

Compiler Design Lab Work

Date – 06.08.2021

Q1. Write a Lex program to distinguish between letter and digit

Code –

```
%{  
#define A 100  
%}  
WS [ \t]+  
letter [A-Za-z]  
digit [0-9]  
op_plus "+"  
  
%%  
{digit}+ {printf("Digit(s)");};  
{letter}+ {printf("Letter(s)");};  
%%  
  
int main() {  
    printf("Lab Work done by SAVITA NANDAN 2019UGCS055R\n");  
    yylex();  
}  
  
int yywrap(void) {  
    return 0;  
}
```

Output –

E:\Compiler Design Lab\lex.yy.exe

```
Lab Work done by SAVITA NANDAN 2019UGCS055R
qwe
Letter(s)
123
Digit(s)
ajdn
Letter(s)
as
Letter(s)
a
Letter(s)
1
Digit(s)
```

Date – 14.08.2021

Q1. Write a Lex program to check if input contain only alphabet

Code –

```
%{  
    int flag = 0;  
}%  
%%  
[\\n] {  
    (flag==0)?printf("Only alphabets present\\n"):  
    printf("Other characters are also present\\n");  
    flag = 0;  
}  
  
[^a-zA-Z] {flag = 1;}  
.  
}%  
  
int main() {  
    printf("Lab Work done by SAVITA NANDAN 2019UGCS055R\\n");  
    yylex();  
}  
  
int yywrap(void) {  
    return 0;  
}
```

Output –

```
E:\Compiler Design Lab\lex.yy.exe
Lab Work done by SAVITA NANDAN 2019UGCS055R
asd
Only alphabets present
AScfdg
Only alphabets present
123DF
Other characters are also present
Acshsj
Only alphabets present
123
Other characters are also present
78dfag
Other characters are also present
asbgSGdh
Only alphabets present
```

Q2. Write a Lex program to check if input contain only letters or digits or combination of both.

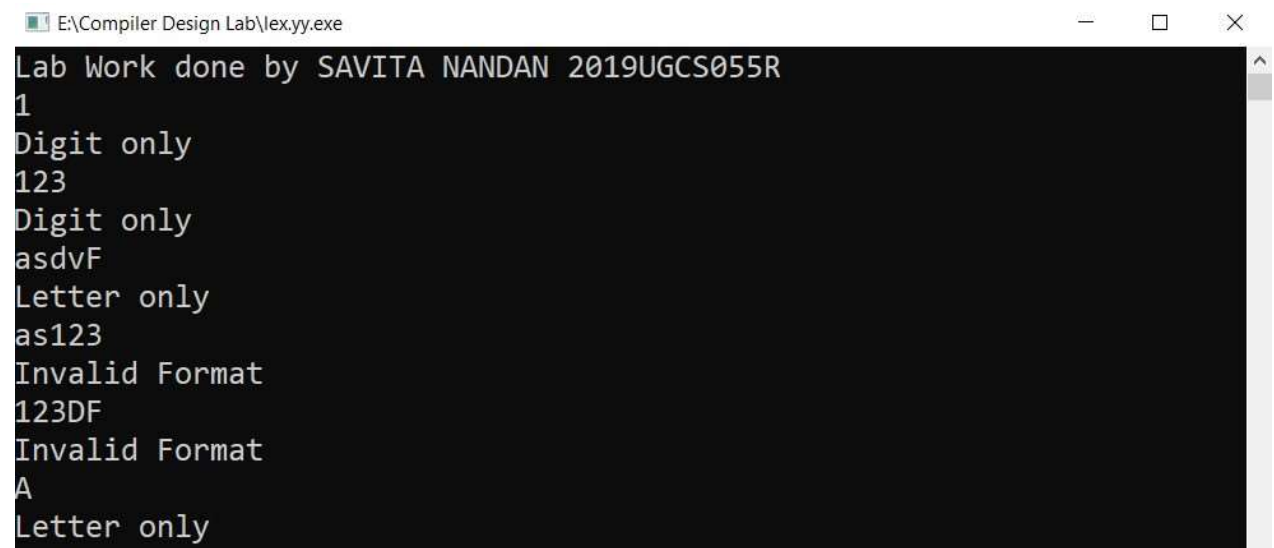
Code –

```
%{
#include<stdio.h>
#include<stdlib.h>
%}
%%
[0-9]+ {printf("Digit only");};
[A-Za-z]+ {printf("Letter only");};
^[A-Za-z]+|[0-9]+|[A-Za-z]+[0-9]*|[0-9]+[A-Za-z]* {printf("Invalid Format");};
%%
```

```
int main() {
    printf("Lab Work done by SAVITA NANDAN 2019UGCS055R\n");
    yylex();
}
```

```
int yywrap(void) {
    return 0;
}
```

