**First Set**

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|  | **NON-TERMINAL** | **→** | **FIRST SET** |
| 1 | First ( <program> ) | → | { !START, λ, fixed, file, number, decimal, string, boolean, null } |
| 2 | First ( <global> ) | → | { λ, fixed, file, number, decimal, string, boolean, null } |
| 3 | First ( <fixed\_dec> ) | → | { fixed } |
| 4 | First ( <data\_type> ) | → | { number, decimal, string, boolean } |
| 5 | First ( <values\_num> ) | → | { =, λ, , } |
| 6 | First ( <more\_num> ) | → | {,, λ } |
| 7 | First ( <values\_dec> ) | → | { =, λ, , } |
| 8 | First ( <more\_dec> ) | → | {,, λ } |
| 9 | First ( <values\_str> ) | → | { =, λ, , } |
| 10 | First ( <more\_str> ) | → | {,, λ } |
| 11 | First ( <values\_bool> ) | → | { =, λ, , } |
| 12 | First ( <more\_bool> ) | → | {,, λ } |
| 13 | First ( <fdata\_type> ) | → | { number, decimal, string, boolean } |
| 14 | First ( <fvalues\_num> ) | → | { = } |
| 15 | First ( <fmore\_num> ) | → | {,, λ } |
| 16 | First ( <fvalues\_dec> ) | → | { = } |
| 17 | First ( <fmore\_dec> ) | → | {,, λ } |
| 18 | First ( <fvalues\_str> ) | → | { = } |
| 19 | First ( <fmore\_str> ) | → | {,, λ } |
| 20 | First ( <fvalues\_bool> ) | → | { = } |
| 21 | First ( <fmore\_bool> ) | → | {,, λ } |
| 22 | First ( <file> ) | → | { file } |
| 23 | First ( <file\_elem> ) | → | { id, number, decimal, string, boolean } |
| 24 | First ( <dtype> ) | → | { number, decimal, string, boolean } |
| 25 | First ( <file\_tail> ) | → | { λ, id, number, decimal, string, boolean } |
| 26 | First ( <file\_id> ) | → | { id, λ } |
| 27 | First ( <file\_id\_tail> ) | → | { ,, λ } |
| 28 | First ( <funct> ) | → | { number, decimal, string, boolean, null } |
| 29 | First ( <param> ) | → | { λ, number, decimal, string, boolean } |
| 30 | First ( <param\_tail> ) | → | { ,, λ } |
| 31 | First ( <returnNum> ) | → | { numberlit, id } |
| 32 | First ( <returnDec> ) | → | { decimallit, id } |
| 33 | First ( <returnStr> ) | → | { stringlit, id } |
| 34 | First ( <returnBool> ) | → | { booleanlit, id } |
| 35 | First ( <returnTail> ) | → | { (, λ, @ } |
| 36 | First ( <funct\_paramTail> ) | → | {,, λ } |
| 37 | First ( <values> ) | → | { numberlit, decimallit, stringlit, booleanlit } |
| 38 | First ( <elem> ) | → | { @, λ } |
| 39 | First ( <elem\_tail> ) | → | { id } |
| 40 | First ( <numb\_array> ) | → | { number } |
| 41 | First ( <more\_numberArray> ) | → | { ,, λ } |
| 42 | First ( <number\_array1> ) | → | { [ } |
| 43 | First ( <number\_array1Tail> ) | → | { =, λ } |
| 44 | First ( <moreNumber> ) | → | { ,, λ } |
| 45 | First ( <number\_array2> ) | → | { [ } |
| 46 | First ( <number\_array2Tail> ) | → | { =, λ } |
| 47 | First ( <number\_array2Val> ) | → | { { } |
| 48 | First ( <number\_array2Val\_tail> ) | → | { ,, λ } |
| 49 | First ( <array\_choice> ) | → | { id, numberlit } |
| 50 | First ( <ops> ) | → | { λ, +, -, \*, /, % } |
| 51 | First ( <mathop> ) | → | { +, -, \*, /, % } |
| 52 | First ( <dec\_array> ) | → | { decimal } |
| 53 | First ( <more\_decimalArray> ) | → | { ,, λ } |
| 54 | First ( <decimal\_array1> ) | → | { [ } |
| 55 | First ( <decimal\_array1Tail> ) | → | { =, λ } |
| 56 | First ( <moreDecimal> ) | → | { ,, λ } |
| 57 | First ( <decimal\_array2> ) | → | { [ } |
| 58 | First ( <decimal\_array2Tail> ) | → | { =, λ } |
| 59 | First ( <decimal\_array2Val> ) | → | { { } |
| 60 | First ( <decimal\_array2Val\_tail> ) | → | { ,, λ } |
| 61 | First ( <str\_array> ) | → | { string } |
| 62 | First ( <more\_stringArray> ) | → | { ,, λ } |
| 63 | First ( <string\_array1> ) | → | { [ } |
| 64 | First ( <string\_array1Tail> ) | → | { =, λ } |
| 65 | First ( <moreString> ) | → | { ,, λ } |
| 66 | First ( <string\_array2> ) | → | { [ } |
| 67 | First ( <string\_array2Tail> ) | → | { =, λ } |
| 68 | First ( <string\_array2Val> ) | → | { { } |
| 69 | First ( <string\_array2Val\_tail> ) | → | { ,, λ } |
| 70 | First ( <bool\_array> ) | → | { boolean } |
| 71 | First ( <more\_booleanArray> ) | → | { ,, λ } |
