16. Write a C Program to Generate the Three address code representation for the given input statement.

CODE:

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

int temp\_var\_count = 0;

char temp\_var[3];

void new\_temp\_var() {

sprintf(temp\_var, "t%d", temp\_var\_count++);

}

void generate\_TAC(char \*input) {

char \*token;

char operands[3][10];

int op\_count = 0;

token = strtok(input, " ");

while (token != NULL) {

if (strcmp(token, "=") != 0 && strcmp(token, "+") != 0 && strcmp(token, "\*") != 0) {

strcpy(operands[op\_count++], token);

}

token = strtok(NULL, " ");

}

// Generate TAC for multiplication

new\_temp\_var();

printf("%s = %s \* %s\n", temp\_var, operands[2], operands[3]);

// Generate TAC for addition

new\_temp\_var();

printf("%s = %s + %s\n", temp\_var, operands[1], temp\_var\_count == 1 ? operands[3] : temp\_var);

// Generate TAC for assignment

printf("%s = %s\n", operands[0], temp\_var);

}

int main() {

char input[] = "a = b + c \* d"; // Example input statement

generate\_TAC(input);

return 0;

}

