Retro Basic Conmplier

Grammar :

pgm := line pgm | EOF  
line := line\_num stmt  
stmt := asgmnt | if | print | goto | stop  
asgmnt := id = exp  
exp := term exp’   
exp’ := + term | - term | empty  
term := id | const  
if := IF cond line\_num  
cond := term cond’  
cond’ := < term | = term | empty  
print := PRINT id  
goto := GOTO line\_num  
stop := STOP

First set, Follow set :

|  |  |  |
| --- | --- | --- |
| **Non-terminal** | **First set** | **Follow set** |
| pgm | line\_num, EOF | EOF |
| line | line\_num | line\_num, EOF |
| stmt | id, IF, PRINT, GOTO, STOP | line\_num, EOF |
| asgmnt | id | line\_num, EOF |
| exp | id, const | line\_num, EOF |
| exp’ | +, -, empty |  |
| term | id, const | line\_num, EOF |
| if | IF | line\_num, EOF |
| cond | id, const | line\_num |
| cond’ | <, = |  |
| print | PRINT | line\_num, EOF |
| goto | GOTO | line\_num, EOF |
| stop | STOP | line\_num, EOF |

Parsing table :

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | line\_num | id | const | IF | PRINT | GOTO | STOP | + | - | < | = | EOF |
| pgm |  |  |  |  |  |  |  |  |  |  |  |  |
| line |  |  |  |  |  |  |  |  |  |  |  |  |
| stmt |  |  |  |  |  |  |  |  |  |  |  |  |
| asgmnt |  |  |  |  |  |  |  |  |  |  |  |  |
| exp |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| term |  |  |  |  |  |  |  |  |  |  |  |  |
| if |  |  |  |  |  |  |  |  |  |  |  |  |
| cond |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| print |  |  |  |  |  |  |  |  |  |  |  |  |
| goto |  |  |  |  |  |  |  |  |  |  |  |  |
| stop |  |  |  |  |  |  |  |  |  |  |  |  |