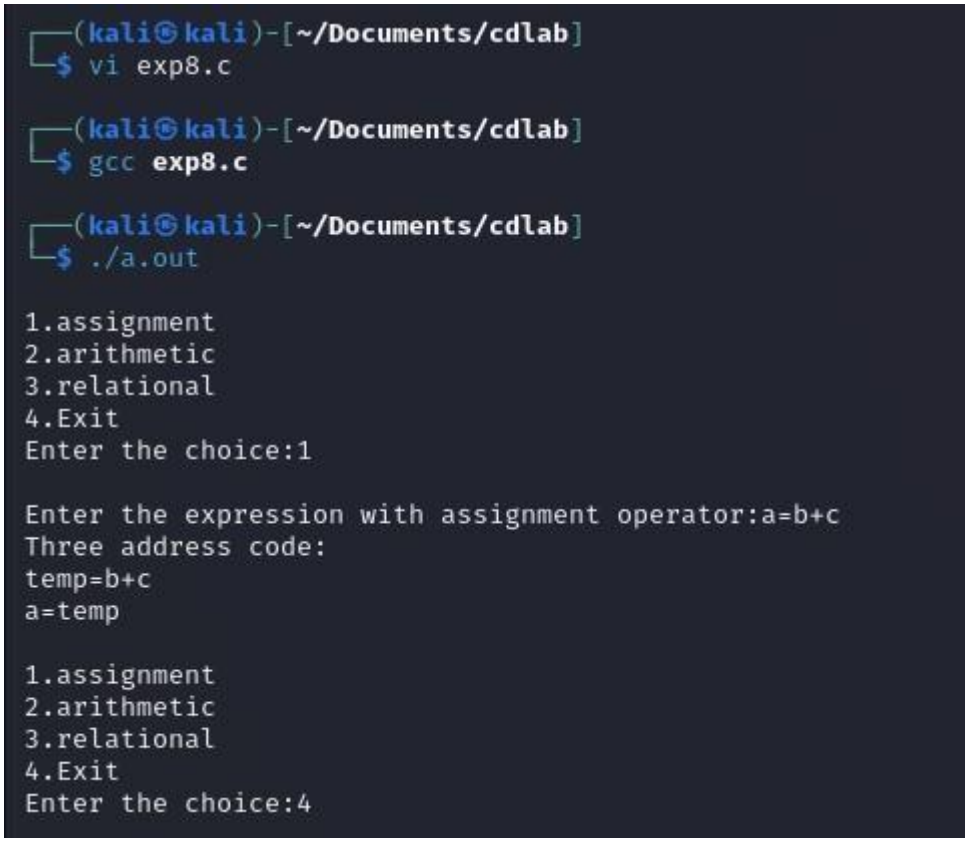
OUTPUT:



RESULT:

Thus, three address code is generated using C program.

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Ex No:9

Date:

IMPLEMENT CODE OPTIMIZATION TECHNIQUES CONSTANT FOLDING

AIM:

To write a C program to implement Constant Folding (Code optimization Technique).

ALGORITHM:

- The desired header files are declared.
- The two file pointers are initialized one for reading the C program from the file and one for writing the converted program with constant folding.
- The file is read and checked if there are any digits or operands present.
- If there is, then the evaluations are to be computed in switch case and stored.
- Copy the stored data to another file.
- Print the copied data file.

PROGRAM:

```
#include <stdio.h>
#include <string.h> #include
<ctype.h> void main() {    char
s[20];    char flag[20] =
"//Constant";    char result, equal,
operator;    double op1, op2,
interrslt;    int a, flag2 = 0;    FILE
*fp1, *fp2;    fp1 =
fopen("input.txt", "r");    fp2 =
fopen("output.txt", "w");
fscanf(fp1, "%s", s);    while
(!feof(fp1)) {       if (strcmp(s, flag)
== 0) {  flag2 = 1;
      }
      if (flag2 == 1)
 {  fscanf(fp1, "%s", s);
   result = s[0];
equal = s[1];
```

```
if (isdigit(s[2]) && isdigit(s[4])) {
if (s[3] == '+' || s[3] == '-' || s[3] == '*' ||
s[3] == '/')
{   operator = s[3];
op1 = s[2] - '0';
 op2 = s[4] - '0';
switch (operator) {
 case '+':
    interrslt = op1 + op2;
            Break;
case '-':
    interrslt = op1 - op2;
    break;
  case '*':
   interrslt = op1 * op2;
    break;
case '/':
   if (op2 != 0)  {
      interrslt = op1 / op2;
 else {  fprintf(fp2, "Division by zero error.\n");
fclose(fp1);
 fclose(fp2);
                  return;                        }
                  break;
 default:
    interrslt = 0;
break;
                }
                fprintf(fp2, "/*Constant Folding*/\n");
fprintf(fp2, "%c = %.2lf\n", result, interrslt);
flag2 = 0;
             }
          }
else {
fprintf(fp2, "Not Optimized\n");
fprintf(fp2, "%s\n", s);
```

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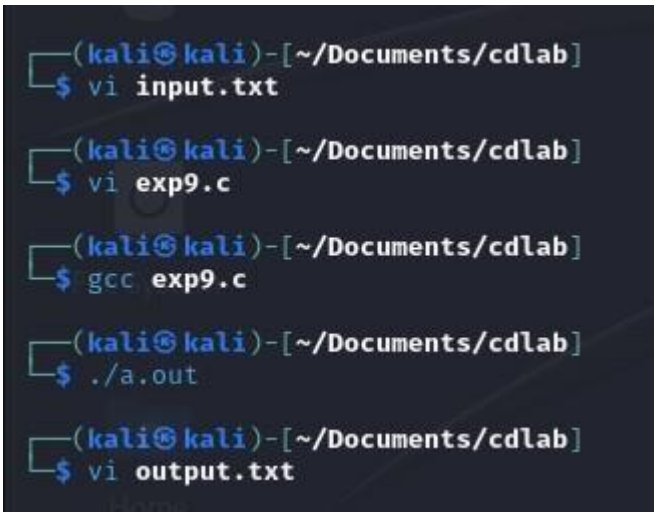
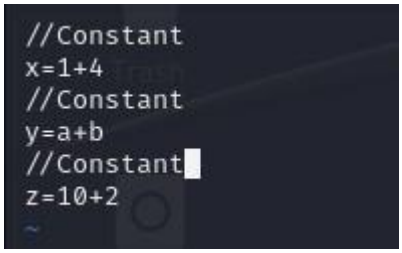
```
        }
      } else {
        fprintf(fp2, "%s\n", s);
      }
      fscanf(fp1, "%s", s);
   }
   fclose(fp1);    fclose(fp2);
}
```

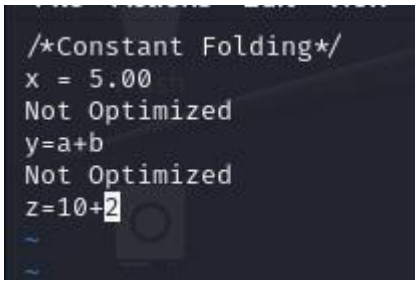
OUTPUT:



Input.txt:



Output.txt:



RESULT:

Thus, a C program to implement Constant Folding has been developed.