Output –



```
E:\Compiler Design Lab\lex.yy.exe
Lab Work done by SAVITA NANDAN 2019UGCS055R
1
Digit only
123
Digit only
asdvF
Letter only
as123
Invalid Format
123DF
Invalid Format
A
Letter only
```

Q3. Write a Lex program to check whether the input is lower case or uppercase.

Code –

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

```
#include<stdlib.h>
```

```
%}
```

```
%%
```

```
[a-z]+ printf("LOWER CASE");
```

```
[A-Z]+ printf("UPPER CASE");
```

```
[A-Za-z]+ printf("Both case present");
```

```
. * {printf("Character other than alphabets.");}
```

```
%%
```

```
int main() {
```

```
    printf("Lab Work done by SAVITA NANDAN 2019UGCS055R\n");
```

```
    yylex();
```

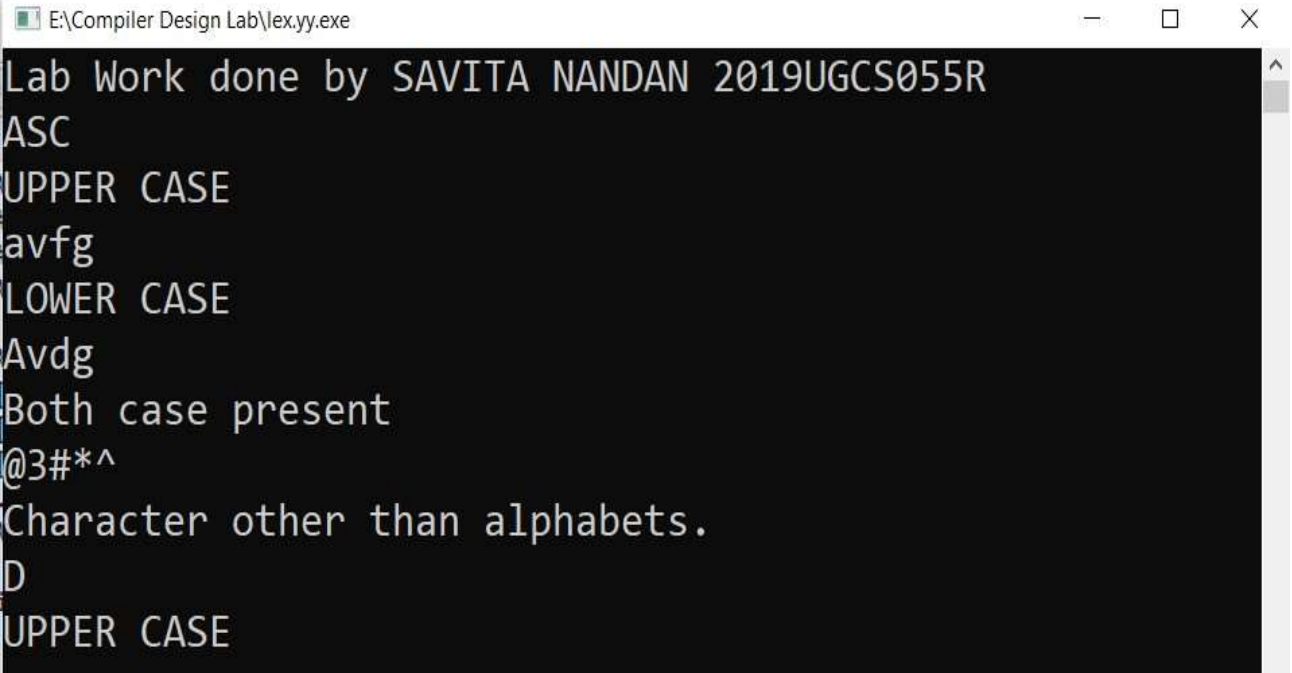
```
}
```

```
int yywrap(void) {
```

```
    return 0;
```

```
}
```

