#include<stdio.h>   
#include<conio.h>  
#include<string.h>  
void main()  
{  
  char a[10],ad[10],label[10],opcode[10],operand[10],symbol[10],ch;  int st,diff,i,address,add,len,actual\_len,finaddr,prevaddr,j=0;  
  char mnemonic[15][15]={"LDA","STA","LDCH","STCH"};  
  char code[15][15]={"33","44","53","57"};  
  FILE \*fp1,\*fp2,\*fp3,\*fp4;  
  clrscr();  
  fp1=fopen("ASSMLIST.DAT","w");  
  fp2=fopen("SYMTAB.DAT","r");  
  fp3=fopen("INTERMED.DAT","r");  
  fp4=fopen("OBJCODE.DAT","w");  
  fscanf(fp3,"%s%s%s",label,opcode,operand);  
  
  while(strcmp(opcode,"END")!=0)  
  {  
   prevaddr=address;  
   fscanf(fp3,"%d%s%s%s",&address,label,opcode,operand);  
  }  
  finaddr=address;  
  fclose(fp3);  
  fp3=fopen("INTERMED.DAT","r");  
  
  fscanf(fp3,"%s%s%s",label,opcode,operand);  
  if(strcmp(opcode,"START")==0)  
  {  
   fprintf(fp1,"\t%s\t%s\t%s\n",label,opcode,operand);  
   fprintf(fp4,"H^%s^00%s^00%d\n",label,operand,finaddr);  
   fscanf(fp3,"%d%s%s%s",&address,label,opcode,operand);  
   st=address;  
   diff=prevaddr-st;  
   fprintf(fp4,"T^00%d^%d",address,diff);  
  }  
  while(strcmp(opcode,"END")!=0)  
  {  
   if(strcmp(opcode,"BYTE")==0)  
   {  
    fprintf(fp1,"%d\t%s\t%s\t%s\t",address,label,opcode,operand);  
    len=strlen(operand);  
    actual\_len=len-3;  
    fprintf(fp4,"^");  
    for(i=2;i<(actual\_len+2);i++)  
    {  
     itoa(operand[i],ad,16);  
     fprintf(fp1,"%s",ad);  
     fprintf(fp4,"%s",ad);  
    }  
    fprintf(fp1,"\n");  
   }  
   else if(strcmp(opcode,"WORD")==0)  
   {  
    len=strlen(operand);  
    itoa(atoi(operand),a,10);  
    fprintf(fp1,"%d\t%s\t%s\t%s\t00000%s\n",address,label,opcode,operand,a);  
    fprintf(fp4,"^00000%s",a);  
   }  
   else if((strcmp(opcode,"RESB")==0)||(strcmp(opcode,"RESW")==0))  
    fprintf(fp1,"%d\t%s\t%s\t%s\n",address,label,opcode,operand);  
   else  
   {  
    while(strcmp(opcode,mnemonic[j])!=0)  
     j++;  
    if(strcmp(operand,"COPY")==0)  
     fprintf(fp1,"%d\t%s\t%s\t%s\t%s0000\n",address,label,opcode,operand,code[j]);  
    else  
    {  
     rewind(fp2);  
     fscanf(fp2,"%s%d",symbol,&add);  
      while(strcmp(operand,symbol)!=0)  
       fscanf(fp2,"%s%d",symbol,&add);  
     fprintf(fp1,"%d\t%s\t%s\t%s\t%s%d\n",address,label,opcode,operand,code[j],add);  
     fprintf(fp4,"^%s%d",code[j],add);  
    }  
   }  
   fscanf(fp3,"%d%s%s%s",&address,label,opcode,operand);  
  }  
  fprintf(fp1,"%d\t%s\t%s\t%s\n",address,label,opcode,operand);  
  fprintf(fp4,"\nE^00%d",st);  
  printf("\n Intermediate file is converted into object code");  
  fcloseall();  
  
  printf("\n\nThe contents of Intermediate file:\n\n\t");  
  fp3=fopen("INTERMED.DAT","r");  
  ch=fgetc(fp3);  
  while(ch!=EOF)  
  {  
   printf("%c",ch);  
   ch=fgetc(fp3);  
  }  
  printf("\n\nThe contents of Symbol Table :\n\n");  
  fp2=fopen("SYMTAB.DAT","r");  
  ch=fgetc(fp2);  
  while(ch!=EOF)  
  {  
   printf("%c",ch);  
   ch=fgetc(fp2);  
  }  
  printf("\n\nThe contents of Output file :\n\n");  
  fp1=fopen("ASSMLIST.DAT","r");  
  ch=fgetc(fp1);  
  while(ch!=EOF)  
  {  
   printf("%c",ch);  
   ch=fgetc(fp1);  
  }  
  printf("\n\nThe contents of Object code file :\n\n");  
  fp4=fopen("OBJCODE.DAT","r");  
  ch=fgetc(fp4);  
  while(ch!=EOF)  
  {  
   printf("%c",ch);  
   ch=fgetc(fp4);  
  }  
  fcloseall();  
  getch();  
}

**INPUT FILES:**

**INTERMED.DAT**  
COPY    START    2000  
2000    \*\*    LDA    FIVE  
2003    \*\*    STA    ALPHA  
2006    \*\*    LDCH    CHARZ  
2009    \*\*    STCH    C1  
2012    ALPHA    RESW    1  
2015    FIVE    WORD    5  
2018    CHARZ    BYTE    C'EOF'  
2019    C1    RESB    1  
2020    \*\*    END    \*\*  
  
**SYMTAB.DAT**  
ALPHA    2012  
FIVE    2015  
CHARZ    2018  
C1    2019

**OUTPUT:**

