OBJECTIVE-5

AIM:-Write a program in 'C' to recognize the following tokens and display the
message with the token name :
i. Identifiers: A string starting with an underscore or a letter
and followed by any number of underscores, letters and
digits . Identifiers with two leading underscores(__) are
disallowed.
ii. Keywords: short ,sizeof,int, float, double, bool, char,
signed, unsigned, for, while, do, return, struct,const, void,
switch, break, case, continue, goto, long ,static,
union,default
iii. Signed and unsigned Integer constants: 12, 0, 3456, +56, -
234 etc.
iv. Signed and unsigned Floating-point constant: 1.2, 4.25, -
0.35 etc.
v. Arithmetic operators: +, -, *, /, %, ++, --
vi. Assignment operators: =, +=, -=, *=, /=
vii. Relational operators: <,>, <=, >=, ==
viii. Special symbols: ; ( ) ,(comma) [ ] { }

```
%{
#include<stdio.h>
%}
KEYWORD
"short"|"sizeof"|"int"|"float"|"double"|"bool|char"|"signed"|"unsigned"|"if"|"for"|"while"|"do"|"
return"|"struct"|"const"|"void"|"switch"|"break"|"case"|"continue"|"long"|"goto"|"static"|"uni
on"|"default"
IDENTIFIER [a-zA-Z_][a-zA-Z0-9_]*
SIGNED_INT [+-]+[0-9]+
UNSIGNED_INT [0-9]+
SIGNED_FLOAT [+-]+[0-9]*"."[0-9]+
UNSIGNED_FLOAT [0-9]*"."[0-9]+
ARITHMETIC_OP "+"|"-"|"*"|"/"|"%"|"++"|"--"
ASSIGNMENT_OP "="|"+="|"-="|"/="|"*="|"%="
REL_OP "<"|">"|"<="|">="|"=="|"!="
```

```
SP_SYMBOL [\[\](){}|,;]
%%
[ \n\t]+;
{KEYWORD} {printf("%s\t==> KEYWORDS\n",yytext);}
{IDENTIFIER} {printf("%s\t==> IDENTIFIER\n",yytext);}
{SIGNED_INT} {printf("%s\t==> SIGNED INTEGER\n",yytext);}
{UNSIGNED_INT} {printf("%s\t==> UNSIGNED INTEGER\n",yytext);}
{SIGNED_FLOAT} {printf("%s\t==> SIGNED FLOAT\n",yytext);}
{UNSIGNED_FLOAT} {printf("%s\t==> UNSIGNED FLOAT\n",yytext);}
{ARITHMETIC_OP} {printf("%s\t==> ARITHMETIC OPERATOR\n",yytext);}
{ASSIGNMENT_OP} {printf("%s\t==> ASSIGNMENT OPERATOR\n",yytext);}
{REL_OP} {printf("%s\t==> RELATIONAL OPERATOR\n",yytext);}
{SP_SYMBOL} {printf("%s\t==> SPECIAL SYMBOL\n",yytext);}
.;
%%
int main()
{
printf("Enter the input string:-");
yylex();
}
int yywrap()
{
return 1;
}
```

OUTPUT-

```
Microsoft Windows [Version 10.0.19041.867]
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C:\Users\hp>cd Onedrive

C:\Users\hp\OneDrive>cd Desktop

C:\Users\hp\OneDrive\Desktop>cd Flex Programs

C:\Users\hp\OneDrive\Desktop\Flex Programs>flex tokens.l

C:\Users\hp\OneDrive\Desktop\Flex Programs>gcc lex.yy.c

C:\Users\hp\OneDrive\Desktop\Flex Programs>a.exe
Enter the input string:-int a=10; float b=-2.5 ,c=a+b; d=3.6 f=+9 if f==b{} else {a>=c printf(++)
int     ==> KEYWORDS
 a      ==> IDENTIFIER
=       ==> ASSIGNMENT OPERATOR
10      ==> UNSIGNED INTEGER
;       ==> SPECIAL SYMBOL
 float  ==> KEYWORDS
 b      ==> IDENTIFIER
=       ==> ASSIGNMENT OPERATOR
-2.5    ==> SIGNED FLOAT
 ,      ==> SPECIAL SYMBOL
c       ==> IDENTIFIER
=       ==> ASSIGNMENT OPERATOR
a       ==> IDENTIFIER
+       ==> ARITHMETIC OPERATOR
 d      ==> IDENTIFIER
=       ==> ASSIGNMENT OPERATOR
3.6     ==> UNSIGNED FLOAT
 f      ==> IDENTIFIER
=       ==> ASSIGNMENT OPERATOR
+9      ==> SIGNED INTEGER
 if     ==> KEYWORDS
 f      ==> IDENTIFIER
==      ==> RELATIONAL OPERATOR
b       ==> IDENTIFIER
{       ==> SPECIAL SYMBOL
}       ==> SPECIAL SYMBOL
 else   ==> IDENTIFIER
 {      ==> SPECIAL SYMBOL
a       ==> IDENTIFIER
>=      ==> RELATIONAL OPERATOR
c       ==> IDENTIFIER
 printf ==> IDENTIFIER
(       ==> SPECIAL SYMBOL
++      ==> ARITHMETIC OPERATOR
)       ==> SPECIAL SYMBOL
```

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