Output -



```
E:\Compiler Design Lab\lex.yy.exe
Lab Work done by SAVITA NANDAN 2019UGCS055R
ASC
UPPER CASE
avfg
LOWER CASE
Avdg
Both case present
@3#*^
Character other than alphabets.
D
UPPER CASE
```

Q4. Write a Lex program to check whether the input is digit or not

Code –

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

WS [ \t ]+
letter [A-Za-z]
digit [0-9]
op_plus "+"
```

%%

[0-9] printf("digit");

^[^0-9]|[0-9]*[a-zA-Z]*|[0-9]*|[a-zA-Z]*[0-9]* printf("not a digit");

.;

%%

int main() {

printf("Lab Work done by SAVITA NANDAN 2019UGCS055R\n");

yylex();

}

int yywrap(void) {

return 0;

}

Output –

E:\Compiler Design Lab\lex.yy.exe

```
Lab Work done by SAVITA NANDAN 2019UGCS055R
5
digit
3
digit
123
not a digit
as123
not a digit
56AX
not a digit
ndnnd
not a digit
```

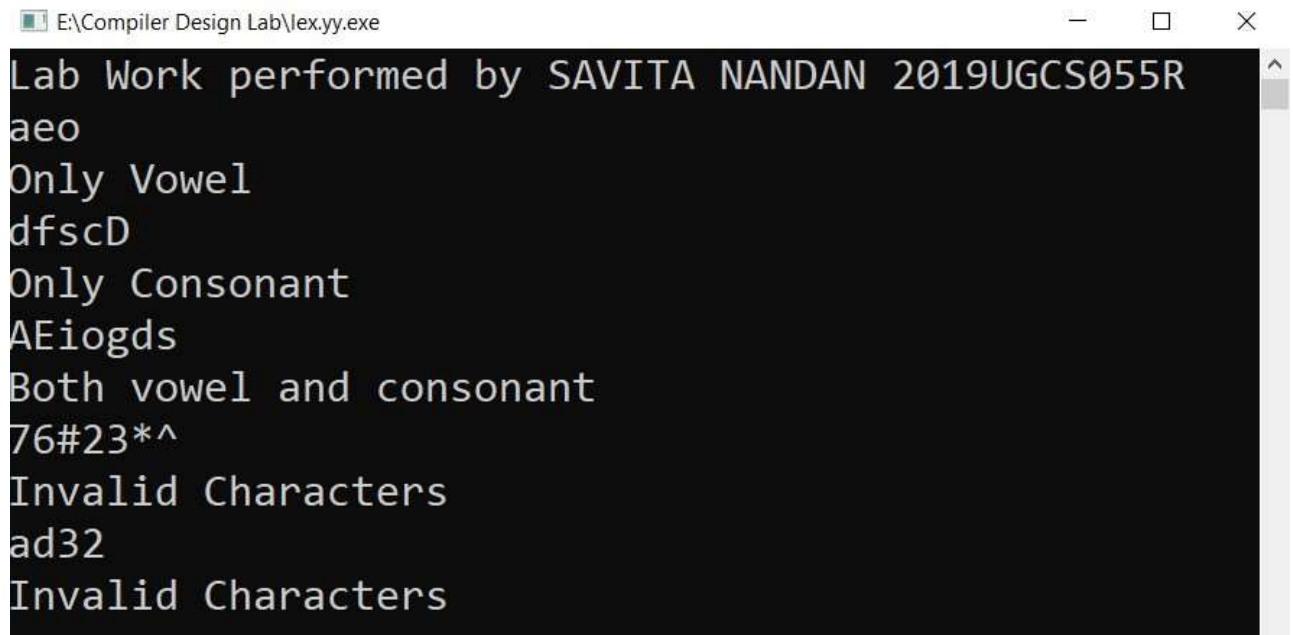

Date – 20.08.2021

Q1. Write a Lex program to identify vowel and consonant.

Code –

