27-09-2023 COMPILER DESIGN SACHIN RAGHUL T

LAB - 04 2019103573

IMPLEMENTATION OF LEXICAL ANALYSER USING LEX:

1. Write a lex program that replaces the substring abc by ABC from the given input string.

```
%option noyywrap
%{
  #include<stdio.h>
  int flag=0;
%}

%%
(abc) {
    printf("ABC");
    flag++;
}
. {
   printf("%s", yytext);
}
%%

int main()
{
   yylex();
   if(flag>0) {
     printf("\n %d number of instances it has been changed\n",
                                                    flag);
   }
   else{
     printf("No substring match\n");
   }
    return 0;
}
```

OUTPUT:

```
./abc
Hello a for apple abc are words of abcdef

2 number of instances it has been changed.
```

2. Write a lex program to identify whether a given well formedness of bracket.

```
%option noyywrap
%{
    #include<stdio.h>
    int left=0, right=0, line=1;
%}

%%
"(" {left++;}
")" {right++;}

[\n] {
    if(left==right){
      printf("The line no. %d has no missing parantesis", line);
    }else if(left<right){
      printf("The line no. %d has extra ) or missing (", line);
    }else if(left>right){
      printf("The line no. %d has missing ) or extra (", line);
    }

    left=0;
    right=0;
    line++;
}
%%
int main()
{
  yylex();
  return 0;
}
```

OUTPUT:

```
(())()((((()))))
()(((()
```

The line no. 1 has no missing parameter.
Error. The line no 2 has missing ) or extra ( parameter.

3. Write a lex program of finding vowels and consonant in a string.

```
%option noyywrap
%{
  #include <stdio.h>
  int vow=0, cons=0;
%}
%%
[aeiouAEIOU] {vow++;}
[a-zA-Z] {cons++;}
[\n] {
  printf("There are %d vowels and %d consonants
          in line ~~no.~~ %d\n", vow, cons);
  vow=0;
  cons=0;
}
%%
int main()
{
  yylex();
  return 0;
}
```

OUTPUT:

```
Hello world
There are 3 vowels and 7 consonants in the line.
Sachin Raghul
There are 4 vowels and 8 consonants in the line
```

4. Write a lex program to finding the capital letter in given input string.

```
%option noyywrap
%{
  #include<stdio.h>
%}
%%
[A-Z] { printf("%s",yytext); }
. ;
%%
int main()
{
  yylex();
  Printf("\n Are the capital letters in given input \n");
  return 0;
}
```

OUTPUT:

```
Compiler Design
C, D
College of Engineering, Guindy
C, E, G
```