LEXICAL ANALYZER

EX. NO. 1

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AIM: To write a program to implement a lexical analyzer.

ALGORITHM:

1. Start.
2. Get the input program from the file prog.txt.
3. Read the program line by line and check if each word in a line is a keyword, identifier, constant or an operator.
4. If the word read is an identifier, assign a number to the identifier and make an entry into the symbol table stored in sybol.txt.
5. For each lexeme read, generate a token as follows:

a. If the lexeme is an identifier, then the token generated is of the form <id, number>

b. If the lexeme is an operator, then the token generated is <op, operator>.

c. If the lexeme is a constant, then the token generated is <const, value>.

d. If the lexeme is a keyword, then the token is the keyword itself.

6. The stream of tokens generated are displayed in the console output.
7. Stop.

PROGRAM:

```
file  = open("add.c", 'r')
lines = file.readlines()

keywords    = ["void", "main", "int", "float", "bool", "if", "for", "else", "while", "char", "return"]
operators   = ["=", "==", "+", "-", "*", "/", "++", "--", "+=", "-=", "!=", "||", "&&"]
punctuations= [";", "(", ")", "{", "}", "[", "]"]

def is_int(x):
    try:
```

```
        int(x)
        return True
    except:
        return False

for line in lines:
    for i in line.strip().split(" "):
        if i in keywords:
            print (i, " is a keyword")
        elif i in operators:
            print (i, " is an operator")
        elif i in punctuations:
            print (i, " is a punctuation")
        elif is_int(i):
            print (i, " is a number")
        else:
            print (i, " is an identifier")
```

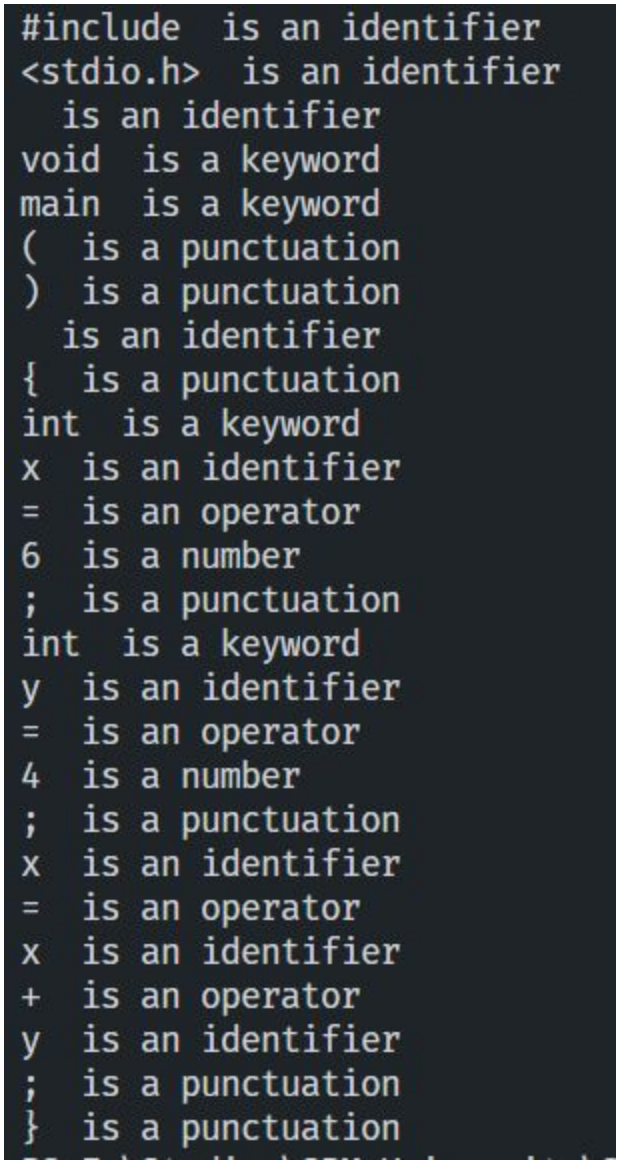
INPUT :

```
#include <stdio.h>

void main ( )

{
   int x = 6 ;
   int y = 4 ;
   x = x + y ;
}
```

OUTPUT :



RESULT :

The implementation of lexical analyser in C++ was compiled, executed and verified successfully.