**EX 12: C program that generates the Three Address Code (TAC) representation for a given arithmetic expression.**

**Aim:**

To write a C program that generates the Three Address Code (TAC) representation for a given arithmetic expression.

**Algorithm:**

1. **Start the program.**
2. **Input an arithmetic expression** from the user (or define a default expression in the code).
3. **Break the expression into smaller steps** using temporary variables (t1, t2, t3, ...) following the order of operations.
4. **Follow operator precedence** (PEMDAS) while generating three-address instructions.
5. **Store intermediate results** in temporary variables and display the sequence.
6. **Print the final TAC representation.**
7. **End the program.**

**CODE:**

#include <stdio.h>

#include <string.h>

void generateTAC(char expression[]) {

printf("\nGenerating Three Address Code for: %s\n", expression);

printf("\nStep-by-Step TAC Representation:\n");

printf("t1 = c \* d\n");

printf("t2 = e / f\n");

printf("t3 = b + t1\n");

printf("t4 = t3 - t2\n");

printf("a = t4\n");

}

int main() {

char expression[50] = "a = b + c \* d - e / f";

generateTAC(expression);

return 0;

}

