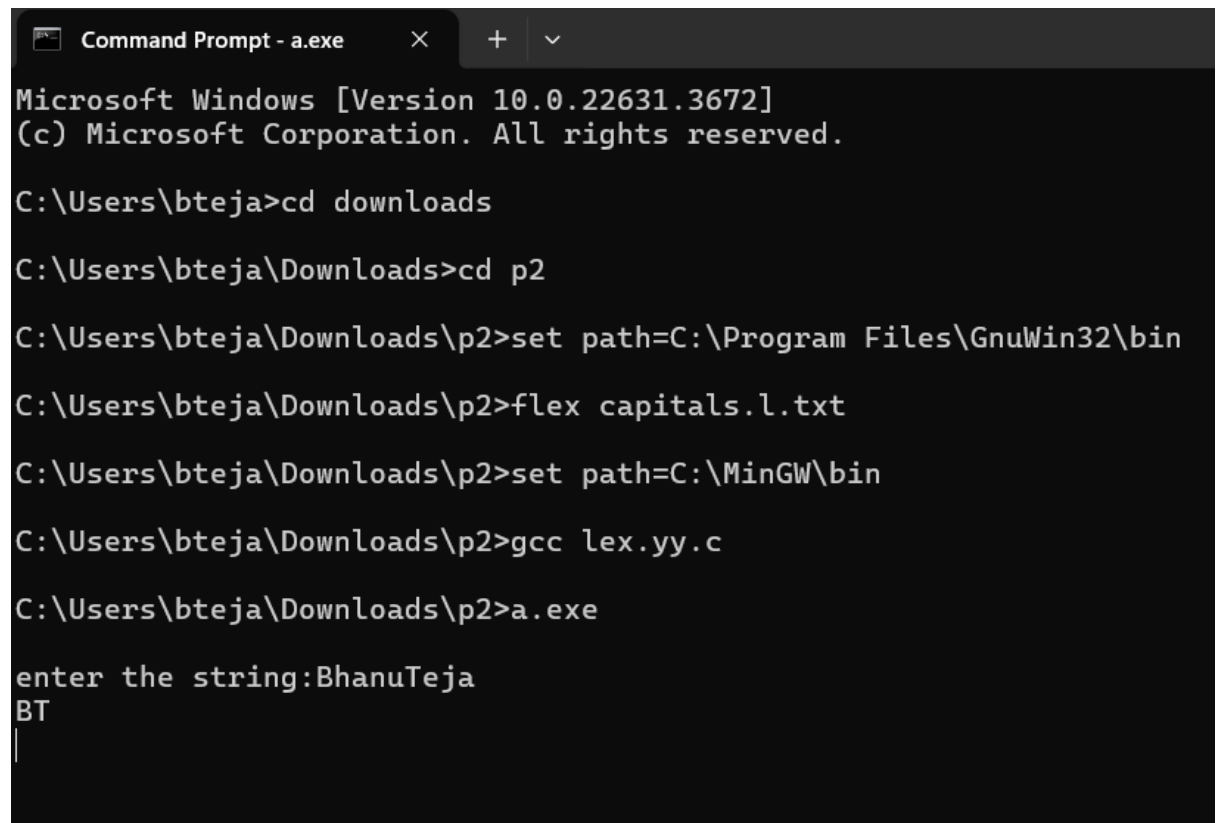


1. Write a LEX program to identify the capital words from the given input

**PROGRAM:**

```
%{
%}
%%
[A-Z] {printf("%c",yytext[0]);}
. {}
%%
int yywrap(){}
int main()
{
printf("\nenter the string:");
yylex();
}
```

**OUTPUT:**



```
Command Prompt - a.exe
Microsoft Windows [Version 10.0.22631.3672]
(c) Microsoft Corporation. All rights reserved.

C:\Users\bteja>cd downloads
C:\Users\bteja\Downloads>cd p2
C:\Users\bteja\Downloads\p2>set path=C:\Program Files\GnuWin32\bin
C:\Users\bteja\Downloads\p2>flex capitals.l.txt
C:\Users\bteja\Downloads\p2>set path=C:\MinGW\bin
C:\Users\bteja\Downloads\p2>gcc lex.yy.c
C:\Users\bteja\Downloads\p2>a.exe

enter the string:BhanuTeja
BT
|
```

