Course Code: CSL602	Course Name: SPCC LAB
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Experiment :04

Aim : Implementing Macro Processor in C.

Procedure :

1) Provide Assembly program containing Macro as input MACIN.TXT
2) The result will be stored in MACOUT.TXT
3) Outut of MACRO processor is in MACOUT.txt & MDT.txt

Program :

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

struct mdt
{
    char lab[10];
    char opc[10];
    char oper[10];
}d[10];

int main()
{
    char
label[10],opcode[10],operand[10],newlabel[10],newoperand[10];
    char macroname[10];
    int i,lines;
    FILE *f1,*f2,*f3;
      f1 = fopen("MACIN.txt","r");
    f2 = fopen("MACOUT.txt","w");
    f3 = fopen("MDT.txt","w");
    fscanf(f1,"%s %s %s",label,opcode,operand);

    while(strcmp(opcode,"END")!=0)
    {
        if(strcmp(opcode,"MACRO")==0)
        {
            strcpy(macroname,label);
            fscanf(f1,"%s%s%s",label,opcode,operand);
            lines = 0;
            while(strcmp(opcode,"MEND")!=0)
            {
```

```
                fprintf(f3,"%s\t%s\t%s\n",label,opcode,operand);
                strcpy(d[lines].lab,label);
                strcpy(d[lines].opc,opcode);
                strcpy(d[lines].oper,operand);
                fscanf(f1,"%s %s %s",label,opcode,operand);
                lines++;
            }
        }
        else if(strcmp(opcode,macroname)==0)
        {
            printf("lines=%d\n",lines);
            for(i=0;i<lines;i++)
            {

fprintf(f2,"%s\t%s\t%s\n",d[i].lab,d[i].opc,d[i].oper);

printf("DLAB=%s\nDOPC=%\nDOPER=%s\n",d[i].lab,d[i].opc,d[i].oper);
            }
        }
        else
        fprintf(f2,"%s\t%s\t%s\n",label,opcode,operand);
        fscanf(f1,"%s%s%s",label,opcode,operand);
    }
    fprintf(f2,"%s\t%s\t%s\n",label,opcode,operand);
    fclose(f1);
    fclose(f2);
    fclose(f3);
    printf("FINISHED");
   return 0;
}
```

Assembly program as input (MACIN.TXT)

```
CALC START 1000
SUM MACRO **
** LDA #5
** ADD #10
** sTA 2000
** MEND **
** LDA LENGTH
** COMP ZERO
** JEQ LOOP
** SUM **
LENGTH WORD S
ZERO WORD S
LOOP SUM **
** END **
```

Macro definition table (MDT.TXT)

```
**      LDA     #5
**      ADD     #10
**      sTA     2000
```

Output :

```
CALC    START   1000
**      LDA     LENGTH
**      COMP    ZERO
**      JEQ     LOOP
**      LDA     #5
**      ADD     #10
**      sTA     2000
LENGTH  WORD    S
ZERO    WORD    S
**      LDA     #5
**      ADD     #10
**      sTA     2000
**      END     **
```

Conclusion:

With the help of this Experiment we get information about the implementation to Macro.