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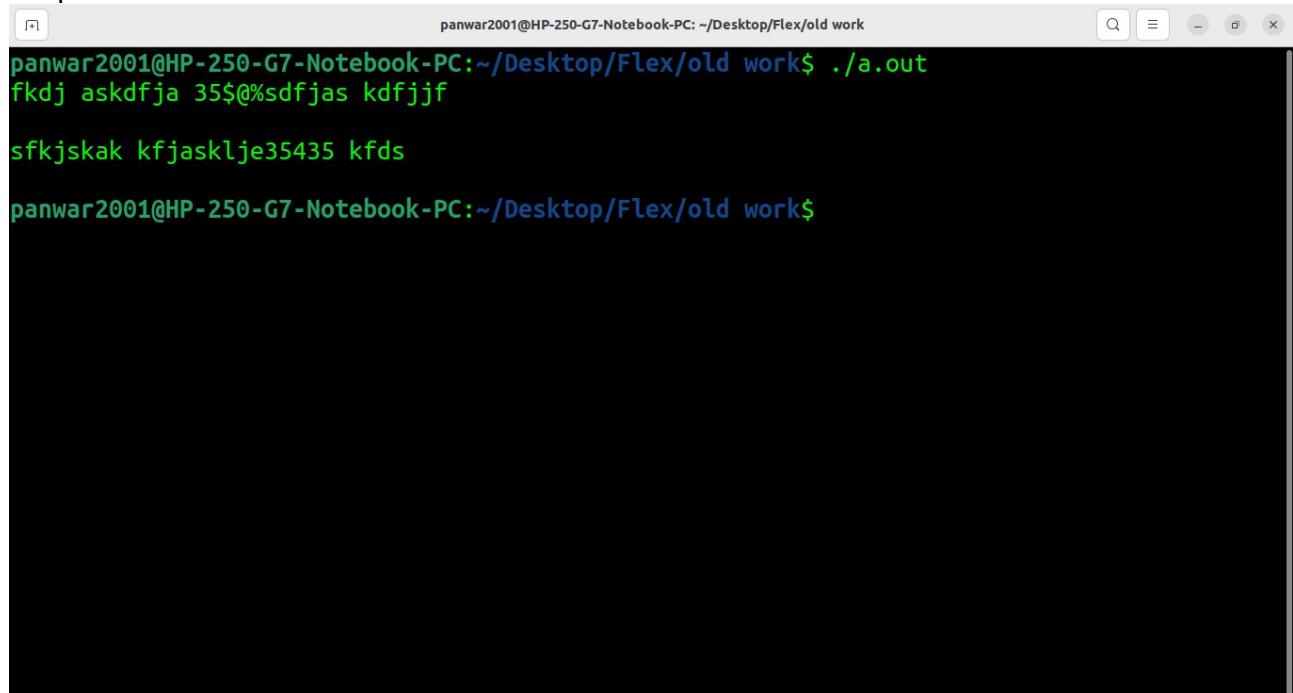
1. Design a lex code to count the number of words in the input pattern.

Code:

```
%{
#include<stdio.h>
int wordCount=0;
}%

%%
[ ]+ ;
[^ \t\n]+ {wordCount++;}
%%
int yywrap(){
int main(){
    yylex();
    printf("Number of words are %d",wordCount);
}
```

Output:



```
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/old work$ ./a.out
fkdf askdfja 35$@%sdfjas kdfjjf
3
sfkjskak kfjasklje35435 kfds
2
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/old work$
```

