \{ID, ;\}$
19. First(selection-stmt) \rightarrow First(matched-stmt), First(unmatched-stmt) $\rightarrow \{if\}$
20. First(matched-stmt) $\rightarrow if$
21. First(unmatched-stmt) $\rightarrow if$
22. First(iteration-stmt) \rightarrow First(loop-statement), First(Iterate-statement) $\rightarrow \{Loopwhen, Iteratewhen\}$
23. First(loop-statement) $\rightarrow \{Loopwhen\}$
24. First(Iterate-statement) $\rightarrow \{Iteratewhen\}$
25. First(jump-stmt) $\rightarrow \{Turnback, Stop\}$
26. First(expression) \rightarrow First(id-assign) $\rightarrow \{ID, (, +, -, INT_NUM, FLOAT_NUM\}$
27. First(id-assign) $\rightarrow ID$

- 27) First(simple-expression) \rightarrow First(additive-expression)
 $\rightarrow \{ (, ID, +, -, INT_NUM, FLOAT_NUM \}$
- 28) First(additive-expression) \rightarrow First(term) $\rightarrow \{ (, ID, +, -, INT_NUM, FLOAT_NUM \}$
- 29) First(term) \rightarrow First(factor) $\rightarrow \{ (, ID, +, -, INT_NUM, FLOAT_NUM \}$
- 30) First(additive-expression') \rightarrow First(addop), $\epsilon \rightarrow \{ +, -, \epsilon \}$
- 31) First(term') \rightarrow First(mulop), $\epsilon \rightarrow \{ *, /, \epsilon \}$
- 32) First(addop) $\rightarrow \{ +, - \}$
- 33) First(mulop) $\rightarrow \{ *, / \}$
- 34) First(factor) $\rightarrow \{ (, ID, +, -, INT_NUM, FLOAT_NUM \}$
- 35) First(call) $\rightarrow \{ ID \}$
- 36) First(args) \rightarrow First(arg-list) | $\epsilon \rightarrow \{ ID, \epsilon \}$
- 37) First(arglist) \rightarrow First(expression) $\rightarrow \{ ID \}$
- 38) First(arg-list') $\rightarrow \{ , \epsilon \}$
- 39) First(num) \rightarrow First(signednum), First(unsignednum) $\rightarrow \{ +, -, INT_NUM, FLOAT_NUM \}$
- 40) First(signednum) \rightarrow First(pos-num), First(neg-num) $\rightarrow \{ +, -, \epsilon \}$
- 41) First(pos-num) $\rightarrow \{ + \}$
- 42) First(neg-num) $\rightarrow \{ - \}$
- 43) First(unsignednum) \rightarrow First(value) $\rightarrow \{ INT_NUM, FLOAT_NUM \}$
- 44) First(value) $\rightarrow \{ INT_NUM, FLOAT_NUM \}$
- 45) First(comment) $\rightarrow \{ /, /// \}$
- 46) First(include_command) $\rightarrow \{ include \}$
- 47) First(f_name) $\rightarrow \{ STR \}$
- 48) First(relop) $\rightarrow \{ ==, !=, >=, >, <, <=, ==, || \}$

Follow

- ① Follow(program) $\rightarrow \{ \$ \}$
- ② Follow(declaration-list) $\rightarrow \{ \$ \}$
- ③ Follow(declaration) $\rightarrow \text{First}(\text{declaration-list}') \rightarrow \{ \$, \text{Iow}, \text{SIow}, \text{Iowf}, \text{SIowf}, \text{Chain}, \text{Chlo}, \text{worthless} \}$
- ④ Follow(declaration-list') $\rightarrow \{ \$ \}$
- ⑤ Follow(var-declaration) $\rightarrow \text{First}(\text{local-declarations}') \rightarrow \{ \text{Iow}, \text{Iowf}, \text{SIowf}, \text{Chain}, \text{Chlo}, \text{worthless}, \text{SIow}, \$ \}$
- ⑥ Follow(type-specifier) $\rightarrow \{ \$, \text{ID} \}$
- ⑦ Follow(fun-declaration) $\rightarrow \{ \$, \text{Iow}, \text{Iowf}, \text{SIow}, \text{SIowf}, \text{Chain}, \text{Chlo}, \text{worthless} \}$
- ⑧ Follow(param-list) $\rightarrow \{ \$, , \}$
- ⑨ Follow(param-list') $\rightarrow \{ \$, , \}$
- ⑩ Follow(params) $\rightarrow \{ \$ \}$
- ⑪ Follow(param) $\rightarrow \{ \$ \}$
- ⑫ Follow(compound-stmt) $\rightarrow \{ \$ \}$
- ⑬ Follow(local-declarations) $\rightarrow \{ \$ \}$
- ⑭ Follow(local-declarations') $\rightarrow \{ \$ \}$
- ⑮ Follow(statement-list) $\rightarrow \{ \$ \}$
- ⑯ Follow(statement-list') $\rightarrow \{ \$ \}$
- ⑰ Follow(statement) $\rightarrow \text{First}(\text{statement-list}') \rightarrow \{ \$, \text{ID}, \text{if}, ;, \{, \text{Loopwhen}, \text{Turnback}, \text{Stop}, \text{Iteratewhen} \}$
- ⑱ Follow(expression-stmt) $\rightarrow \{ \$ \}$
- ⑲ Follow(expression) $\rightarrow \{ ;, , , \}$
- ⑳ Follow(selection-stmt) $\rightarrow \{ \$ \}$
- ㉑ Follow(matched-stmt) $\rightarrow \{ \text{else} \}$
- ㉒ Follow(unmatched-stmt) $\rightarrow \{ \$ \}$
- ㉓ Follow(iteration-stmt) $\rightarrow \{ \$, \text{ID}, \text{if}, ;, \{, \text{Loopwhen}, \text{Turnback}, \text{Stop}, \text{Iteratewhen} \}$
- ㉔ Follow(loop-statement) $\rightarrow \{ \$, \text{ID}, \text{if}, ;, \{, \text{Loopwhen}, \text{Turnback}, \text{Stop}, \text{Iteratewhen} \}$
- ㉕ Follow(iterate-statement) $\rightarrow \{ \$, \text{ID}, \text{if}, ;, \{, \text{Loopwhen}, \text{Turnback}, \text{Stop}, \text{Iteratewhen} \}$
- ㉖ Follow(jump-stmt) $\rightarrow \{ \$, \text{if}, \text{ID}, ;, \{, \text{Loopwhen}, \text{Turnback}, \text{Stop}, \text{Iteratewhen} \}$
- ㉗ Follow(simple-expression) $\rightarrow \{ ;, , , , \$ \}$

