U18CO018
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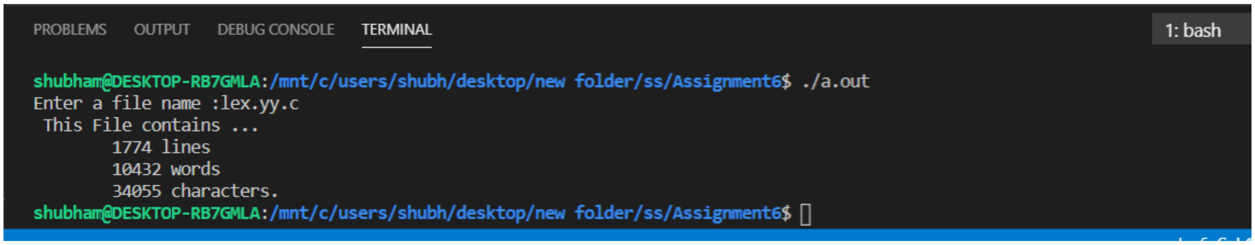
Assignment – 6 (SS)

1-> Write a Lex program to count the number of lines, characters and words of the given input file.
Code :-

```
%{
#include<stdio.h>
int lines=0, words=0,total=0;
%}
%%




\n { lines++; words++;}
[\t ' '] words++;
. total++;
%%






int main(void)
{
    char s[100];
    printf( "Enter a file name :");
   gets( s );

yyin= fopen(s,"r");
yylex();
printf(" This File contains ...");
printf("\n\t%d lines", lines);
printf("\n\t%d words",words);
printf("\n\t%d characters.\n",total);
}

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

Output:-



