

Compiler Design LAB

Lab report 1

Submitted by

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1. What is LEX in compiler Design? Explain the structure of a LEX program.

Ans. LEX stands for LEXical Analyzers.

LEX is a tool that generates lexical analyzers, which transforms given input into patterns. It converts stream of characters into tokens.

The structure of a LEX program is as follows:

```
%{  
    Declarations  
}%  
%%  
    Transition Rules  
%%  
    Auxiliary Procedures
```

2. Write a program in Lex to check whether a given number is even or odd.

Program:

```
%{  
#include<stdio.h>  
int num;  
}%  
  
%%  
[0-9]+ {num=atoi(yytext);  
        if(num%2==0)  
            printf("Even");  
        else  
            printf("Odd");  
}  
  
. {}  
%%  
int yywrap(){  
int main()  
{  
    yylex();  
  
    return 0;  
}
```

OUPUT:

```
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab1$ flex -o Lab1.yy.c *1.l
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab1$ gcc *yy.c -o Lab1
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab1$ ./Lab1
12
Even
13
Odd
16
Even
17
Odd
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab1$
```

3. Write a program in Lex to count the number of vowels and consonants in given text.

Program:

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

%%
[aeiouAEIOU] {vowCount++;}
. {consCount++;}

%%

int yywrap(){printf("Vowel: %d,Consonant: %d\n",vowCount,consCount);}
int main()
{
    yylex();
    return 0;
}
```

OUPUT:

```
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab1$ flex -o Lab1b.yy.c *1b.l
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab1$ gcc *b.yy.c -o Lab1b
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab1$ ./Lab1b
Alok was here Where were you

I am Mr Robot I had goen to Sydney

Vowel: 21,Consonant: 41
asmi@asmi-ASUS-TUF-Gaming-F15-FX507ZM-FX507ZM:~/Desktop/CompilerLab/Lab1$
```