- Follow (additive-expression) $\rightarrow \{ ; ,) , \circ , \$, \&\& , != , \geq , > , < , \leq , == , != \}$
- Follow (relop) $\rightarrow \text{First}(\text{additive-expression}) \rightarrow \{ (, \text{ID} , + , - , \text{INT_NUM} , \text{FLOAT_NUM} \}$
- Follow (term) $\rightarrow \text{First}(\text{additive-expression}) \rightarrow \{ + , - , ; ,) , \circ , \$, \&\& , != , \geq , > , < , \leq , == , != \}$
- Follow (addop) $\rightarrow \text{First}(\text{term}) \rightarrow \{ (, \text{ID} , + , - , \text{INT_NUM} , \text{FLOAT_NUM} , \$ \}$
- Follow (additive-expression') $\rightarrow \{ \$ \}$
- Follow (factor) $\rightarrow \text{First}(\text{term}) \rightarrow \{ * , / , + , - , ; ,) , \circ , \$, \&\& , != , \geq , > , < , \leq , == , != \}$
- Follow (term') $\rightarrow \{ + , - , ; ,) , \circ , \$, \&\& , != , \geq , > , < , \leq , == , != \}$
- Follow (mulop) $\rightarrow \text{First}(\text{factor}) \rightarrow \{ (, \text{ID} , + , - , \text{INT_NUM} , \text{FLOAT_NUM} , \$ \}$
- Follow (Call) $\rightarrow \text{Follow}(\text{factor}) \rightarrow \{ * , / , + , - , ; ,) , \circ , \$, \&\& , != , \geq , > , < , \leq , == , != \}$
- Follow (args) $\rightarrow \{ \$,) \}$
- Follow (arg-list) $\rightarrow \{ \$,) \}$
- Follow (arg-list') $\rightarrow \{ \$,) \}$
- Follow (num) $\rightarrow \{ * , / , + , - , ; ,) , \circ , \$, \&\& , != , \geq , > , < , \leq , == , != \}$
- Follow (signed num) $\rightarrow \{ + , - , * , / , ; ,) , \circ , \$, \&\& , != , \geq , > , < , \leq , == , != \}$
- Follow (unsigned num) $\rightarrow \{ + , - , * , / , ; ,) , \circ , \$, \&\& , != , \geq , > , < , \leq , == , != \}$
- Follow (pos-num) $\rightarrow \{ + , - , * , / , ; ,) , \circ , \$, \&\& , != , \geq , > , < , \leq , == , != \}$
- Follow (neg-num) $\rightarrow \{ + , - , * , / , ; ,) , \circ , \$, \&\& , != , \geq , > , < , \leq , == , != \}$
- Follow (value) $\rightarrow \{ + , - , * , / , ; ,) , \circ , \$, \&\& , != , \geq , > , < , \leq , == , != \}$
- Follow (comment) $\rightarrow \{ \$, \text{Iow} , \text{Jlow} , \text{Chlo} , \text{Chain} , \text{Iowf} , \text{Jlowf} , \text{Worthless} \}$
- Follow (include-command) $\rightarrow \{ \$ \}$
- Follow (F_name) $\rightarrow \{ . \}$