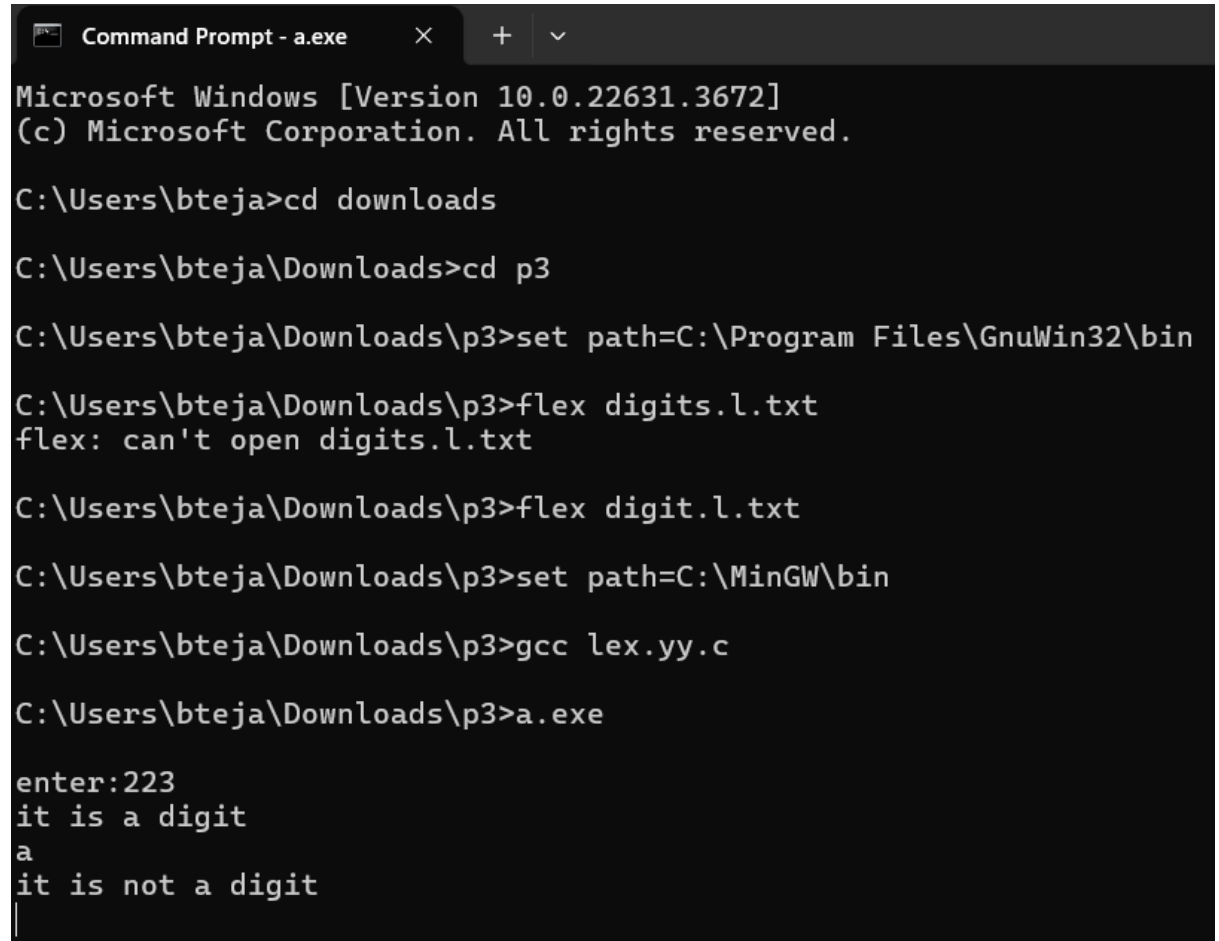
2. Write a LEX program to check whether the given input is digit or not

