# Program 1

Develop a lexical Analyzer to identify identifiers, constants, operators using C program.

program

#include <stdio.h>

#include <ctype.h>

#include <string.h>

#define MAX\_LEN 100

int isOperator(char ch) {

char operators[] = "+-\*/%=";

for (int i = 0; i < strlen(operators); i++) {

if (ch == operators[i]) return 1;

}

return 0;

}

int isKeyword(char \*str) {

char \*keywords[] = {"int", "float", "char", "double", "if", "else", "for", "while", "return"};

for (int i = 0; i < 9; i++) {

if (strcmp(str, keywords[i]) == 0) return 1;

}

return 0;

}

int isConstant(char \*str) {

for (int i = 0; i < strlen(str); i++) {

if (!isdigit(str[i])) return 0;

}

return 1;

}

void lexicalAnalyzer(char \*input) {

char buffer[MAX\_LEN];

int i = 0;

int length = strlen(input);

printf("Lexical Analysis:\n");

for (int j = 0; j < length; j++) {

char ch = input[j];

if (isOperator(ch)) {

printf("Operator: %c\n", ch);

}

else if (isspace(ch) || ch == '\n') {

if (i != 0) {

buffer[i] = '\0';

i = 0;

if (isKeyword(buffer))

printf("Keyword: %s\n", buffer);

else if (isConstant(buffer))

printf("Constant: %s\n", buffer);

else

printf("Identifier: %s\n", buffer);

}

}

else {

buffer[i++] = ch;

}

}

if (i != 0) {

buffer[i] = '\0';

if (isKeyword(buffer))

printf("Keyword: %s\n", buffer);

else if (isConstant(buffer))

printf("Constant: %s\n", buffer);

else

printf("Identifier: %s\n", buffer);

}

}

int main() {

char input[MAX\_LEN];

printf("Enter the source code (single line): ");

fgets(input, MAX\_LEN, stdin);

lexicalAnalyzer(input);

return 0;

}