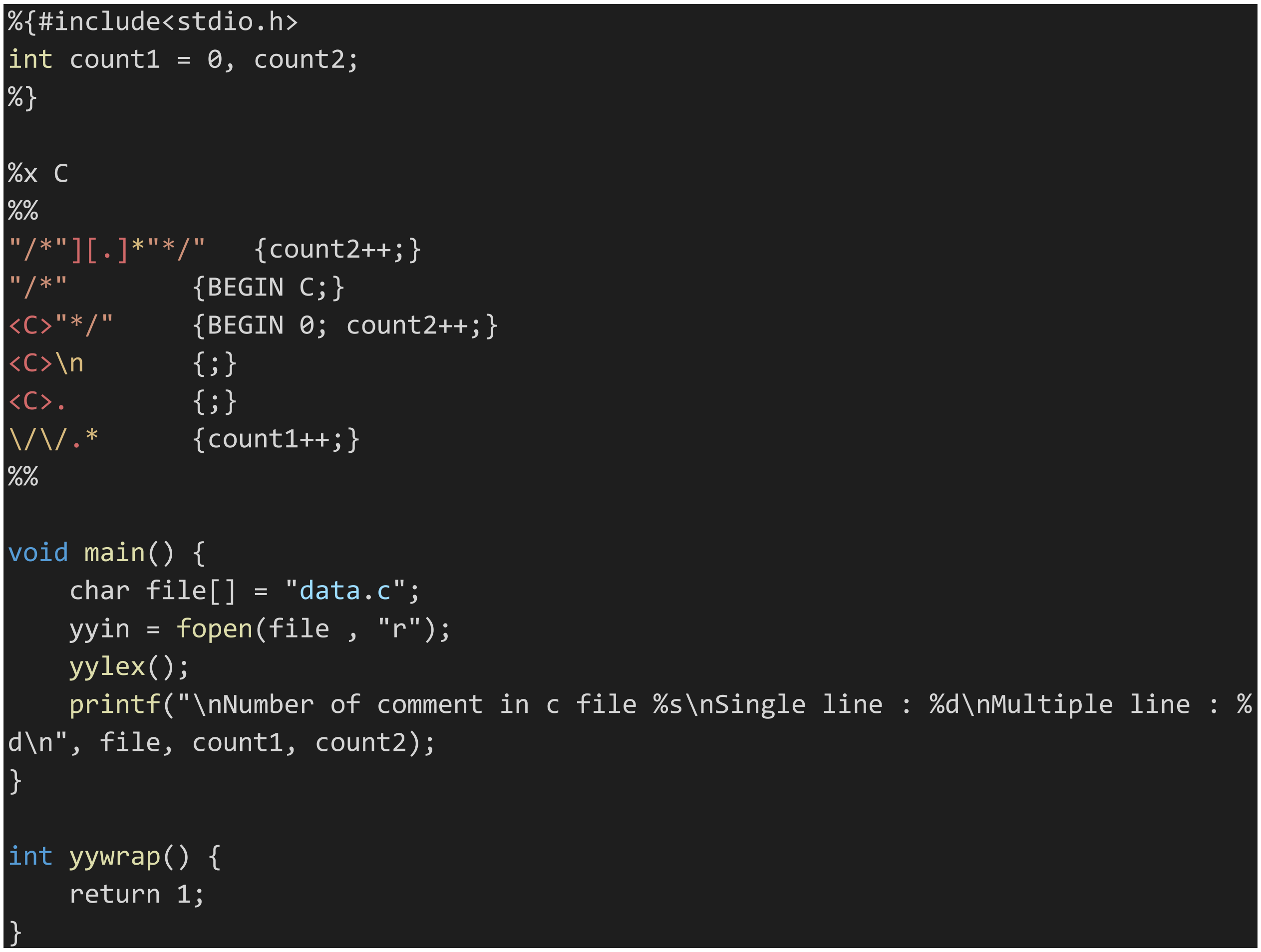
```
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ ./a.out
Enter a file name :lex.yy.c
 This File contains ...
        1774 lines
        10432 words
        34055 characters.
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ 
```

2-> Design a scanner to

(a) Count number of single and multiple line comments from a C program available in xyz.txt file. [Note: You can create any txt file having sample C code which contains single and multiple line comments]

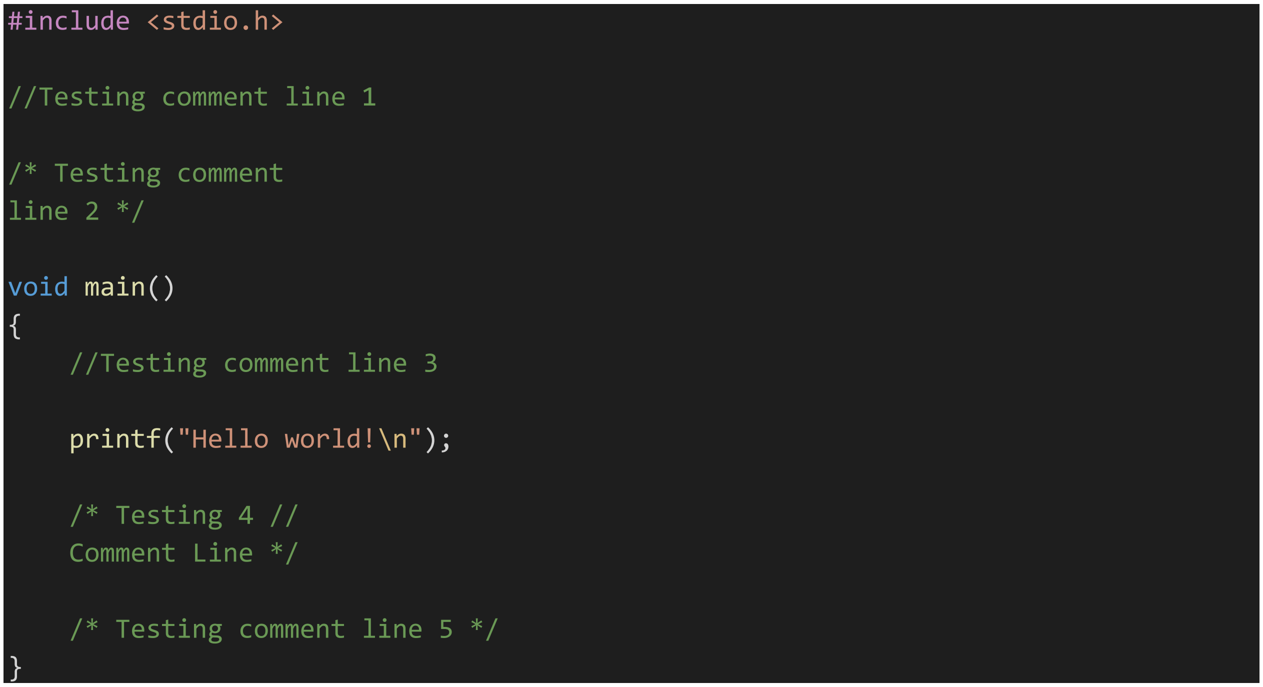
(b) Remove comment lines from the C program.

Code:-



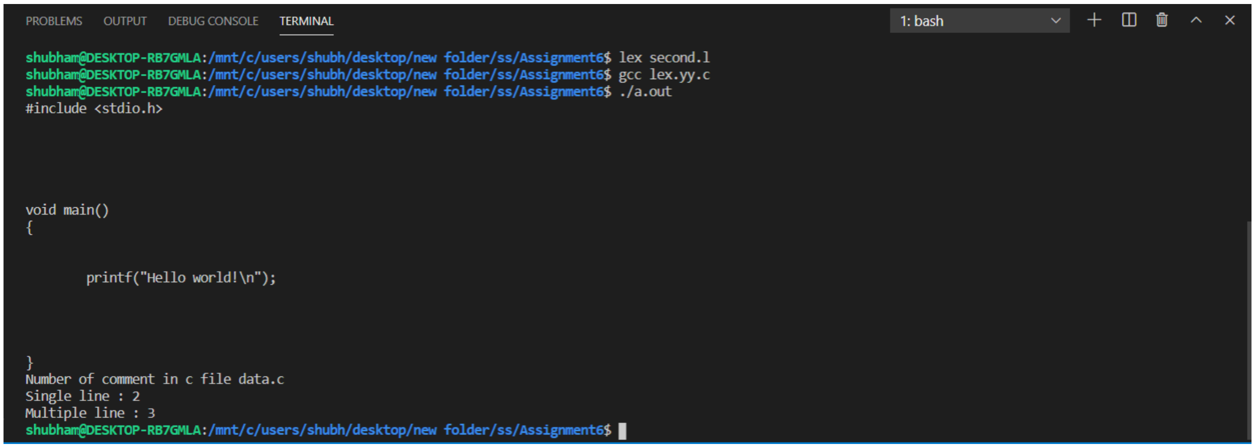
```
%{#include<stdio.h>
int count1 = 0, count2;
%}