**PROGRAM:**

```
%{
%}
%%
[0-9]+ {printf("it is a digit");}
.+ {printf("it is not a digit");}
%%
int yywrap(){}
int main()
```

```
{
printf("\nenter:");
yylex();
}
```

### OUTPUT:



```
Command Prompt - a.exe
Microsoft Windows [Version 10.0.22631.3672]
(c) Microsoft Corporation. All rights reserved.

C:\Users\bteja>cd downloads
C:\Users\bteja\Downloads>cd p3
C:\Users\bteja\Downloads\p3>set path=C:\Program Files\GnuWin32\bin
C:\Users\bteja\Downloads\p3>flex digits.l.txt
flex: can't open digits.l.txt
C:\Users\bteja\Downloads\p3>flex digit.l.txt
C:\Users\bteja\Downloads\p3>set path=C:\MinGW\bin
C:\Users\bteja\Downloads\p3>gcc lex.yy.c
C:\Users\bteja\Downloads\p3>a.exe

enter:223
it is a digit
a
it is not a digit
|
```

3. The Company ABC runs with employees with several departments. The Organization manager had all the mobile numbers of employees. Assume that you are the manager and need to verify the valid mobile numbers because there may be some invalid numbers present. Implement a LEX program to check whether the mobile number is valid or not

### PROGRAM:

```
%%
[1-9][0-9]{9} {printf("\nmobile number is valide:");}
.+ {printf("\nmobile number is invalide:");}
%%
int main()
{
printf("enter the number:");
yylex();
return 0;
}
int yywrap()
```

**{}**  
**OUTPUT:**

```
Command Prompt - a.exe
Microsoft Windows [Version 10.0.22631.3672]
(c) Microsoft Corporation. All rights reserved.

C:\Users\bteja>cd downloads
C:\Users\bteja\Downloads>cd cd1
C:\Users\bteja\Downloads\cd1>set path=C:\Program Files\GnuWin32\bin
C:\Users\bteja\Downloads\cd1>flex mobile2.l.txt
C:\Users\bteja\Downloads\cd1>set path=C:\MinGW\bin
C:\Users\bteja\Downloads\cd1>gcc lex.yy.c
C:\Users\bteja\Downloads\cd1>a.exe
enter the number:7995813721

mobile number is valide:
79958137721

mobile number is invalide:
|
```

**4. In a class, an English teacher was teaching the vowels and consonants to the students. She says “Vowel sounds allow the air to flow freely, causing the chin to drop noticeably, whilst consonant sounds are produced by restricting the air flow”. As a class activity the students are asked to identify the vowels and consonants in the given word/sentence and count the number of elements in each. Write an algorithm to help the student to count the number of vowels and consonants in the given sentence.**

**PROGRAM:**

```
% {

int vow_count=0;

int const_count=0;

% }

%%

[aeiouAEIOU] {vow_count++;}

[a-zA-Z] {const_count++;}
```

```

%%

int yywrap(){}

int main()

{

printf("enter the string of vowels and consonents:");

yylex();

printf("number of vowels are:%d\n",vow_count);

printf("number of consonents are:%d\n",const_count);

return 0;

}

```

## OUTPUT:

```

Microsoft Windows [Version 10.0.22631.3672]
(c) Microsoft Corporation. All rights reserved.

C:\Users\bteja>cd downloads
C:\Users\bteja\Downloads>cd cd3
C:\Users\bteja\Downloads\cd3>set path=C:\Program Files\GnuWin32
C:\Users\bteja\Downloads\cd3>flex vowelconsonents.l.txt
'flex' is not recognized as an internal or external command,
operable program or batch file.
C:\Users\bteja\Downloads\cd3>set path=C:\Program Files\GnuWin32\bin
C:\Users\bteja\Downloads\cd3>flex vowelconsonents.l.txt
C:\Users\bteja\Downloads\cd3>set path=C:\MinGW\bin
C:\Users\bteja\Downloads\cd3>gcc lex.yy.c
C:\Users\bteja\Downloads\cd3>a.exe
enter the string of vowels and consonents:bhanuteja
^Z
number of vowels are:4
number of consonents are:5
C:\Users\bteja\Downloads\cd3>