```
%{  
    //macros of C program  
}%  
  
consonant[b-df-hj-np-tv-zB-DF-HJ-NP-TV-Z]  
vowel[AEIOUaeiou]  
mixed[A-Za-z]  
  
%%  
  
{vowel}* {printf("Only Vowel");};  
{consonant}* {printf("Only Consonant");};  
{mixed}* {printf("Both vowel and consonant");};  
. * {printf("Invalid Characters");};  
  
%%  
  
int main() {  
    printf("Lab Work performed by SAVITA NANDAN 2019UGCS055R\n");  
    yylex();  
}  
  
int yywrap(void) {  
    return 0;  
}
```

Output –



```
E:\Compiler Design Lab\lex.yy.exe
Lab Work performed by SAVITA NANDAN 2019UGCS055R
aeo
Only Vowel
dfscD
Only Consonant
AEiogds
Both vowel and consonant
76#23*^
Invalid Characters
ad32
Invalid Characters
```

Q2. Write a Lex program to count number of characters in input.

Code –

```
%{
int charcount=0;
}%

%%
. {charcount++;};
\n {printf("Number of characters found: %d\n",charcount); charcount = 0;};
%%

int main() {
    printf("Lab Work performed by SAVITA NANDAN 2019UGCS055R\n");
    yylex();
}
```

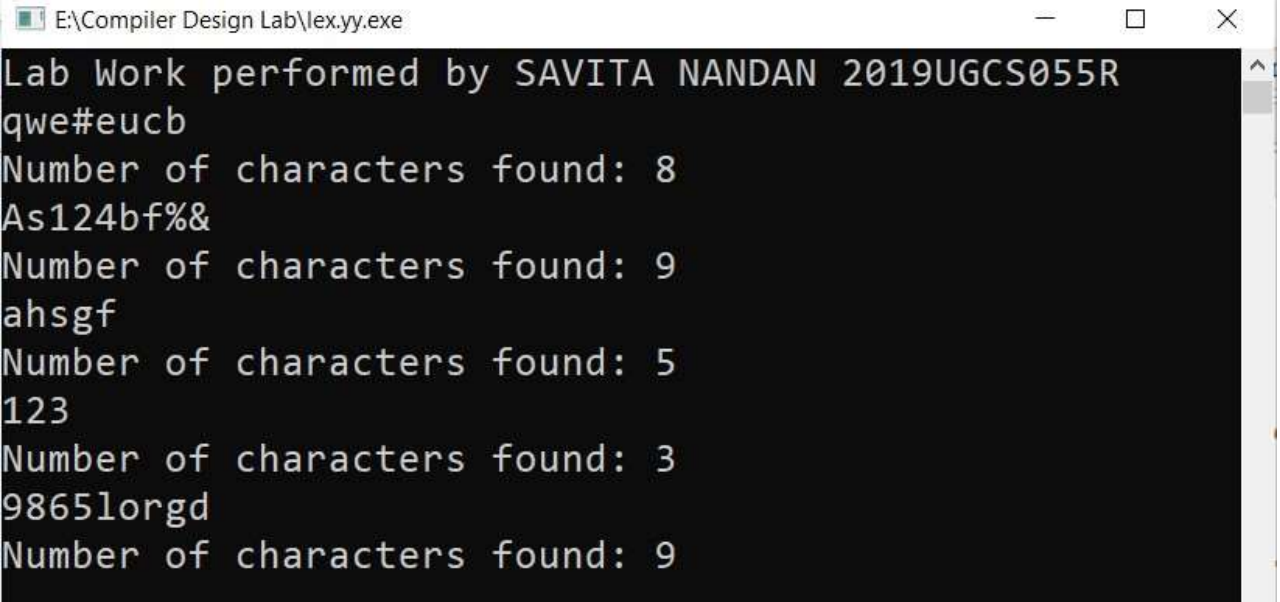
```

}

int yywrap(void) {
    return 0;
}

```

Output –



```

E:\Compiler Design Lab\lex.yy.exe
Lab Work performed by SAVITA NANDAN 2019UGCS055R
qwe#eucb
Number of characters found: 8
As124bf%&
Number of characters found: 9
ahsgf
Number of characters found: 5
123
Number of characters found: 3
98651orgd
Number of characters found: 9

```

Q3. Write a Lex program to count the number of vowels, consonant digits and whitespace in the input string.

Code –

