

DATE 06-01-2022

## EXPERIMENT 13

AIM

Write program to perform constant propagation.

PROGRAM

// Declaration.

struct exp {

char op[2], op1[5], op2[5], res[5];

int flag;

} arr[10];

int n;

main () {

input ();

constant ();

output ();

printf("\n");

}

// Scan and input data to struct array using input() function.

void constant () {

for (i=0; i<n; i++) {

if (isdigit(arr[i].op1[0]) && isdigit(arr[i].op2[0]))

// strcmp (arr[i].op == "=") == 0 )

// digit & variable store in variable

{

op1 = atoi (arr[i].op1);

op2 = atoi ( " op2)

op = arr[i].op[0];

switch (op) {

case '+': res = op1 + op2; break;

case '-': res = op1 - op2; break;

case '4'

res = op1 + op2;

break;

case '/' res = op1 / op2; break

case '^' res = op1 ^ op2; break.

printf("res1, %d, res)

arr[i] = flag = 1;

change(i, res1);

}

}

}

//print the output using output function.

void change (int p, char str){

for (i = p+1; i < n; i++) {

if (strcmp(arr[p].res, arr[i].op1) == 0)

strcpy (arr[i].op1, res);

else if (strcmp (arr[p].res, arr[i].op2) == 0)

strcpy (arr[i].op2, res);

}

}

## OUTPUT

Enter the maximum number of expressions: 4

Enter the input:

= 3 - a

+ a b t1

+ a c t2

+ t1 t2 t3

Optimized code is:

+ 3 b t1

+ 3 c t2

+ t1 t2 t3