```

## 6. Write a LEX program to identify and count positive and negative numbers

### PROGRAM:

```

%{

int positive_count = 0;

int negative_count = 0;

```

```

% }

DIGIT    [0-9]

SIGN     [-+]

%%

{SIGN}?{DIGIT}+    {

    int num = atoi(yytext);

    if (num > 0)

        positive_count++;

    else if (num < 0)

        negative_count++;

}

.\n      ; /* ignore any other characters */

%%

int yywrap() {

    return 1; // Indicate end of input

}

int main(int argc, char **argv) {

    yylex();

    printf("Positive numbers count: %d\n", positive_count);

    printf("Negative numbers count: %d\n", negative_count);

    return 0;

}

```

**OUTPUT:**

```
Command Prompt
Microsoft Windows [Version 10.0.22631.3737]
(c) Microsoft Corporation. All rights reserved.

C:\Users\bteja>cd downloads
C:\Users\bteja\Downloads>cd p12
C:\Users\bteja\Downloads\P12>set path=C:\Program Files\GnuWin32\bin
C:\Users\bteja\Downloads\P12>flex posneg.l.nxt
flex: can't open posneg.l.nxt
C:\Users\bteja\Downloads\P12>flex posneg.l.txt
C:\Users\bteja\Downloads\P12>set path=C:\MinGW\bin
C:\Users\bteja\Downloads\P12>gcc lex.yy.c
C:\Users\bteja\Downloads\P12>a.exe
+5
-2
^Z
Positive numbers count: 1
Negative numbers count: 1
C:\Users\bteja\Downloads\P12>
```

**7. Write a LEX program to recognise numbers and words in a statement. Pooja is a small girl of age 3 always fond of games. Due to the pandemic, she was not allowed to play outside. So her mother designs a gaming event by showing a flash card. Pooja has to separate the numbers in one list and words in another list shown in the flash card**

**PROGRAM:**

```
%{

#include <stdio.h>

#include <ctype.h>

void add_to_words_list(char *word);

void add_to_numbers_list(char *number);

}%

%%
```

```
[0-9]+(\\.[0-9]+)?    { add_to_numbers_list(yytext); }
```

```
[A-Za-z]+           { add_to_words_list(yytext); }
```

```
[ \\t\\n]+          { /* ignore whitespace */ }
```

```
.                  { /* ignore other characters */ }
```

```
% %
```

```
void add_to_words_list(char *word) {
```

```
    printf("Word: %s\\n", word);
```

```
}
```

```
void add_to_numbers_list(char *number) {
```

```
    printf("Number: %s\\n", number);
```

```
}
```

```
int yywrap() {
```

```
    return 1;
```

```
}
```

```
int main() {
```

```
    yylex();
```

```
    return 0;
```

```
}
```

**OUTPUT:**

```

C:\Users\bteja\Downloads>cd p13
C:\Users\bteja\Downloads\P13>set path=C:\Program Files\GnuWin32\bin
C:\Users\bteja\Downloads\P13>flex word.l.txt
C:\Users\bteja\Downloads\P13>set path=C:\MinGW\bin
C:\Users\bteja\Downloads\P13>gcc lex.yy.c
C:\Users\bteja\AppData\Local\Temp\ccqcpfNM.o:lex.yy.c:(.text+0x2dc): undefined reference to `yywrap'
C:\Users\bteja\AppData\Local\Temp\ccqcpfNM.o:lex.yy.c:(.text+0x9da): undefined reference to `yywrap'
collect2.exe: error: ld returned 1 exit status

C:\Users\bteja\Downloads\P13>set path=C:\Program Files\GnuWin32\bin
C:\Users\bteja\Downloads\P13>flex word.l.txt
C:\Users\bteja\Downloads\P13>set path=C:\MinGW\bin
C:\Users\bteja\Downloads\P13>gcc lex.yy.c
C:\Users\bteja\Downloads\P13>a.exe
pooja is a small girl
Word: pooja
Word: is
Word: a
Word: small
Word: girl
pooja is a small girl and her age is 3
Word: pooja
Word: is
Word: a
Word: small
Word: girl
Word: and
Word: her
Word: age
Word: is
Number: 3

