# IT250 – AUTOMATA & COMPILER DESIGN

## ASSIGNMENT 4

Name: **Sachin Prasanna**
Roll No.: **211IT058**

### 1)

### Code Written:

```
%{
#include <stdio.h>
int keywords = 0;
int numbers = 0;
int identifiers = 0;
int operators = 0;
int puncutations = 0;
int invalid = 0;
int newline = 0;
%}

%%

(auto|break|case|char|const|continue|default|do|double|else|enum|extern|float|for
|goto|if|int|long|register|return|short|signed|sizeof|static|struct|switch|typede
f|union|unsigned|void|volatile|while)[ \t]+ {keywords++;}

[0-9]+[ \t]+ {numbers++;}

[0-9]+[a-zA-Z_0-9]*[ \t]+ {invalid++;}

[a-zA-Z_][a-zA-Z0-9_]*[ \t]+ {identifiers++;}
```

```
[+|-|*|/|>|<|>=|<=|==|!=][ \t]+ {operators++;}

[{}().,;:%&|^!~=<>?][ \t]+ {puncutations++;}

[\n] {newline++;}

. {invalid++;}


%%
int yywrap(void){
    return 1;
}

int main() {

    FILE *filePtr = fopen("inputfile1.txt", "r");
    if (!filePtr) {
        printf("Error: Cannot open file \n");
        return -1;
    }

    yyin = filePtr;

    yylex();
    fclose(filePtr);

    printf("\nNumber of Keywords: %d", keywords);
    printf("\nNumber of Numbers: %d", numbers);
    printf("\nNumber of Identifiers: %d", identifiers);
    printf("\nNumber of Operators: %d", operators);
    printf("\nNumber of Puncutations: %d", puncutations);
    printf("\nTotal Number of Tokens are: %d\n", keywords + numbers + identifiers
+ operators + puncutations);

    return 0;
}
```

# Outputs:

## Text File:

inputfile1.txt

```
1    int float a1 25 b hello 1b 56
```

## Output:

```
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ lex ex1.l
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ cc lex.yy.c -ll
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ ./a.out

Number of Keywords: 2
Number of Numbers: 2
Number of Identifiers: 3
Number of Operators: 0
Number of Puncutations: 0
Total Number of Tokens are: 7
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$
```

## Text File:

inputfile1.txt

```
1    int float a1 25 b hello 1b 56
2    == + amazing auto
```

## Output:

```
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ lex ex1.l
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ cc lex.yy.c -ll
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ ./a.out

Number of Keywords: 3
Number of Numbers: 2
Number of Identifiers: 4
Number of Operators: 2
Number of Puncutations: 0
Total Number of Tokens are: 11
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$
```

## Text File:

inputfile1.txt

```
1    524na sach (    continue 67 *
```

# Output:

```
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ lex ex1.l
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ cc lex.yy.c -ll
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ ./a.out

Number of Keywords: 1
Number of Numbers: 1
Number of Identifiers: 1
Number of Operators: 1
Number of Puncutations: 1
Total Number of Tokens are: 5
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$
```

# 2)

# Code Written:

```
%{
#include <stdio.h>
#include <string.h>
int n;
int matches = 0;
char K[11];
int flag = 0;
%}

%%

[a-zA-Z_]+ {
    if (strstr(yytext, K) != NULL) {
        matches++;
    }
}

.* {flag = 1;}

%%
int yywrap(void){
    return 1;
}

int main() {

    void solution(char K[11], char input[1000], char comments[100][1000]){
        yy_scan_string(input);
        yylex();
        return ;
    }
```

```
    char comments[100][1000];

    scanf("%d", &n);
    scanf("%s", K);

    for (int i = 0; i < n; i++) {
        char input[1000];
        scanf("%s", input);
        strcpy(comments[i], input);
        solution(K, input, comments);
    }

    if (flag == 1) printf("\n-1\n\n");

    else printf("\n%d\n\n", matches);

    return 0;
}
```

# Outputs:

```
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ lex ex2.l
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ cc lex.yy.c -ll
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ ./a.out
2
good
The_video_is_good
Informative

1
```

```
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ lex ex2.l
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ cc lex.yy.c -ll
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ ./a.out
4
helpful
Most_expensive_topic_now_a_days
It_was_really_helpful
This_is_very_helpful_video
Productive_talk

2
```

```
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ lex ex2.l
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ cc lex.yy.c -ll
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ ./a.out
2
usefull
#Most_wanted_and_usefull_video
Thanks a lot...

-1
```

```
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ lex ex2.l
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ cc lex.yy.c -ll
sachinprasanna@LAPTOP-740CVK81:/mnt/c/Users/91900/Desktop/Computer/Semester 4/IT250 - Automata and Compiler Design/Labs/Assignment 4$ ./a.out
4
amazing
this_is_amazing_video
next_video_when_coming
amazing_visuals
loved_the_amazing_acting

3
```

********