EXP NO: 08

DATE:

ASSIGNMENT 8

1. Write a lex and yacc program to implement arithmetic calculator

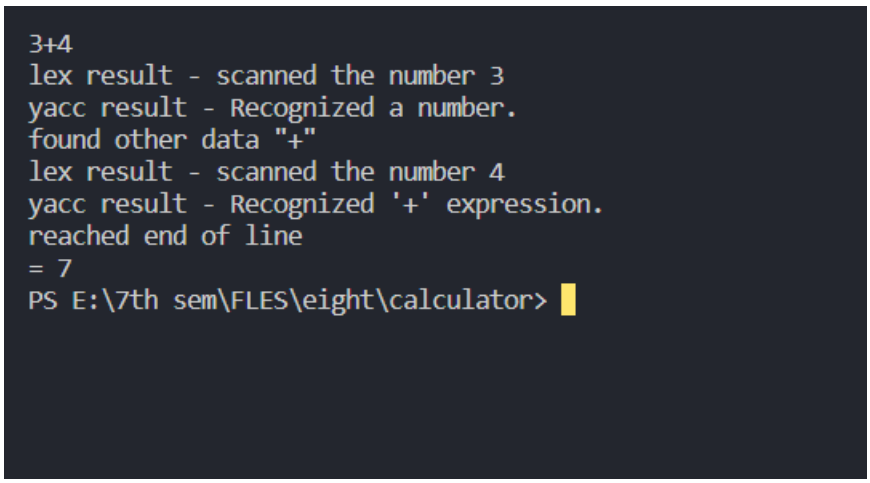
CODE:

```
%{
        #include <stdio.h>
        int yylex();
        int yyerror(char*);
%}
%token NAME NUMBER
%%
statement:      NAME '=' expression     { printf("pretending to assign %s the value %d\n", $1, $3); };
                |expression             { printf("= %d\n", $1); }
                ;
expression:     expression '+' NUMBER { $$ = $1 + $3;
                                        printf ("yacc result - Recognized '+' expression.\n");
                                        }
                |expression '-' NUMBER{ $$ = $1 - $3;
                                        printf ("yacc result - Recognized '-' expression.\n");
                                        }
                |expression '*' NUMBER { $$ = $1 * $3;
                                        printf ("yacc result - Recognized '*' expression.\n");
                                        }
                |expression '/' NUMBER { $$ = $1 / $3;
                                        printf ("yacc result - Recognized '/' expression.\n");
                                        }
                |NUMBER                 { $$ = $1;
                                        printf ("yacc result - Recognized a number.\n");
                                        }
                ;
%%
int main(void) {
        return yyparse();
}
int yyerror(char *msg) {
        return fprintf (stderr, "YACC: %s\n", msg);
}

%{
#include "8a.tab.h"
extern int yylval;
%}
```

```
%%
[0-9]+  {       yylval = atoi (yytext);
                printf ("lex result - scanned the number %d\n", yylval);
                return NUMBER; }
[ \t]   {       printf ("skipped whitespace\n"); }
\n      {       printf ("reached end of line\n");
                return 0;
        }
.       {       printf ("found other data \"%s\"\n", yytext);
                return yytext[0];
        }
%%
int yywrap()
{
        return 1;
}
```

Result:



2.)Write a Lex and Yacc program to recognize the set of all strings of 0's and 1's with even number of 0's and 1's

Code:

```
%{
        #include <stdio.h>
        #include<stdlib.h>
        int yylex();
        int yyerror(char*);
%}
%token ONE ZERO NL
%%
s:      s1 NL           { printf("Accepted\n");
                          exit(0);}
                ;
```

```
s1:     ONE s2
        |ZERO s3
        |
        ;
s2:     ONE s1
        |ZERO s4
        ;
s3:     ONE s4
        |ZERO s1
        ;
s4:     ONE s3
        |ZERO s2
        ;
%%
int main(void) {
        return yyparse();
}
int yyerror(char *msg) {
        printf("Not Accepted\n");
        exit(0);
}
```

Result:

```
PS E:\7th sem\FLES\eight\0s and 1s> yacc -d 8b.y
PS E:\7th sem\FLES\eight\0s and 1s> lex 8b.l
PS E:\7th sem\FLES\eight\0s and 1s> gcc lex.yy.c 8b.tab.c
PS E:\7th sem\FLES\eight\0s and 1s> ./a.exe
1010
Accepted
PS E:\7th sem\FLES\eight\0s and 1s>
```