

LL(1) GRAMMAR

$G = (N, T, P, S)$

$T = \{id, num, (,), ,, if, else, \$\}$

$N = \{S', S, L, C, E\}$

$P =$ set of following productions:

| | | | |
|-----|--|-----------------------------------|------------------|
| (0) | $S' \rightarrow S\$$ | First($S\$$) | = {if, id} |
| (1) | $S \rightarrow id(L);$ | First($id(L)$) | = {id} |
| (2) | $S \rightarrow if(E)S \text{ else } S$ | First($if(E)S \text{ else } S$) | = {if} |
| (3) | $L \rightarrow \epsilon$ | First(ϵ) | = { ϵ } |
| (4) | $L \rightarrow EC$ | First(EC) | = {id, num} |
| (5) | $C \rightarrow \epsilon$ | First(ϵ) | = { ϵ } |
| (6) | $C \rightarrow ,EC$ | First($,EC$) | = {,} |
| (7) | $E \rightarrow id$ | First(id) | = {id} |
| (8) | $E \rightarrow num$ | First(num) | = {num} |

LL(1) TABLE

| | id | num | (|) | ; | if | else | , | \$ |
|------|----------|-------|---|------------|---|--------------------------|------|-------|----|
| S' | $S\$$ | | | | | $S\$$ | | | |
| S | $id(L);$ | | | | | $if(E)S \text{ else } S$ | | | |
| L | EC | EC | | ϵ | | | | | |
| C | | | | ϵ | | | | $,EC$ | |
| E | id | num | | | | | | | |

FIRST AND FOLLOW SETS

| | S' | S | L | C | E |
|--------|------------|--------------|--------------------------|--------------------|-------------|
| First | { if, id } | { if, id } | { ϵ , id, num } | { ϵ , , } | { id, num } |
| Follow | { } | { \$, else } | {) } | {) } | {), , } |