**/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**Name:Muhsina Maseeh Roll no:43**

**PASS TWO OF TWO PASS ASSEMBLER**

**Date:27/11/2023 Exp no:05**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/**

**#include<stdio.h>**

**#include<string.h>**

**#include<stdlib.h>**

**void main(){**

**char lbl[10],opcd[10],oprnd[10],code[10],ab[20],**

**addr[20],symbl[10],locctr[20],value[20];**

**int i,len=20,slen,start;**

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

**f1=fopen("output.txt","r");**

**f2=fopen("symtab.txt","r");**

**f3=fopen("objcode.txt","w");**

**f4=fopen("file.txt","w");**

**f5=fopen("optab1.txt","r");**

**fscanf(f1,"%s%s%s%s",locctr,lbl,opcd,oprnd);**

**if(strcmp(opcd,"START")==0){**

**start=atoi(oprnd);**

**fprintf(f4,"%s\t %s\t %s\n",lbl,opcd,oprnd);**

**fprintf(f3,"H^%s^00%s^00%d",lbl,oprnd,len);**

**fscanf(f1,"%s%s%s%s",locctr,lbl,opcd,oprnd);**

**fprintf(f3,"\nT^00%d^%d",atoi(locctr),len);**

**}**

**while(strcmp(opcd,"END")!=0){**

**if(strcmp(opcd,"BYTE")==0){**

**if(oprnd[0]=='C'){**

**slen=strlen(oprnd)-3;**

**fprintf(f4,"%d\t%s\t%s\t%s\t",atoi(locctr),**

**lbl,opcd,oprnd);**

**fprintf(f3,"^");**

**for(i=2;i<(slen+2);i++){**

**sprintf(ab,"%x",oprnd[i]);**

**fprintf(f4,"%s",ab);**

**fprintf(f3,"%s",ab);**

**}**

**fprintf(f4,"\n");**

**}**

**else if(oprnd[0]=='X'){**

**slen=strlen(oprnd)-3;**

**fprintf(f4,"%d\t%s\t%s\t%s",atoi(locctr)**

**,lbl,opcd,oprnd);**

**fprintf(f3,"^");**

**for(i=2;i<(slen+2);i++){**

**fprintf(f4,"\t%c",oprnd[i]);**

**fprintf(f3,"%c",oprnd[i]);**

**}**

**fprintf(f4,"\n");**

**}**

**}**

**else if(strcmp(opcd,"WORD")==0){**

**printf(f4,"%d\t%s\t%s\t%s\t0000%s\n",**

**atoi(locctr),lbl,opcd,oprnd,oprnd);**

**fprintf(f3,"^0000%s",oprnd);**

**}**

**else if(((strcmp(opcd,"RESW")==0)||**

**(strcmp(opcd,"RESB")==0))){**

**fprintf(f4,"%d\t%s\t%s\t%s\n",**

**atoi(locctr),lbl,opcd,oprnd);**

**}**

**else{**

**fscanf(f5,"%s%s",code,value);**

**while(strcmp(code,"END")!=0){**

**if(strcmp(opcd,code)==0)**

**break;**

**fscanf(f5,"%s%s",code,value);**

**}**

**fscanf(f2,"%s%s",symbl,addr);**

**while(!feof(f2)){**

**if(strcmp(symbl,oprnd)==0)**

**break;**

**fscanf(f2,"%s%s",symbl,addr);**

**}**

**fprintf(f4,"%d\t%s\t%s\t%s\t%d%d\n",**

**atoi(locctr),lbl,opcd,oprnd,atoi(value),atoi(addr));**

**fprintf(f3,"^%d%d",atoi(value),atoi(addr));**

**}**

**rewind(f2);**

**rewind(f5);**

**fscanf(f1,"%s%s%s%s",locctr,lbl,opcd,oprnd);**

**}**

**fprintf(f3,"\n");**

**if(strcmp(opcd,"END")==0){**

**fprintf(f3,"E^00%d",start);**

**fprintf(f4,"%d\t%s\t%s\t%s\n",**

**atoi(locctr),lbl,opcd,oprnd);**

**}**

**}**

**INPUT FILES**

**output.txt**

**2000 COPY START 2000**

**2000 \*\* LDA FIVE**

**2003 \*\* STA ALPHA**

**2006 \*\* LDCH CHARZ**

**2009 \*\* STCH C1**

**2012 ALPHA RESW 1**

**2015 FIVE WORD 05**

**2018 CHARZ BYTE C'EOF'**

**2021 C1 RESB 1**

**2022 \*\* END \*\***

**symtab.txt**

**ALPHA 2012**

**FIVE 2015**

**CHARZ 2018**

**C1 2021**

**optab1.txt**

**LDA 10**

**STA 20**

**LDCH 30**

**STCH 40**

**END 00**

**OUTPUT FILES**

**file.txt**

**COPY START 2000**

**2000 \*\* LDA FIVE 102015**

**2003 \*\* STA ALPHA 202012**

**2006 \*\* LDCH CHARZ 302018**

**2009 \*\* STCH C1 402021**

**2012 ALPHA RESW 1**

**2018 CHARZ BYTE C'EOF' 454f46**

**2021 C1 RESB 1**

**2022 \*\* END \*\***

**objcode.txt**

**H^COPY^002000^0020**

**T^002000^20^102015^202012^302018^402021^000005^454f46**

**E^002000**