```

%{
    int vow_count=0 , const_count=0 , white_space=0 , digit=0;
}%

%%

[aeiouAEIOU] {vow_count++;}
[b-df-hj-np-tv-zB-DF-HJ-NP-TV-Z] {const_count++;}
[0-9] {digit++;}

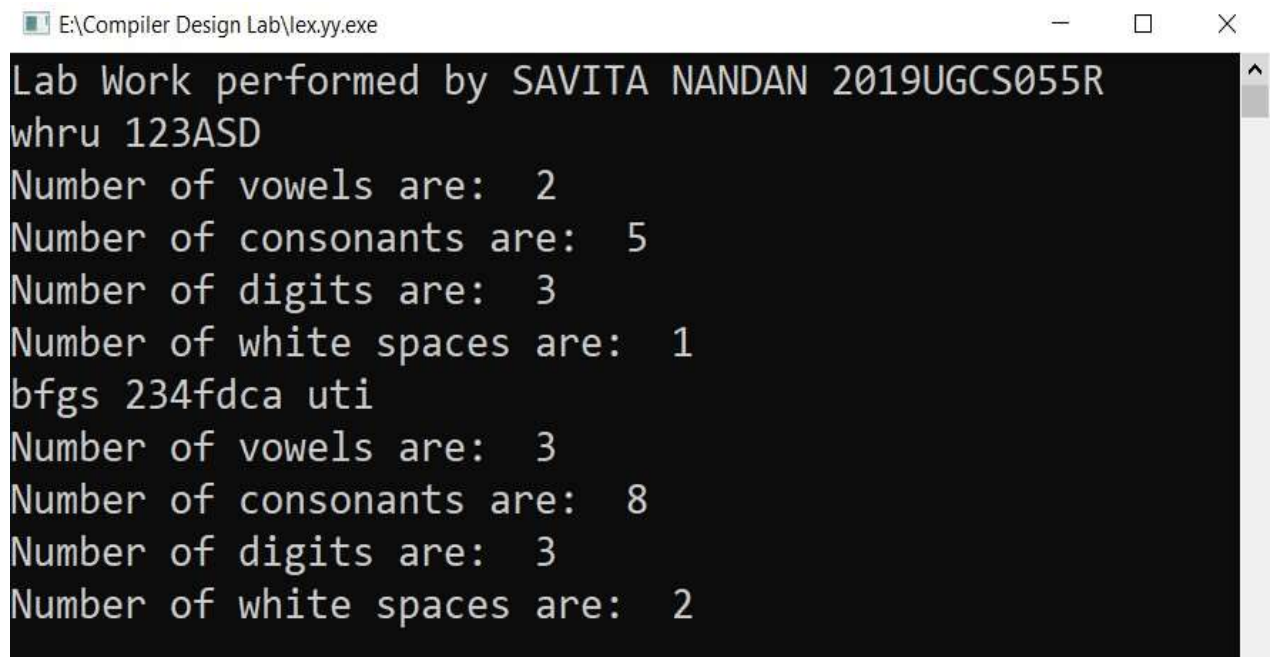
```

```

[] {white_space++;}
\n {printf("Number of vowels are: %d\n", vow_count);
    printf("Number of consonants are: %d\n", const_count);
    printf("Number of digits are: %d\n", digit);
    printf("Number of white spaces are: %d\n", white_space);
    vow_count=0,const_count=0,white_space=0,digit=0;};
%%
int yywrap({})
int main()
{
    printf("Lab Work performed by SAVITA NANDAN 2019UGCS055R\n");
    yylex();
    return 0;
}

```

Output –



```

E:\Compiler Design Lab\lex.yy.exe
Lab Work performed by SAVITA NANDAN 2019UGCS055R
whru 123ASD
Number of vowels are: 2
Number of consonants are: 5
Number of digits are: 3
Number of white spaces are: 1
bfgs 234fdca uti
Number of vowels are: 3
Number of consonants are: 8
Number of digits are: 3
Number of white spaces are: 2

```