Practical-4

DEFINATION: String validation using Lax tool

OBJECTIVE-1: Write a program to identify and extract all numbers from input string and display them one by one in new line.

CODE:

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

%%
[0-9]+   { printf("%s\n", yytext); }  /* Print numbers */
.        ;  /* Ignore other characters */
\n       return 0;  /* Stop at newline */

%%

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

/* Fix yywrap() error */
int yywrap() {
   return 1;
```

}

OUTPUT:

```
Microsoft Windows [Version 10.0.26100.3194]
(c) Microsoft Corporation. All rights reserved.

C:\Users\PREM\Desktop\SEM-6\DLP LAB\PRACTICAL-4>flex pr4_1.l

C:\Users\PREM\Desktop\SEM-6\DLP LAB\PRACTICAL-4>gcc lex.yy.c -o pr4_1.exe

C:\Users\PREM\Desktop\SEM-6\DLP LAB\PRACTICAL-4>pr4_1.exe
Enter input: Ch12ar67u sa234t
12
67
234
```

OBJECTIVE-2: Write a program to replace the word "charusat" with “university” in the input text.

CODE:

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

%%
[Cc]harusat    printf("university");
.              putchar(yytext[0]);
\n             putchar('\n');
%%

int main() {
   yylex();
   return 0;
}

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

OUTPUT:

```
C:\Users\PREM\Desktop\SEM-6\DLP LAB\PRACTICAL-4>flex pr4_2.l

C:\Users\PREM\Desktop\SEM-6\DLP LAB\PRACTICAL-4>gcc lex.yy.c -o pr4_2.exe

C:\Users\PREM\Desktop\SEM-6\DLP LAB\PRACTICAL-4>pr4_2.exe
charusat university
university university
```

OBJECTIVE-3: Write a program to count number of characters, word and lines from the input file.

CODE:

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

int char_count = 0, word_count = 0, line_count = 0;
int identifier_count = 0, whitespace_count = 0, tabspace_count = 0, special_char_count = 0;
%}

%%
\n          { line_count++; char_count++; }
" "         { whitespace_count++; char_count++; }
"\t"        { tabspace_count++; char_count++; }
[a-zA-Z_][a-zA-Z0-9_]* { identifier_count++; char_count += yyleng; }
[a-zA-Z0-9\+\=]+ { word_count++; char_count += yyleng; }
.           { special_char_count++; char_count++; }
%%

int main() {
    yylex();

    if (char_count > 0 && line_count == 0) {
        line_count = 1;
    }
```

```
    if (line_count == 0) {
        line_count = 1;
    }

    printf("Characters : %d\n", char_count);
    printf("Words : %d\n", word_count);
    printf("Lines : %d\n", line_count);
    printf("Identifiers : %d\n", identifier_count);
    printf("Whitespaces : %d\n", whitespace_count);
    printf("Tabspaces : %d\n", tabspace_count);
    printf("Special characters : %d\n", special_char_count);

    return 0;
}

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

OUTPUT:

```
C:\Users\PREM\Desktop\SEM-6\DLP LAB\PRACTICAL-4>flex pr4_3.l

C:\Users\PREM\Desktop\SEM-6\DLP LAB\PRACTICAL-4>gcc lex.yy.c -o pr4_3.exe

C:\Users\PREM\Desktop\SEM-6\DLP LAB\PRACTICAL-4>pr4_3.exe
Characters : 0
Words : 0
^C
C:\Users\PREM\Desktop\SEM-6\DLP LAB\PRACTICAL-4>pr4_3.exe<input.txt
Characters : 22
Words : 1
Lines : 1
Identifiers : 4
Whitespaces : 4
Tabspaces : 0
Special characters : 1
```

OBJECTIVE-4: Write a program which validate the password as per given rules.

➢ length can be 9 to 15 characters

➢ includes lower case letter, upper case letter, digit, symbols (*, ; # $ @)

➢ minimum count for each category must be one

CODE:

```
%{
#include <stdio.h>
#include <string.h>
int has_upper = 0, has_lower = 0, has_digit = 0, has_symbol = 0;
%}

%%

[A-Z]      { has_upper = 1; }
[a-z]      { has_lower = 1; }
[0-9]      { has_digit = 1; }
[*;#$@]    { has_symbol = 1; }

%%

int main() {
    char password[100];
    printf("Enter password: ");
    scanf("%s", password);
    int length = strlen(password);
    if (length < 9 || length > 15) {
```

```
        printf("Invalid password\n");
        return 0;
    }
    yy_scan_string(password);
    yylex();
    if (has_upper && has_lower && has_digit && has_symbol) {
        printf("Valid password\n");
    } else {
        printf("Invalid password\n");
    }
    return 0;
}

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

OUTPUT:

```
C:\Users\PREM\Desktop\SEM-6\DLP LAB\PRACTICAL-4>flex pr4_4.l

C:\Users\PREM\Desktop\SEM-6\DLP LAB\PRACTICAL-4>gcc lex.yy.c -o pr4_4.exe

C:\Users\PREM\Desktop\SEM-6\DLP LAB\PRACTICAL-4>pr4_4.exe
Enter password: Ab@#$123klo
Valid password
```