

EXPERIMENT-16

AIM:

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

PROGRAM:

The screenshot shows the Dev-C++ IDE interface. The main window displays the source code EXP_3.cpp. The code implements three steps to handle an expression: 1) It processes multiplication (*). 2) It handles addition (+) by resetting temporary variables. 3) It performs final assignment. The code uses printf statements to output the processed expression. Below the code editor is the 'Compiler' tab of the IDE, which shows the compilation results. The results indicate 0 errors and 0 warnings, with the output filename being C:\Users\Haritha\OneDrive\Documents\EXP_3.exe, output size of 128.7705078125 Kib, and a compilation time of 0.59s.

```
15     if (expr[i] == '*') {
16         printf("%c = %c %c %c\n", tempVar, expr[i-1], expr[i], expr[i+1]);
17         expr[i-1] = tempVar;
18         tempVar++;
19     }
20     i++;
21 }
22
23 // Step 2: Reset and handle Addition (+)
24 i = 0;
25 while (expr[i] != '\0') {
26     if (expr[i] == '+') {
27         printf("%c = %c %c %c\n", tempVar, expr[i-1], expr[i], expr[i+1]);
28         expr[i-1] = tempVar;
29         tempVar++;
30     }
31     i++;
32 }
33
34 // Step 3: Final Assignment
35 printf("%c = %c\n", expr[0], tempVar - 1);
36
37 return 0;
38 }
39
```

Compilation results...

```
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- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\Haritha\OneDrive\Documents\EXP_3.exe
- Output Size: 128.7705078125 Kib
- Compilation Time: 0.59s
```

OUTPUT:

The screenshot shows a terminal window with the command prompt C:\Users\Haritha\OneDrive\Di. The user enters the expression 'a=b+c*d'. The program outputs the three address code: T = c * d, U = b + T, and a = U. After the code is printed, the terminal shows the process exited after 17.79 seconds with a return value of 0, and prompts the user to press any key to continue.

```
C:\Users\Haritha\OneDrive\Di > Enter an expression (example: a=b+c*d): a=b+c*d

Three Address Code:
T = c * d
U = b + T
a = U

-----
Process exited after 17.79 seconds with return value 0
Press any key to continue . . .
```