PROGRAM

#include<stdio.h>

#include<stdlib.h>

#include<conio.h>

#include<string.h>

void main()

{

FILE \*f1, \*f2, \*f3, \*f4, \*f5, \*f6;

int lc,sa,i=0,j=0,m[10],pgmlen,len,k,len1,l=0;

char name[10],opnd[10],la[10],mne[10],s1[10],mne1[10],opnd1[10];

char lcs[10],ms[10];

char sym[10],symaddr[10],obj1[10],obj2[10],s2[10],q[10],s3[10];

//clrscr();

f1=fopen("input.txt","r");

f2=fopen("optab.txt","r");

f3=fopen("symtab.txt","w+"); //stores the forward referenced labels

f4=fopen("symtab1.txt","w+"); //stores the address of forward referenced labels

f5=fopen("output.txt","w+"); //stores opcode and address and also the address fields to be modified

f6=fopen("result.txt","w+"); //stores object code

fscanf(f1,"%s%s%s",la,mne,opnd);

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

{

sa=atoi(opnd); //starting address

strcpy(name,la); //name of pgm

lc=sa; //location counter

}

strcpy(s1,"\*");

fscanf(f1,"%s%s%s",la,mne,opnd);

while(strcmp(mne,"END")!=0) //read input file till END

{

if(strcmp(la,"-")==0) //No label present

{

fscanf(f2,"%s%s",mne1,opnd1); //optab

while(!feof(f2)) //read till eof in optab file

{

if(strcmp(mne1,mne)==0)

{

m[i]=lc+1; //store updated LC value by 1

fprintf(f3,"%s\t%s\n",opnd,s1); //write the label and address(\*) to symtab

fprintf(f5,"%s\t0000\n",opnd1); //write opcode and address(0000)

lc=lc+3;

i=i+1;

break;

}

else

fscanf(f2,"%s%s",mne1,opnd1); //optab

}

}

else //label present

{

fseek(f3,SEEK\_SET,0); //symtab

fscanf(f3,"%s%s",sym,symaddr);

while(!feof(f3)) //search symtab for address

{

if(strcmp(sym,la)==0)

{

itoa(lc,lcs,10); //char \* itoa ( int value, char \* str, int base )

fprintf(f4,"%s\t%s\n",la,lcs); //write to symtab1

itoa(m[j],ms,10);

j=j+1;

fprintf(f5,"%s\t%s\n",ms,lcs); //output file

i=i+1;

break;

}

else

fscanf(f3,"%s%s",sym,symaddr);

}

if(strcmp(mne,"RESW")==0)

lc=lc+3\*atoi(opnd); //increment LC by 3\*no of words

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

{

strcpy(s2,"-");

len=strlen(opnd);

lc=lc+len-2; //subtract characters ' and C or X

for(k=2;k<len;k++)

{

q[l]=opnd[k];

l=l+1;

}

fprintf(f5,"%s\t%s\n",q,s2); //output file

break;

}

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

lc=lc+atoi(opnd); //ascii to integer

else if(strcmp(mne,"WORD")==0)

{

strcpy(s3,"#");

lc=lc+3; //1 word=3 bytes

fprintf(f5,"%s\t%s\n",opnd,s3); //output file

break;

}

} // else la=-

fseek(f2,SEEK\_SET,0); //optab

fscanf(f1,"%s%s%s",la,mne,opnd); //read next line of input file

}

fseek(f5,SEEK\_SET,0); //output file

pgmlen=lc-sa;

printf("H^%s^%d^0%x\n",name,sa,pgmlen); //header record

printf("T^"); //text record

printf("00%d^0%x",sa,pgmlen);

fprintf(f6,"H^%s^%d^0%x\n",name,sa,pgmlen); //header record

fprintf(f6,"T^"); //text record

fprintf(f6,"00%d^0%x",sa,pgmlen);

fscanf(f5,"%s%s",obj1,obj2); //output file

while(!feof(f5)) //repeat till eof in output file

{

if(strcmp(obj2,"0000")==0) //obj2 is address of labels

{

printf("^%s%s",obj1,obj2);

fprintf(f6,"^%s%s",obj1,obj2);

}

else if(strcmp(obj2,"-")==0)

{

printf("^");

fprintf(f6,"^");

len1=strlen(obj1);

for(k=0;k<len1;k++)

printf("%d",obj1[k]);

fprintf(f6,"%d",obj1[k]);

}

else if(strcmp(obj2,"#")==0)

{

printf("^");

printf("%s",obj1);

fprintf(f6,"^");

fprintf(f6,"%s",obj1);

}

fscanf(f5,"%s%s",obj1,obj2); //read next line of output file

}

fseek(f5,SEEK\_SET,0);

fscanf(f5,"%s%s",obj1,obj2);

while(!feof(f5)) //repeat till eof in output file

{

if(strcmp(obj2,"0000")!=0) //address of label

{

if(strcmp(obj2,"-")!=0)

{

if(strcmp(obj2,"#")!=0)

{

printf("\n");

printf("T^%s^02^%s",obj1,obj2); //modification record

fprintf(f6,"\n");

fprintf(f6,"T^%s^02^%s",obj1,obj2);

}

}

}

fscanf(f5,"%s%s",obj1,obj2);

}

printf("\nE^00%d",sa); //end record

fprintf(f6,"\nE^00%d",sa);

getch();

}