Lab Assignment Test 2

U20CS005
BANSI MARAKANA

1. Write a YACC and LEX program for Decimal to Binary Conversion.

LEX File:

```
%{
#include "y.tab.h"
%}
DIGIT       [0-9]
%%
{DIGIT}+    { yylval = atoi(yytext); return NUMBER; }
\n          { return EOL; }
.           { return yytext[0]; }
%%
int yywrap() {
   return 1;
}
```

YACC File:

```
%{
#include <stdio.h>
   extern int yylex();
   extern int yyerror(const char *msg);
   long decimal_to_binary(int);
%}
%token NUMBER EOL
%%
input:
   | input line
   ;
line:
   NUMBER EOL  { printf("%d in binary: %ld\n", $1, decimal_to_binary($1)); }
   ;

%%
long decimal_to_binary(int decimal) {
   long binary = 0;
   int remainder, i = 1;

   while (decimal != 0) {
      remainder = decimal % 2;
      decimal /= 2;
      binary += remainder * i;
```

```
        i *= 10;
    }
    return binary;
}
int yyerror(const char *msg) {
    printf("Error: %s\n", msg);
    return 1;
}
int main() {
    printf("Enter a number: ");
    yyparse();
    return 0;
}
```

```
PS D:\BANSI MARAKANA\Yacc> ./a
Enter a number: 12
12 in binary: 1100
```

2. Write a Lex Program.
Input: 12345678 Output: Even Number-2468, Odd Number-1357

```
%{
#include <stdio.h>
%}

%%
[0-9]+  {
            int num = atoi(yytext);
            printf("Even Number: ");
            while(num > 0) {
                int digit = num % 10;
                if(digit % 2 == 0) {
                    printf("%d", digit);
                }
                num /= 10;
            }
            printf("\nOdd Number: ");
            num = atoi(yytext);
            while(num > 0) {
                int digit = num % 10;
                if(digit % 2 != 0) {
                    printf("%d", digit);
                }
                num /= 10;
            }
```

```
            printf("\n");
        }
\n {return 0;}
%%

int main() {
    printf("Enter a number: ");
    yylex();
    return 0;
}

int yywrap()
{
    return 1;
}
```

```
PS D:\BANSI MARAKANA\Yacc> flex t2q2.l
PS D:\BANSI MARAKANA\Yacc> ./a
Enter a number: 1234567890
Even Number: 08642
Odd Number: 97531
PS D:\BANSI MARAKANA\Yacc>
```