Compiler - Homework2

prog: find_set.cpp lltable.h lltable.cpp

Input file: main.c grammar.txt

Output file: set.txt LLtable.txt

Compile: **g++ -Wall -W -pedantic -o find_set find_set.cpp**

g++ -Wall -W -pedantic -o lltable lltable.cpp

PartI: 找first & follow set

-first(every nonterminal)

```
for(each production of this nonterminal){
        see the first character
        ->is terminal: this terminal ∈ first set
        ->is ε : ε ∈ first set
        ->is nonterminal: first(this nonterminal) //recursive
}
```

-follow(every nonterminal)

```
1.If this nonterminal is start symbol, then $∈ follow set
2.Find productions which right-side has this nonterminal
for(each production){
        see the next symbol of this nonterminal
        1)is nonterminal, then first(next symbol) ∈ follow set
                a.If first set of next symbol has ε ,
                  then follow(left-side nonterminal of this production) ∈ follow set
                  //If this follow set hasn't found, recursively call the function
        2)is terminal, this terminal ∈ follow set
        3)is end, no next symbol,
          then follow(left-side nonterminal of this production) ∈ follow set
          //If this follow set hasn't found, recursively call the function
}
```

PartII: 建立LL(1)table

```
for(every production){
        see the first character of right-side
        1. if is ε , see the follow set of left-side nonterminal :
           then〔left-side nonterminal, terminals in follow set〕= ε
        2. if is terminal,
           then〔left-side nonterminal, this terminal〕= right-side
        3. if is nonterminal, see the first set of this nonterminal
```

then 〔left-side nonterminal, terminals in first set〕 = right side
a)If there has ε in the first set, see the follow set of left-side nonterminal :
then 〔left-side nonterminal, terminals in follow set〕 = right side
(including $)
}