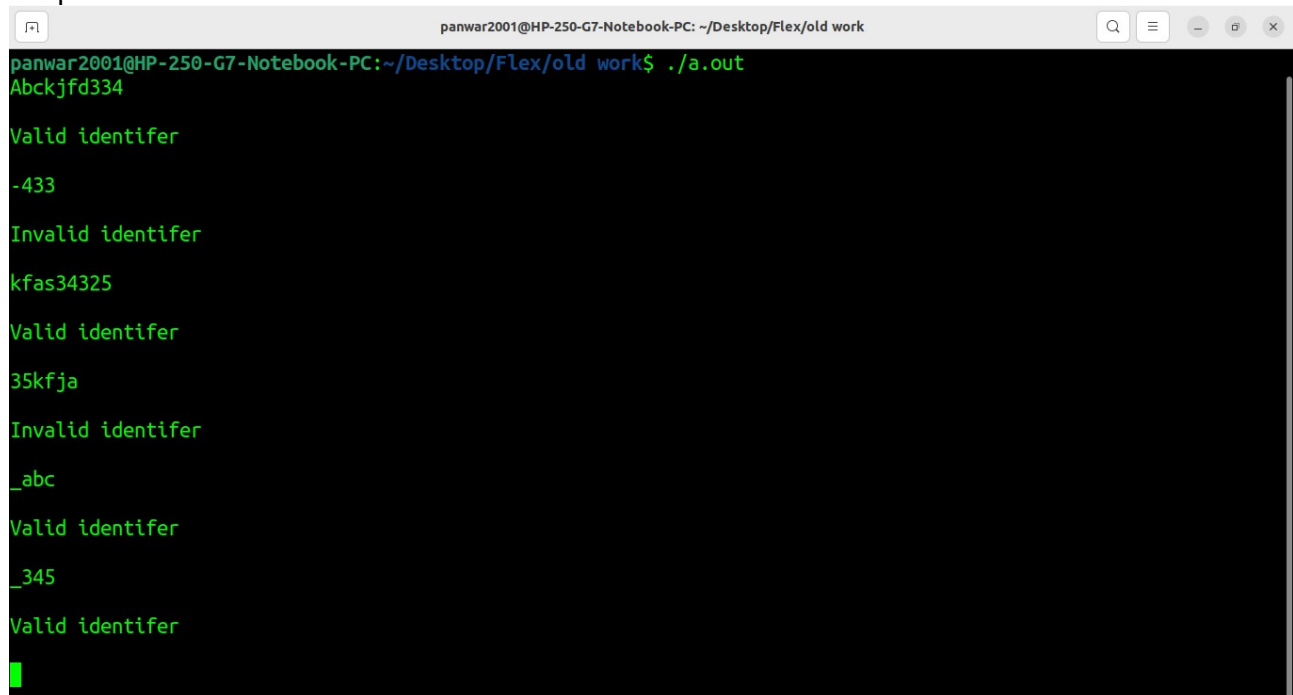
2. WAP in Lex to find a valid C identifier.

Code:

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

%%
^[a-zA-Z_][a-zA-Z0-9_]* { printf("\nValid identifier\n");}
.* { printf("\nInvalid identifier\n");}
%%
int yywrap();
int main(){
    yylex();
}
```

Output:



```
panwar2001@HP-250-G7-Notebook-PC: ~/Desktop/Flex/old work
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/old work$ ./a.out
Abckjfd334
Valid identifier
-433
Invalid identifier
kfas34325
Valid identifier
35kfja
Invalid identifier
_abc
Valid identifier
_345
Valid identifier
```

3. WAP in Lex to calculate number of alphabets, special characters and digits in a given stream of data.

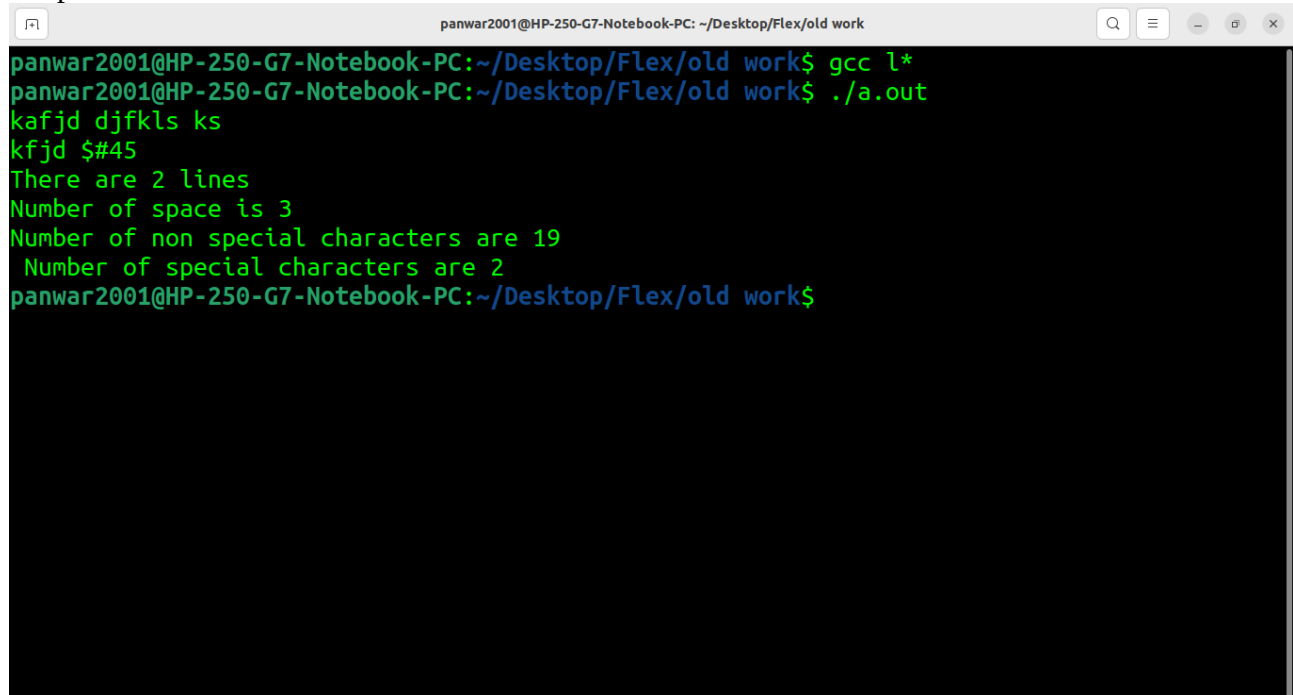
Code:

```
%{
#include<stdio.h>
int lineCount=0,spaceCount=0,nonSpecialCharacters=0,specialCharacters=0;
}%

%%
[\n] {lineCount++; }
[ ]+ {spaceCount++;}
[A-Za-z0-9] {nonSpecialCharacters++;}
[^A-Za-z0-9] {specialCharacters++;}
%%

int yywrap(){};
int main(){
    yylex();
    printf("There are %d lines \nNumber of space is %d \nNumber of non special characters are %d \n
Number of special characters are %d \n",lineCount,spaceCount,nonSpecialCharacters,specialCharacters);
}
```

Output:



```
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/old work$ gcc l*
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/old work$ ./a.out
kafjd djfkls ks
kafjd $#45
There are 2 lines
Number of space is 3
Number of non special characters are 19
Number of special characters are 2
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/old work$
```

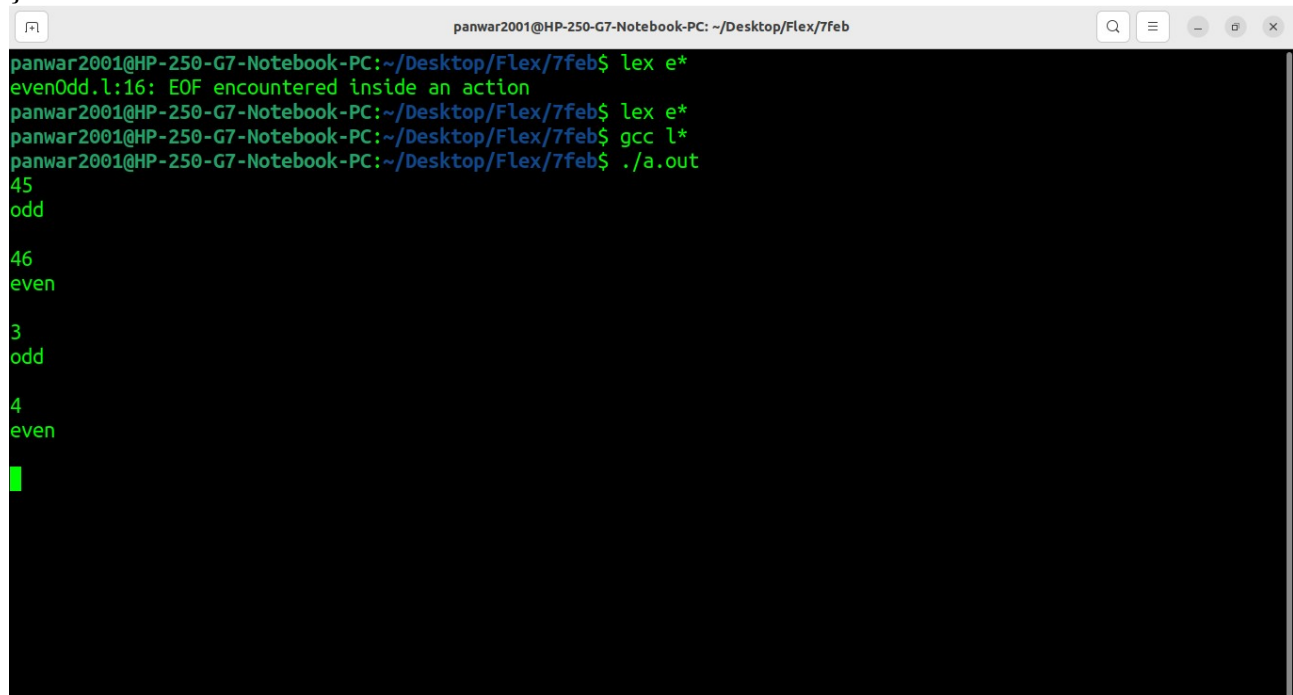
4. WAP in Lex to find if a number is even or odd.

Code:

