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Compiler Construction

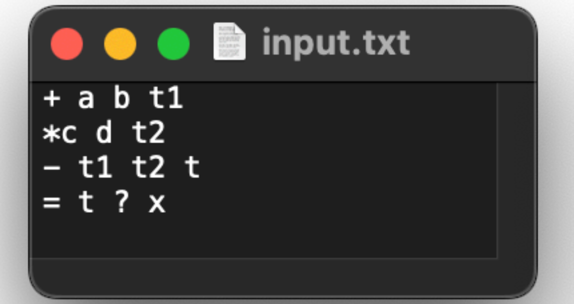
Practical 9

To implement assembly code generator

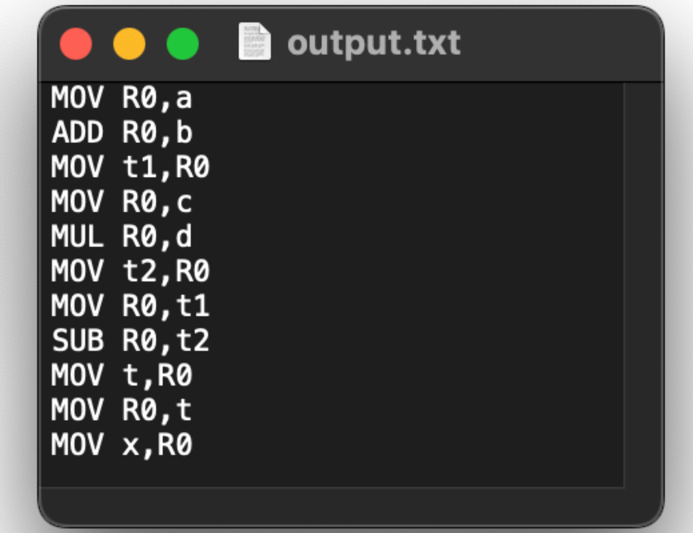
- **Code :**

```
#include<stdio.h>
#include<conio.h>
#include<string.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",op,arg1,arg2,result);

      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,"\nDIV 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);
    getch();
}
```

generated input and output files



```
+ a b t1
*c d t2
- t1 t2 t
= t ? x
```



```
MOV R0,a
ADD R0,b
MOV t1,R0
MOV R0,c
MUL R0,d
MOV t2,R0
MOV R0,t1
SUB R0,t2
MOV t,R0
MOV R0,t
MOV x,R0
```