%x C
%%
"/*"][.]*"*/"   {count2++;}
"/*"        {BEGIN C;}
<C>"*/"     {BEGIN 0; count2++;}
<C>\n       {;}
<C>.        {;}
\/\/.*      {count1++;}
%%

void main() {
    char file[] = "data.c";
    yyin = fopen(file , "r");
    yylex();
    printf("\nNumber of comment in c file %s\nSingle line : %d\nMultiple line : %
d\n", file, count1, count2);
}

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

Input :-



```
#include <stdio.h>

//Testing comment line 1

/* Testing comment
line 2 */

void main()
{
    //Testing comment line 3

    printf("Hello world!\n");

    /* Testing 4 //
    Comment Line */

    /* Testing comment line 5 */
}
```

Output:-

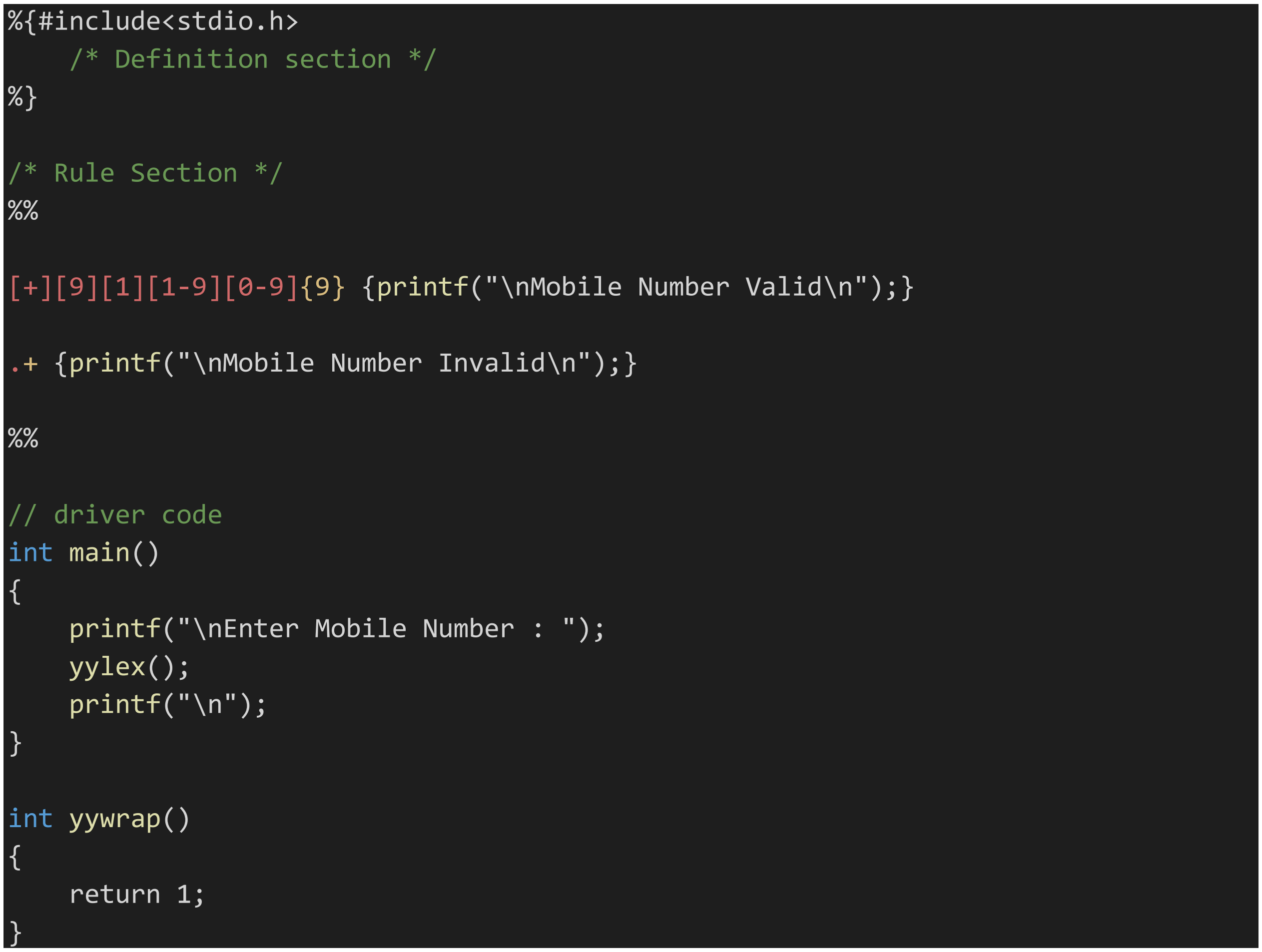


```
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ lex second.l
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ gcc lex.yy.c
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ ./a.out
#include <stdio.h>





void main()
{


        printf("Hello world!\n");




}
Number of comment in c file data.c
Single line : 2
Multiple line : 3
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ █
```

3-> Write a Lex program to check valid/invalid

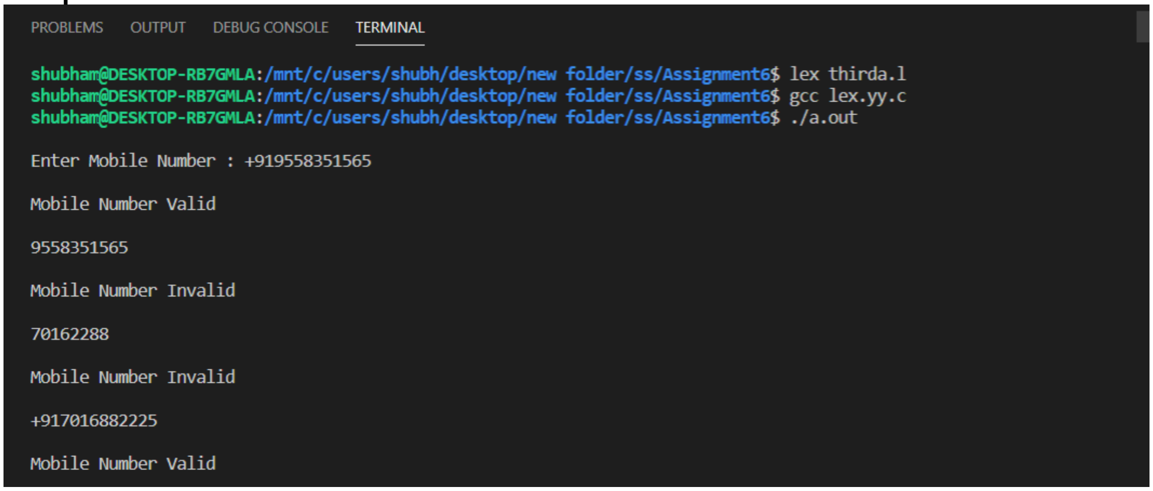
(a) Mobile number (considering 10-digit mobile number followed by country code +91)