```
%{
#include<stdio.h>
int longestStringLength=0;
int num;
}%

%%
^[+-]?[0-9]+ {num=atoi(yytext);num%2?printf("odd\n");printf("even\n");}
%%

int yywrap(){
int main(){
    yylex();
}
```



A terminal window titled "panwar2001@HP-250-G7-Notebook-PC: ~/Desktop/Flex/7feb" showing the following commands and output:

```
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/7feb$ lex e*
evenOdd.l:16: EOF encountered inside an action
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/7feb$ lex e*
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/7feb$ gcc l*
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/7feb$ ./a.out
45
odd

46
even

3
odd

4
even
```

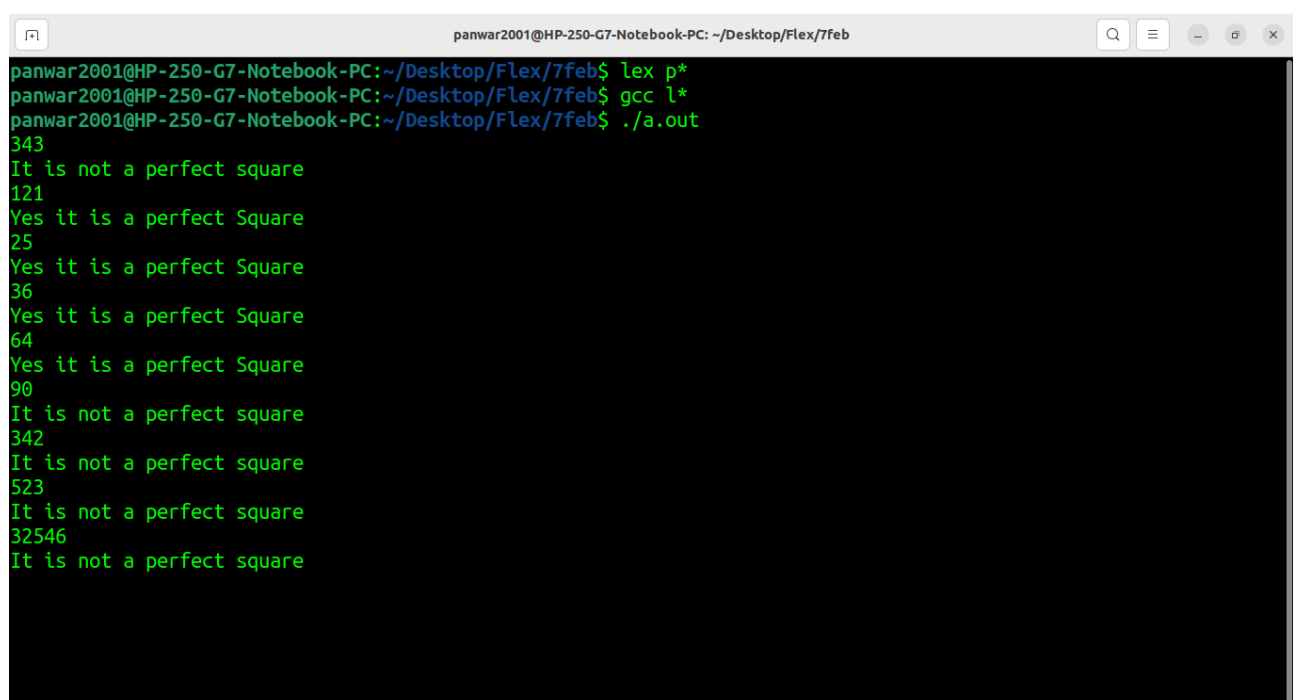
5. WAP in Lex to find if a number is perfect Square or not.

Code:

