38. Write a LEX program to validate DOB of students.

%{

#include <stdio.h>

#include <stdlib.h>

int is\_valid\_date(int day, int month, int year) {

// Basic check for month ranges

if (month < 1 || month > 12) {

return 0;

}

// Check for valid days in the month

int days\_in\_month[] = {31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31};

if ((month == 2 && (year % 4 == 0 && (year % 100 != 0 || year % 400 == 0))) ) {

days\_in\_month[1] = 29; // Leap year, February has 29 days

}

if (day < 1 || day > days\_in\_month[month - 1]) {

return 0;

}

return 1; // Valid date

}

%}

%%

([0-9]{2})-([0-9]{2})-([0-9]{4}) {

int day = atoi(yytext + 0); // Get day from yytext

int month = atoi(yytext + 3); // Get month from yytext

int year = atoi(yytext + 6); // Get year from yytext

if (is\_valid\_date(day, month, year)) {

printf("Valid DOB: %s\n", yytext);

} else {

printf("Invalid DOB: %s\n", yytext);

}

}

([0-9]{2})/([0-9]{2})/([0-9]{4}) {

int day = atoi(yytext + 0); // Get day from yytext

int month = atoi(yytext + 3); // Get month from yytext

int year = atoi(yytext + 6); // Get year from yytext

if (is\_valid\_date(day, month, year)) {

printf("Valid DOB: %s\n", yytext);

} else {

printf("Invalid DOB: %s\n", yytext);

}

}

%%

int main() {

yylex(); // Start lexical analysis

return 0;

}  
39. Write a LEX program to implement basic mathematical operations.

%{

#include <stdio.h>

#include <stdlib.h>

int result = 0; // Variable to store the result

%}

%%

[0-9]+ { result = atoi(yytext); } // Convert the number to integer and store in result

"+" { result += atoi(yytext); printf("Current result: %d\n", result); }

"-" { result -= atoi(yytext); printf("Current result: %d\n", result); }

"\*" { result \*= atoi(yytext); printf("Current result: %d\n", result); }

"/" {

int divisor = atoi(yytext);

if (divisor != 0) {

result /= divisor;

printf("Current result: %d\n", result);

} else {

printf("Error: Division by zero\n");

}

}

%%

int main() {

printf("Enter a mathematical expression (use +, -, \*, /):\n");

yylex(); // Start lexical analysis

printf("Final result: %d\n", result);

return 0;

}