#include<stdio.h>

#include<conio.h>

#include<stdlib.h>

#include<string.h>

void main()

{

char opcode[10],operands[10],label[10],code[10][10],ch;

char inst[10][10]={"START","LDA","STA","LDCH","STCH","ADD","SHIFTL","SHIFTR","COMP","END"};

int lctr,start,length,i=0,j=0;

FILE \*fp1,\*fp2,\*fp3;

fp1=fopen("INPUT.TXT","r");

fp2=fopen("SYMTAB.TXT","w");

fp3=fopen("OUTPUT.TXT","w");

fscanf(fp1,"%s%s%s",label,opcode,operands);

if(strcmp(opcode,"START")==0)

{

start=atoi(operands);

lctr=start;

fprintf(fp3,"%s\t%s\t%s\n",label,opcode,operands);

fscanf(fp1,"%s%s%s",label,opcode,operands);

}

else

lctr=0;

while(strcmp(opcode,"END")!=0)

{

fprintf(fp3,"%d",lctr);

if(strcmp(label,"\*\*")!=0)

fprintf(fp2,"%s\t%d\n",label,lctr);

strcpy(code[i],inst[j]);

while(strcmp(inst[j],"END")!=0)

{

if(strcmp(opcode,inst[j])==0)

{

lctr+=3;

break;

}

strcpy(code[i],inst[j]);

j++;

}

if(strcmp(opcode,"WORD")==0)

lctr+=3;

else if(strcmp(opcode,"RESW")==0)

lctr+=(3\*(atoi(operands)));

else if(strcmp(opcode,"RESB")==0)

lctr+=(atoi(operands));

else if(strcmp(opcode,"BYTE")==0)

++lctr;

fprintf(fp3,"\t%s\t%s\t%s\n",label,opcode,operands);

fscanf(fp1,"%s%s%s",label,opcode,operands);

}

fprintf(fp3,"%d\t%s\t%s\t%s\n",lctr,label,opcode,operands);

fclose(fp1);

fclose(fp2);

fclose(fp3);

printf("\n\nThe contents of Input Table :\n\n");

fp1=fopen("INPUT.TXT","r");

ch=fgetc(fp1);

while(ch!=EOF)

{

printf("%c",ch);

ch=fgetc(fp1);

}

printf("\n\nThe contents of Output Table :\n\n\t");

fp3=fopen("OUTPUT.TXT","r");

ch=fgetc(fp3);

while(ch!=EOF)

{

printf("%c",ch);

ch=fgetc(fp3);

}

length=lctr-start;

printf("\nThe length of the program is %d.\n\n",length);

printf("\n\nThe contents of Symbol Table :\n\n");

fp2=fopen("SYMTAB.TXT","r");

ch=fgetc(fp2);

while(ch!=EOF)

{

printf("%c",ch);

ch=fgetc(fp2);

}

fclose(fp1);

fclose(fp2);

fclose(fp3);

getch();

}