```

**6. Keywords are predefined, reserved words used in programming that have special meanings to the compiler. Keywords are part of the syntax and they cannot be used as an identifier. In general there are 32 keywords. The prime function of Lexical Analyser is token Generation. Among the 6 types of tokens, differentiating Keyword and Identifier is a challenging issue. Thus write a LEX program to separate keywords and identifiers**

#### **PROGRAM:**

```

% {

% }

%%

[a-zA-Z][a-zA-Z0-9]+ {printf("\n is identifier",yytext);}

.+ {printf("\n%s is Keyword",yytext);}

%%

int yywrap(){ }

```



```

int main()

{

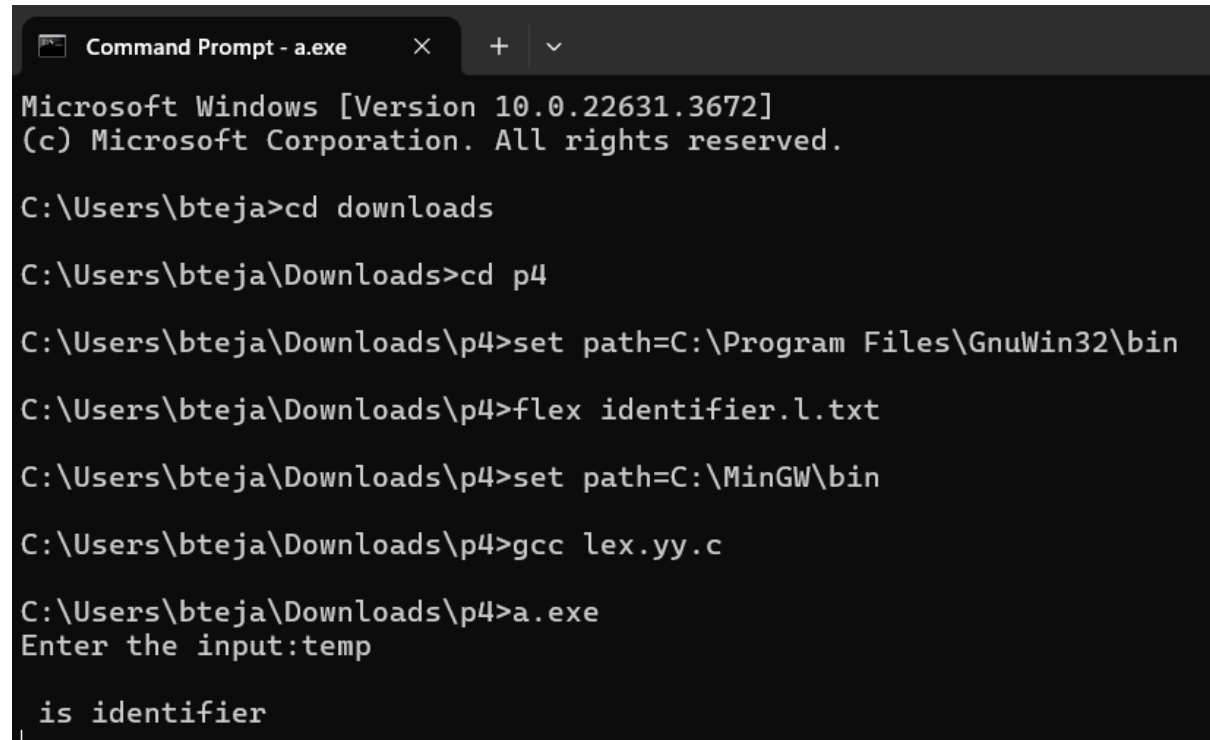
printf("Enter the input:");

yylex();

}

```

## OUTPUT:



```

Microsoft Windows [Version 10.0.22631.3672]
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C:\Users\bteja>cd downloads
C:\Users\bteja\Downloads>cd p4
C:\Users\bteja\Downloads\p4>set path=C:\Program Files\GnuWin32\bin
C:\Users\bteja\Downloads\p4>flex identifier.l.txt
C:\Users\bteja\Downloads\p4>set path=C:\MinGW\bin
C:\Users\bteja\Downloads\p4>gcc lex.yy.c
C:\Users\bteja\Downloads\p4>a.exe
Enter the input:temp

is identifier