| 72 | First ( <boolean\_array1> ) | → | { [ } |
| 73 | First ( <boolean\_array1Tail> ) | → | { =, λ } |
| 74 | First ( <moreBoolean> ) | → | { ,, λ } |
| 75 | First ( <boolean\_array2> ) | → | { [ } |
| 76 | First ( <boolean\_array2Tail> ) | → | { =, λ } |
| 77 | First ( <boolean\_array2Val> ) | → | { { } |
| 78 | First ( <boolean\_array2Val\_tail> ) | → | { ,, λ } |
| 79 | First ( <statement> ) | → | { λ, file, number, decimal, string, boolean, id, write, read, switch, ++, --, if, for, while, do } |
| 80 | First ( <function> ) | → | { file, number, decimal, string, boolean, id, write, read, switch, ++, --, if, for, while, do } |
| 81 | First ( <io\_statement> ) | → | { write, read } |
| 82 | First ( <output> ) | → | { stringlit, id } |
| 83 | First ( <output\_tail> ) | → | { ,, λ } |
| 84 | First ( <ids\_tail> ) | → | { λ, [, @ } |
| 85 | First ( <id\_choices> ) | → | { [, @, λ } |
| 86 | First ( <more\_array> ) | → | { [, λ } |
| 87 | First ( <inc\_dec> ) | → | { id, ++, -- } |
| 88 | First ( <inc\_decOp> ) | → | { ++, -- } |
| 89 | First ( <id\_func> ) | → | { id } |
| 90 | First ( <id\_funcTail> ) | → | { =, (, λ, [, @, +=, -=, \*=, /= } |
| 91 | First ( <ass\_op> ) | → | { =, +=, -=, \*=, /= } |
| 92 | First ( <ass\_values> ) | → | { booleanlit, stringlit, numberlit, decimallit, (, id } |
| 93 | First ( <if\_statement> ) | → | { if } |
| 94 | First ( <condition> ) | → | { (, id, numberlit, decimallit, stringlit, booleanlit, !, λ } |
| 95 | First ( <compares> ) | → | { id, (, numberlit, decimallit, stringlit, booleanlit } |
| 96 | First ( <id\_compares> ) | → | { (, λ, [, @ } |
| 97 | First ( <relop> ) | → | { ==, !=, >, <, >=, <= } |
| 98 | First ( <not> ) | → | { !, λ } |
| 99 | First ( <logop\_end> ) | → | { λ, and, or } |
| 100 | First ( <logop> ) | → | { and, or } |
| 101 | First ( <logop\_more> ) | → | { (, booleanlit, !, λ } |
| 102 | First ( <statesTail> ) | → | { λ, file, number, decimal, string, boolean, id, write, read, switch, ++, --, if, for, while, do } |
| 103 | First ( <control> ) | → | { Jump, Stop, λ } |
| 104 | First ( <elseif\_statement> ) | → | { elseif, else } |
| 105 | First ( <else\_statement> ) | → | { λ } |
| 106 | First ( <digit> ) | → | { numberlit, decimallit, id } |
| 107 | First ( <digit\_tail> ) | → | { λ, +, -, \*, /, % } |
| 108 | First ( <digit\_op> ) | → | { (, numberlit, decimallit, id } |
| 109 | First ( <digit\_opTail> ) | → | { λ, +, -, \*, /, %, numberlit, decimallit, id } |
| 110 | First ( <switch> ) | → | { switch } |
| 111 | First ( <choice\_num> ) | → | { numberlit } |
| 112 | First ( <choice\_numtail> ) | → | { choice, λ } |
| 113 | First ( <choice\_str> ) | → | { stringlit } |
| 114 | First ( <choice\_strtail> ) | → | { choice, λ } |
| 115 | First ( <default> ) | → | { default } |
| 116 | First ( <looping> ) | → | { for, while, do } |
| 117 | First ( <for\_dec> ) | → | { number, λ } |
| 118 | First ( <init> ) | → | { id, λ, number } |
| 119 | First ( <for\_init> ) | → | { numberlit, id } |
| 120 | First ( <cond\_for> ) | → | { λ, numberlit, id } |
| 121 | First ( <for\_inc> ) | → | { id, ++, --, λ } |
| 122 | First ( <inc\_op> ) | → | { ++, --, λ } |
| 123 | First ( <vardec> ) | → | { number, decimal, string, boolean } |
| 124 | First ( <value> ) | → | { numberlit, decimallit, stringlit, booleanlit, id } |
| 125 | First ( <array> ) | → | { number, string, decimal, boolean } |
| 126 | First ( <number\_array> ) | → | { [ } |
| 127 | First ( <decimal\_array> ) | → | { [ } |
| 128 | First ( <string\_array> ) | → | { [ } |
| 129 | First ( <boolean\_array> ) | → | { [ } |
| 130 | First ( <ass\_opValues> ) | → | { numberlit, decimallit, id, ( } |
| 131 | First ( <choices> ) | → | { numberlit, stringlit } |
| 132 | First ( <conditional> ) | → | { id, (, numberlit, decimallit, stringlit, booleanlit } |
| 133 | First ( <funct\_param> ) | → | { numberlit, decimallit, stringlit, booleanlit, id } |
| 134 | First ( <states> ) | → | { file, number, decimal, string, boolean, id, write, read, switch, ++, --, if, for, while, do } |