Code:-



```
%{#include<stdio.h>
    /* Definition section */
%}

/* Rule Section */
%%

[+][9][1][1-9][0-9]{9} {printf("\nMobile Number Valid\n");}

.+ {printf("\nMobile Number Invalid\n");}

%%

// driver code
int main()
{
    printf("\nEnter Mobile Number : ");
    yylex();
    printf("\n");
}

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

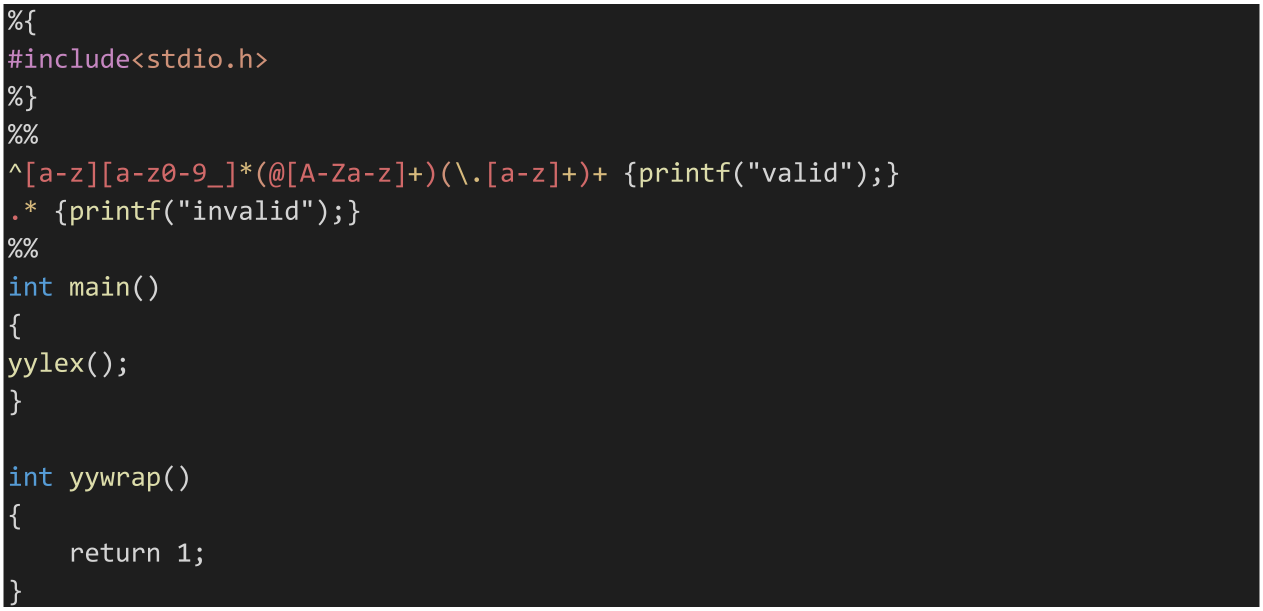
Output:-



```
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ lex thirda.l
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ gcc lex.yy.c
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ ./a.out

