Simple Calculator

calci.l

File Edit View

```
%{
#include "y.tab.h"
#include<math.h>
extern double vbltable[26];

%}
%%
[0-9]+      {yylval.dval=atof(yytext); return NUMBER;  }
[\t];
[a-z]                       {yylval.vblno=yytext[0] - 'a'; return NAME;}
"$"           { return 0;}
\n  |
.                 return yytext[0];
%%
int yywrap(void)
{
  return 0;
}
int main(void)
{
 yyparse();
return 0;
}
int yyerror(void)
{
printf("error");
exit(1);
}
```

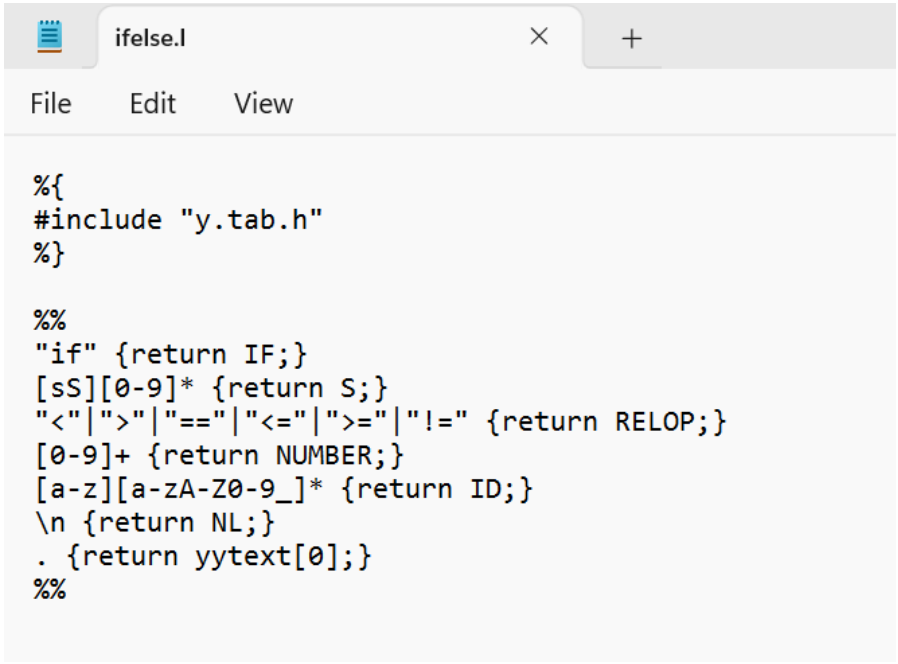
calci.y

File Edit View

```
%{
double vbltable[26];
int yylex(void);
%}
%union{
 double dval;
 int vblno;
}
%token <vblno> NAME
%token <dval> NUMBER
%left '-' '+'
%left '*' '/'
%nonassoc UMINUS
%type <dval> expression
%%
statement_list: statement '\n'
                            |  statement_list statement '\n'
                            ;
statement: NAME '=' expression                {vbltable[$1] = $3;}
                       | expression                 {printf("=%g\n",$1);  }
                       ;
expression: expression '+' expression              { $$=$1 + $3;}
                     | expression '-' expression             { $$=$1 - $3;}
                       | expression '*' expression                { $$=$1 * $3;}
                      | expression '/' expression     {   if($3==0.0)
                                yyerror("divide by zero");
                                else
                                 $$ = $1/$3;
                           }
                        | '-' expression %prec UMINUS { $$ = -$2;}
                        | '(' expression ')'  {$$ =$2;}
                        | NUMBER
                        | NAME {$$ = vbltable[$1];  }
                        ;
%%
```

```
C:\Users\Student\Downloads>flex calci.l

C:\Users\Student\Downloads>bison calci.y

C:\Users\Student\Downloads>bison -dy calci.y

C:\Users\Student\Downloads>gcc lex.yy.c y.tab.c -o calci.exe

C:\Users\Student\Downloads>calci.exe
3+4
=7
2*5+3
=13
4+12
=16
^C
C:\Users\Student\Downloads>
```

Recognize nested IF statement and display level



ifelse.y

File Edit View

```
%{
#include<stdio.h>
#include<stdlib.h>
int count=0;
%}

%token IF RELOP S NUMBER ID NL

%%
stmt: if_stmt NL {printf("No. of nested if statements=%d\n",count);exit(0);}
;
if_stmt : IF'('cond')''{'if_stmt'}' {count++;}
          |S
;
cond: x RELOP x
;
x:ID | NUMBER
;
%%

int yyerror(char *msg)
{
printf("the statement is invalid\n");
exit(0);
}
```

```
main()
{
printf("enter the statement\n");
yyparse();
}
int yywrap()
{

}
```

```
C:\Users\Student\Downloads>flex ifelse.l

C:\Users\Student\Downloads>bison ifelse.y

C:\Users\Student\Downloads>bison -dy ifelse.y

C:\Users\Student\Downloads>gcc lex.yy.c y.tab.c -o ifelse.exe

C:\Users\Student\Downloads>ifelse.exe
enter the statement
if(a>b){if(a>b){s}}
Number of nested if statements=2

C:\Users\Student\Downloads>
```

Program to recognize a valid variable in C language

var.l

File Edit View

```
%{
    #include "y.tab.h"
%}
%%
[a-zA-Z_][a-zA-Z_0-9]* return letter;
[0-9]                       return digit;
.                       return yytext[0];
\n                      return 0;
%%
int yywrap()
{
return 1;
}
```

var.y

File Edit View

```
%{
    #include<stdio.h>
    int valid=1;
%}
%token digit letter
%%
start : letter s
s :     letter s
      | digit s
      |
      ;
%%
int yyerror()
{
    printf("\nIts not a identifier!\n");
    valid=0;
    return 0;
}
int main()
{
    printf("\nEnter a name to tested for identifier ");
    yyparse();
    if(valid)
    {
        printf("\nIt is a identifier!\n");
    }
}
```

```
Microsoft Windows [Version 10.0.22621.1413]
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C:\Users\Student\Downloads>flex var.l

C:\Users\Student\Downloads>bison var.y

C:\Users\Student\Downloads>bison -dy var.y

C:\Users\Student\Downloads>gcc lex.yy.c y.tab.c -o var.exe

C:\Users\Student\Downloads>var.exe

Enter a name to tested for identifier index

It is a identifier!

C:\Users\Student\Downloads>var.exe

Enter a name to tested for identifier 10

Its not a identifier!

C:\Users\Student\Downloads>var.exe

Enter a name to tested for identifier a1

It is a identifier!
```