```
%{
#include<stdio.h>
int longestStringLength=0;
int num,isPerfectSquare=0;
}%

%%
[0-9]+ {num=atoi(yytext);
        for(int i=0;i<=num/2;i++){
            if(i*i==num){
                isPerfectSquare=1;
                break;
            }
        }
        if(isPerfectSquare==1){
            printf("Yes it is a perfect Square");
        }else{
            printf("It is not a perfect square");
        }
        isPerfectSquare=0;
    }
%%
int yywrap(){};
int main(){
    yylex();
}
```

Ouput:



```
panwar2001@HP-250-G7-Notebook-PC: ~/Desktop/Flex/7feb
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/7feb$ lex p*
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/7feb$ gcc l*
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/7feb$ ./a.out
343
It is not a perfect square
121
Yes it is a perfect Square
25
Yes it is a perfect Square
36
Yes it is a perfect Square
64
Yes it is a perfect Square
90
It is not a perfect square
342
It is not a perfect square
523
It is not a perfect square
32546
It is not a perfect square
```

6. WAP in Lex to find the length of longest string in a given stream of data.

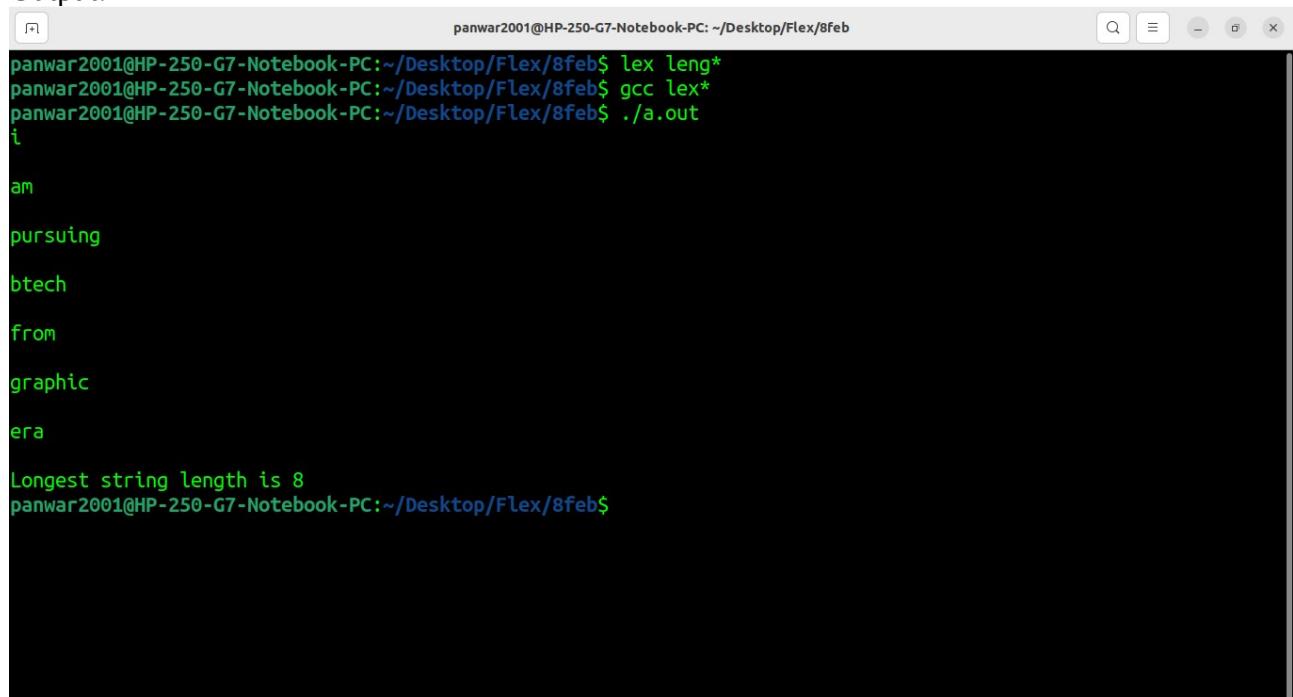
Code:

```
%{
#include<stdio.h>
int longestStringLength=0;
%}

%%
.* {longestStringLength=yyleng>longestStringLength?yyleng:longestStringLength;}
%%

int yywrap(){return 1;d};
int main(){
    yylex();
    printf("Longest string length is %d\n",longestStringLength);
}
```

Output:



```
panwar2001@HP-250-G7-Notebook-PC: ~/Desktop/Flex/8feb
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/8feb$ lex leng*
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/8feb$ gcc lex*
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/8feb$ ./a.out
am
pursuing
btech
from
graphic
era
Longest string length is 8
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/8feb$
```

7. WAP in Lex to check if the given input string has digits or not.

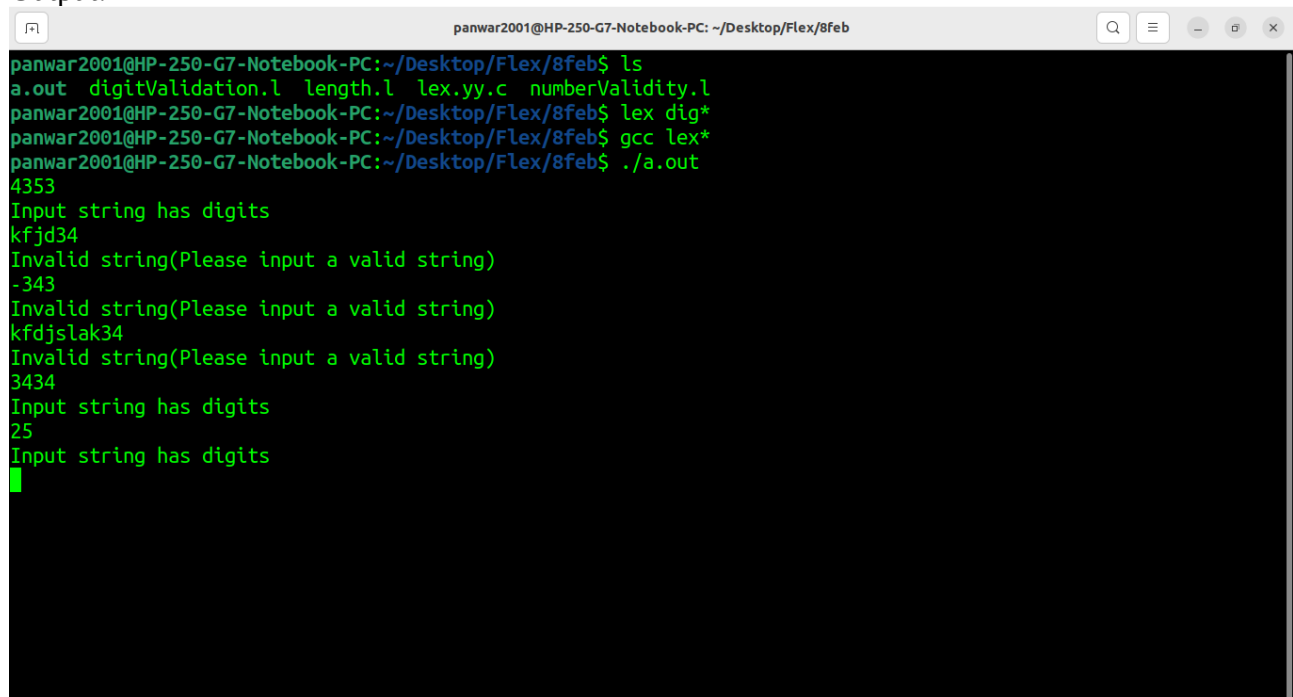
Code:

```
%{
#include<stdio.h>
int longestStringLength=0;
}%

%%
[0-9]+ {printf("Input string has digits");}
.* {printf("Invalid string(Please input a valid string)");}
%%

int yywrap(){};
int main(){
    yylex();
}
```

Output:



```
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/8feb$ ls
a.out digitValidation.l length.l lex.yy.c numberValidity.l
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/8feb$ lex dig*
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/8feb$ gcc lex*
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/8feb$ ./a.out
4353
Input string has digits
kfyjd34
Invalid string(Please input a valid string)
-343
Invalid string(Please input a valid string)
kfdj3lak34
Invalid string(Please input a valid string)
3434
Input string has digits
25
Input string has digits
```

8. WAP in Lex to check if the given input string is an Integer or a Floating point number.

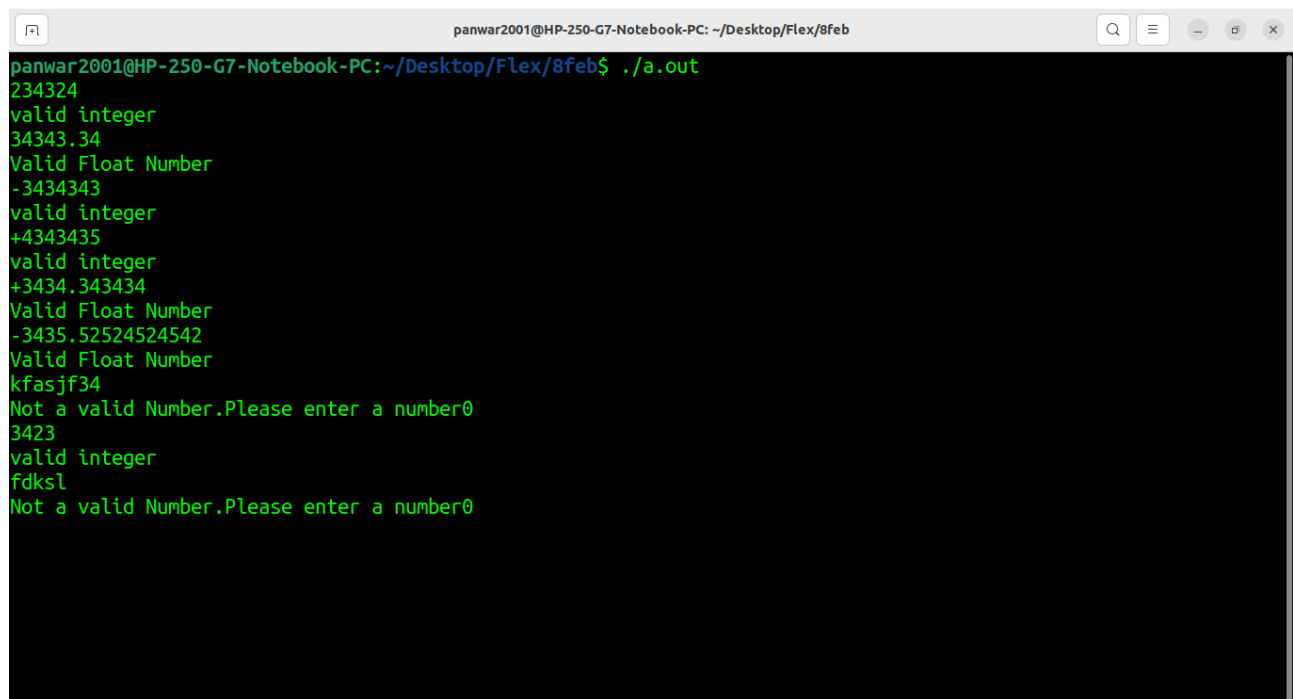
Code:

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

%%
^[+-]?[0-9]+$ {printf("valid integer");}
^[+-]?[0-9]*[.][0-9]+$ {printf("Valid Float Number");}
.* {printf("Not a valid Number.Please enter a number0");}
%%
```

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

Output:



```
panwar2001@HP-250-G7-Notebook-PC: ~/Desktop/Flex/8feb
panwar2001@HP-250-G7-Notebook-PC:~/Desktop/Flex/8feb$ ./a.out
234324
valid integer
34343.34
Valid Float Number
-3434343
valid integer
+4343435
valid integer
+3434.343434
Valid Float Number
-3435.52524524542
Valid Float Number
kfasj34
Not a valid Number.Please enter a number0
3423
valid integer
fdksl
Not a valid Number.Please enter a number0
```