Enter Mobile Number : +919558351565

Mobile Number Valid

9558351565

Mobile Number Invalid

70162288

Mobile Number Invalid

+917016882225

Mobile Number Valid
```

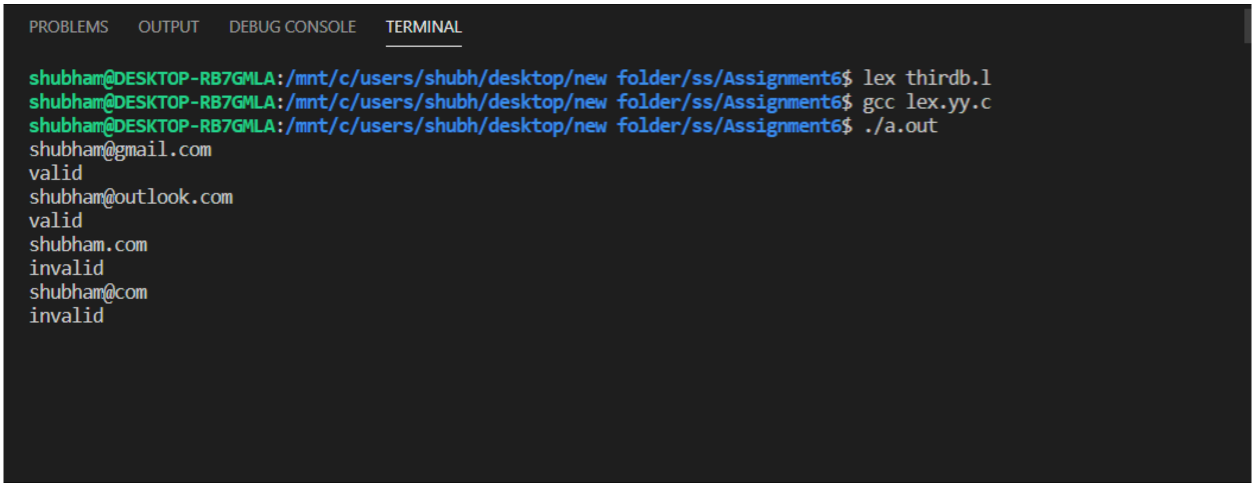
(b) Email address

Code :-



```
%{
#include<stdio.h>
%}
%%
^[a-z][a-z0-9_]*(@[A-Za-z]+)(\.[a-z]+)+ {printf("valid");}
.* {printf("invalid");}
%%
int main()
{
yylex();
}

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

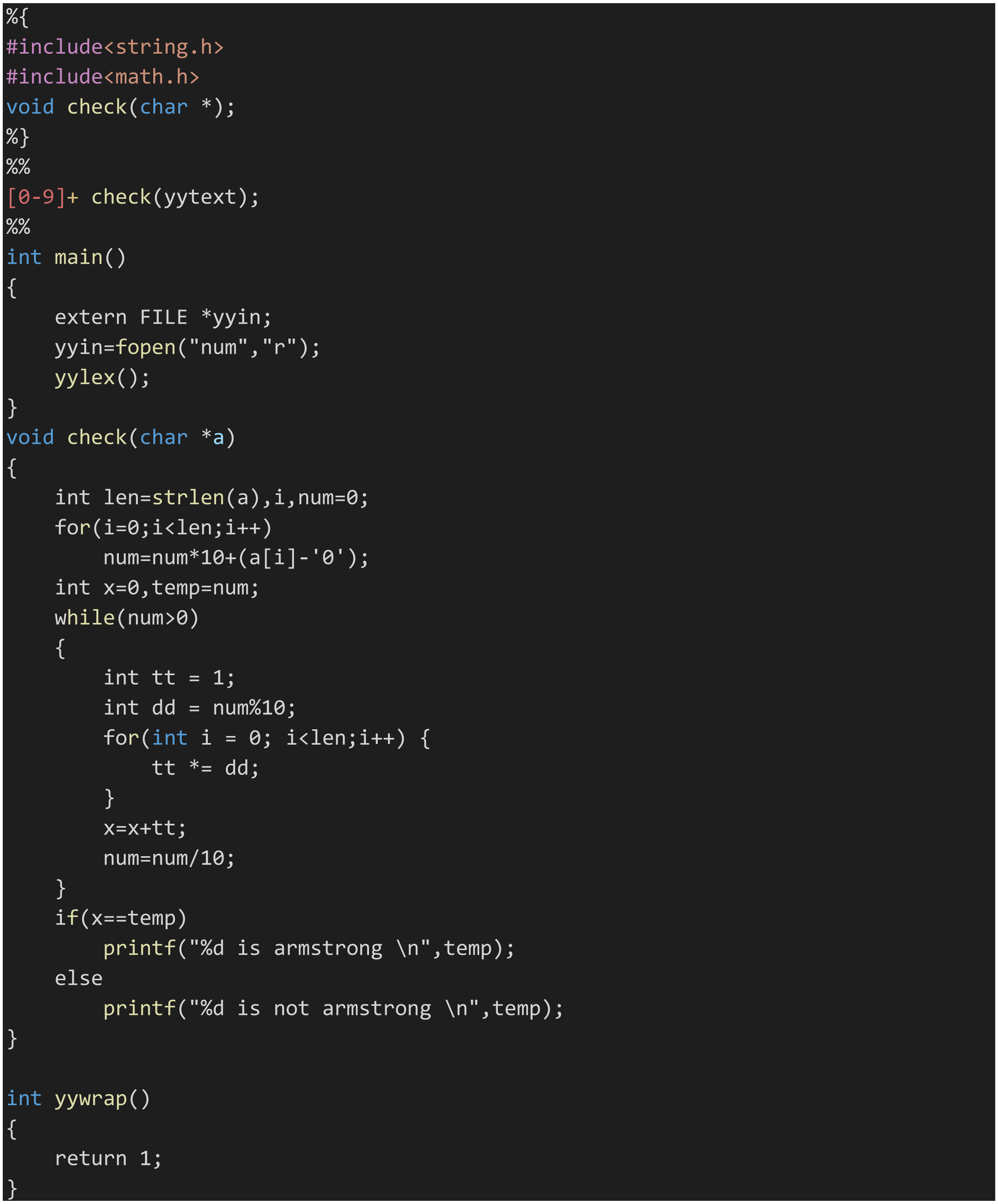
Output :-



```
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ lex thirdb.l
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ gcc lex.yy.c
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ ./a.out
shubham@gmail.com
valid
shubham@outlook.com
valid
shubham.com
invalid
shubham@com
invalid
```