```

**7. Write a LEX program to accept string starting with vowel.**

## PROGRAM:

```

%{

%}

%%

[aeiouAEIOU][a-zA-Z0-9]+ {printf("string is accepted");}

.+ {printf("string is not accepted");}

%%

int yywrap(){}

```

```
int main()

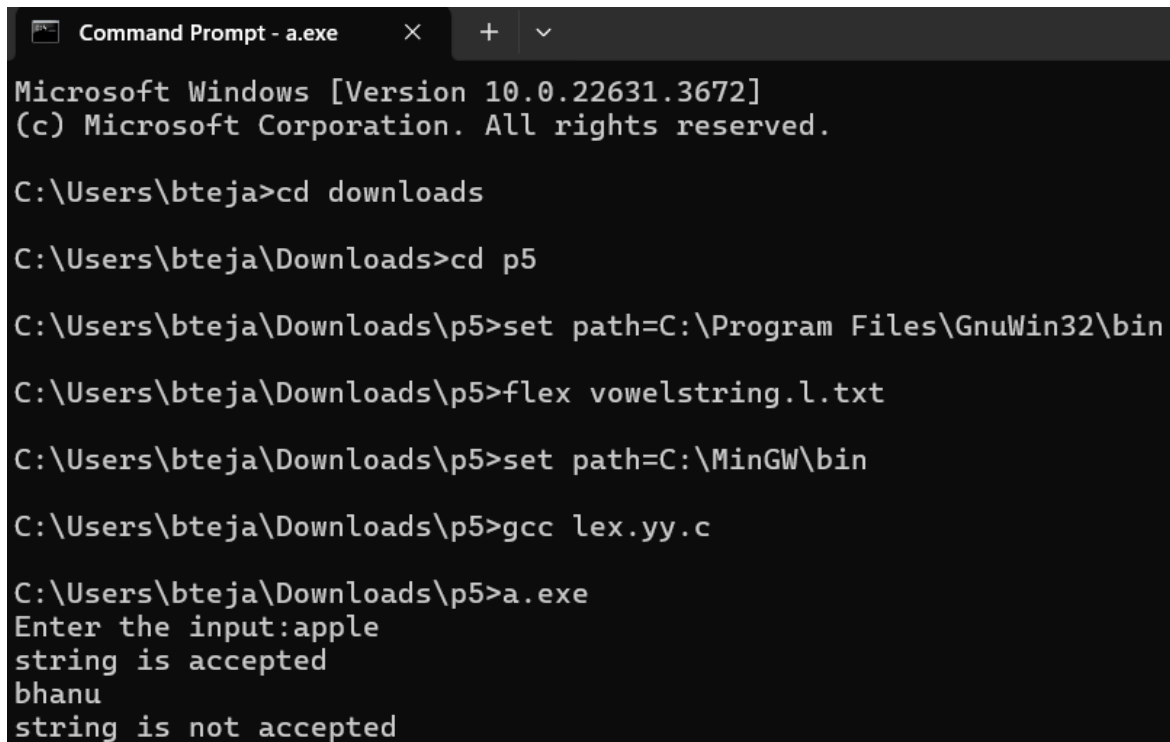
{

printf("Enter the input:");

yylex();

}
```

## OUTPUT:



```
Microsoft Windows [Version 10.0.22631.3672]
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C:\Users\bteja>cd downloads
C:\Users\bteja\Downloads>cd p5
C:\Users\bteja\Downloads\p5>set path=C:\Program Files\GnuWin32\bin
C:\Users\bteja\Downloads\p5>flex vowelstring.l.txt
C:\Users\bteja\Downloads\p5>set path=C:\MinGW\bin
C:\Users\bteja\Downloads\p5>gcc lex.yy.c
C:\Users\bteja\Downloads\p5>a.exe
Enter the input:apple
string is accepted
bhanu
string is not accepted
```