

EXCERSISE

1.Match any string of one or more characters that do not include lower case a-z.

Code :

```
1 %option noyywrap
2 %{
3     #include<stdio.h>
4
5 %}
6
7 %%
8
9 \n {printf("\n\n");}
10 [^a-z]+ {printf("Match");}
11 .* {printf("No Match");}
12 %%
13
14 int main()
15 {
16     yylex();
17     return 0;
18 }
```

Output :

```
D:\STUDIES\SEM 5\CD\LAB\CODE\LAB 2>lex p1.1
D:\STUDIES\SEM 5\CD\LAB\CODE\LAB 2>gcc lex.yy.c
D:\STUDIES\SEM 5\CD\LAB\CODE\LAB 2>a.exe
lower
No Match

D:\STUDIES\SEM 5\CD\LAB\CODE\LAB 2>a.exe
mIxEd
No Match

D:\STUDIES\SEM 5\CD\LAB\CODE\LAB 2>a.exe
UPPER
Match
```

2.Match one or more occurrences ab concatenated

Code :

```
1 %option noyywrap
2 %{
3     #include<stdio.h>
4
5 %}
6
7 %%
8
9 \n {printf("\n\n");}
10 [A-Za-z0-9]*"ab"+[A-Za-z0-9]* {printf("Match");}
11 .* {printf("No Match");}
12 %%
13
14 int main()
15 {
16     yylex();
17     return 0;
18 }
```

Output :

```
D:\STUDIES\SEM 5\CD\LAB\CODE\LAB 2>lex p2.1
D:\STUDIES\SEM 5\CD\LAB\CODE\LAB 2>gcc lex.yy.c
D:\STUDIES\SEM 5\CD\LAB\CODE\LAB 2>a.exe
hello
No Match

ab
Match

abaab
Match

ababab
Match

abababc
Match

acbd
No Match
```

3. Write the LexProgram to find the token and its count from input file for the following.

a. Identifier

b. number

c. Whitespace (delimiter = space / tab / newline)

d. Assignment symbol (:=)

e. Operator Symbol (+ , - , * , /)

f. Special Character (! , @ , # , \$, % , ^ , & , * , “ , ” , ())

g. Keyword (if, then, else, for, while, int, float, real)

Code :

```
1 %option noyywrap
2 %{
3     #include<stdio.h>
4     int i = 0;
5     int n = 0;
6     int op = 0;
7     int sp = 0;
8     int key = 0;
9     int wh = 0;
10    int a = 0;
11 %}
12
13 %%
14 [ |\t|\n] {wh++;}
15 if|then|else|while|int|float|for|real {key++;}
16 [a-zA-Z]+ {i++;}
17 [0-9]+ {n++;}
18 [+|-|*|/] {op++;}
19 [!|!$|%|^|*|'|(|)] {sp++;}
20 [:=] {a++;}
21 %%
22
23 int main()
24 {
25     FILE *fd;
26
27     if(!(fd = fopen("input.txt", "r"))){
28         perror("Error: ");
29         return -1;
30     }
31     yyin = fd;
32     yylex();
33     printf("Number of Identifier = %d\n",i);
34     printf("Number of n(0-9) = %d\n",n);
35     printf("Number of Operator symbol = %d\n",op);
36     printf("Number of Special character = %d\n",sp);
37     printf("Number of Keyword = %d\n",key);
38     printf("Number of Whitespace = %d\n",wh);
39     printf("Number of Assignment symbol = %d\n",a);
40     fclose(fd);
41
42     return 0;
43 }
```

Output :

```
D:\STUDIES\SEM 5\CD\LAB\CODE\LAB 2>lex p3.1
D:\STUDIES\SEM 5\CD\LAB\CODE\LAB 2>gcc lex.yy.c
D:\STUDIES\SEM 5\CD\LAB\CODE\LAB 2>a.exe
Number of Identifier = 2
Number of n(0-9) = 3
Number of Operator symbol = 0
Number of Special character = 0
Number of Keyword = 2
Number of Whitespace = 5
Number of Assignment symbol = 2
```

input.txt - Notepad

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```
int x = 5
float num=289.67
```