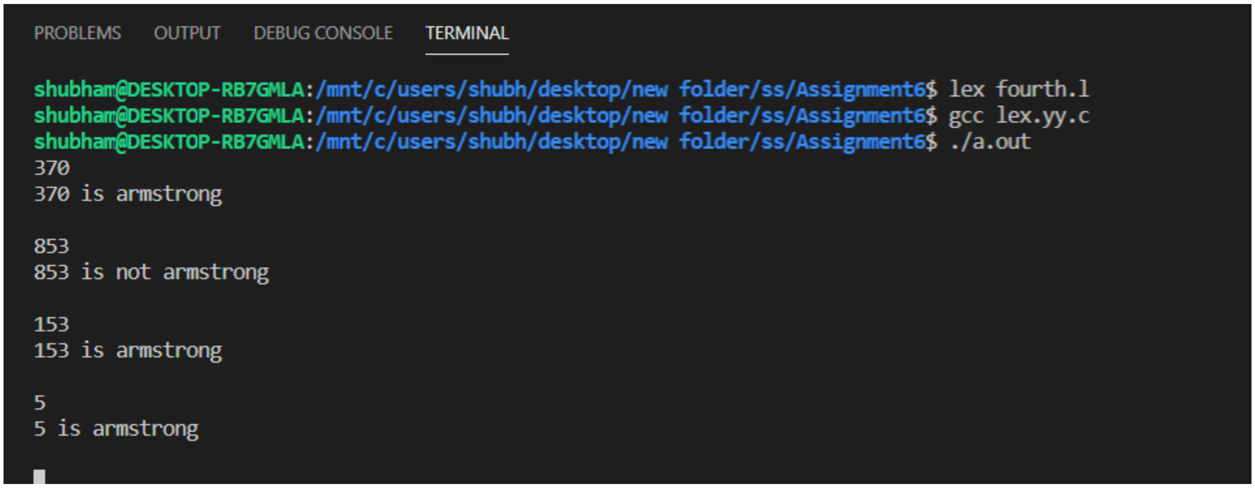
4. Design a scanner to check whether a number is Armstrong number or not.

Code :-



```
%{
#include<string.h>
#include<math.h>
void check(char *);
%}
%%
[0-9]+ check(yytext);
%%
int main()
{
    extern FILE *yyin;
    yyin=fopen("num","r");
    yylex();
}
void check(char *a)
{
    int len=strlen(a),i,num=0;
    for(i=0;i<len;i++)
        num=num*10+(a[i]-'0');
    int x=0,temp=num;
    while(num>0)
    {
        int tt = 1;
        int dd = num%10;
        for(int i = 0; i<len;i++) {
            tt *= dd;
        }
        x=x+tt;
        num=num/10;
    }
    if(x==temp)
        printf("%d is armstrong \n",temp);
    else
        printf("%d is not armstrong \n",temp);
}

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

Output:-



```
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ lex fourth.l
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ gcc lex.yy.c
shubham@DESKTOP-RB7GMLA:/mnt/c/users/shubh/desktop/new folder/ss/Assignment6$ ./a.out
370
370 is armstrong

853
853 is not armstrong

153
153 is armstrong

5
5 is armstrong

```