

# **Compiler Design LAB**

## **Lab report**

*Submitted by*

**Alok**

**Roll No. 220101048**

Semester - 5

3rd Year - CSE (Section A)



Department of Computer Science and Engineering

**Indian Institute of Information Technology  
Manipur**

Imphal, India - 795002

**4 August 2024**

**1. Write a program in Lex to check whether a given number is Armstrong Number or not.**

**Program:**

```
%{
#include<stdio.h>
int num=0,temp,numDigit=0,digiSum=0,digi=1,res=1,numOrig=0;
}%

%%
[0-9]+ {
    num=atoi(yytext);
}
"\n" {
    numDigit=0,digiSum=0,digi=1,res=1,numOrig=0;
    numOrig=num;
    temp=num;
    while(temp>0)
    {
        temp=temp/10;
        numDigit++;
    }
    for(int i=0;i<numDigit;i++,num/=10)
    {
        digi=num%10;
        res=1;
        for(int i=0;i<numDigit;i++)
        {
            res=res*digi;
        }
        digiSum+=res;
    }
    if(numOrig==digiSum)
    {
        printf("Armstrong\n");
    }
    else
        printf("Not Armstrong\n");
}
. {return 0;}
%%
int main()
{
    num=0;
    yylex();
    return 0;
}
int yywrap(){}
```

## OUTPUT:

```
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab2$ flex *a.l
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab2$ gcc lex.yy.c
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab2$ ./a.out
1
Armstrong
153
Armstrong
25
Not Armstrong
123
Not Armstrong
1634
Armstrong
```

**2. Write a program in Lex to count the number of new lines, tabs and whitespaces in the provided input.**

**Program:**

```
%{
#include<stdio.h>
int numTab=0, numEnter=0,numSpace;
}%

%%
\t {numTab++;}
\n {numEnter++;}
[ ] {numSpace++;}
. {}
%%
int main()
{
    printf("Input:");
    yylex();
    printf("New Lines: %d, Tabs: %d, WhiteSpaces: %d\n", numEnter, numTab,numSpace);
    return 0;
}
int yywrap(){return 1;}
```

```
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab2$ flex *b.l
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab2$ gcc lex.yy.c
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab2$ ./a.out
Input:Alok was here      Where are you
I am Mr Robot    I was here only
Nice to          meet    you
New Lines: 3, Tabs: 4, WhiteSpaces: 13
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab2$ s
```