EXPERIMENT 5

Design, develop and implement a C/Java program to generate the machine code using Triples for the statement A = -B * (C +D) whose intermediate code in three-address form:

T1 = -B

T2 = C + D

T3 = T1 * T2

A = T3

C PROGRAM:

```
#include<stdio.h>
#include<stdlib.h>

char op[2],arg1[5],arg2[5],result[5];
void main(){
FILE *fp1,*fp2;
    fp1=fopen("input.txt","r");
    fp2=fopen("output.txt","w");
    while(!feof(fp1)){
        fscanf(fp1,"%s%s%s%s",result,arg1,op,arg2);
        if(strcmp(op,"+")==0){
            fprintf(fp2,"\nMOV R0,%s",arg1);
            fprintf(fp2,"\nADD R0,%s",arg2);
            fprintf(fp2,"\nMOV %s,R0",result);
        }
        if(strcmp(op,"*")==0){
            fprintf(fp2,"\nMOV R0,%s",arg1);
            fprintf(fp2,"\nMUL R0,%s",arg2);
            fprintf(fp2,"\nMOV %s,R0",result);
        }
        if(strcmp(op,"-")==0){
            fprintf(fp2,"\nMOV R0,%s",arg1);
            fprintf(fp2,"\nSUB R0,%s",arg2);
            fprintf(fp2,"\nMOV %s,R0",result);
        }
        if(strcmp(op,"=")==0){
            fprintf(fp2,"\nMOV R0,%s",arg1);
            fprintf(fp2,"\nMOV %s,R0",result);
        }
    }
    fclose(fp1);
    fclose(fp2);
}
```

OUTPUT:

input.txt:

```
T1 -B = ?
T2 C + D
T3 T1 * T2
A T3 = ?
```

output.txt:

```
MOV R0,-B
MOV T1,R0
MOV R0,C
ADD R0,D
MOV T2,R0
MOV R0,T1
MUL R0,T2
MOV T3,R0
MOV R0,T3
MOV A,R0
```