//Pass 2 of Direct Linking Loader

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#include<stdio.h>

#include<stdlib.h>

#include<string.h>

struct estab{

char Name[7];

char Addr[5];

struct estab \*next;

};

int find(struct estab\* t[], char l[],int n){

int i;struct estab\* tmp;

for(i=0; i<n; i++){

tmp=t[i];

while(tmp!=NULL){

if(strcmp(tmp->Name,l)==0){

sscanf(tmp->Addr,"%X",&i);

return i;

}

tmp=tmp->next;

}

}return -1;

}

void insert(struct estab\* t, char l[], int stAdr){

int j,Adr=0;char lineAdr[5]={0},lineNam[7]={0};

if(t->next==NULL){

struct estab \*temp=(struct estab\*)malloc(sizeof(struct estab));

for(j=0; j<6; j++)

lineNam[j]=l[j];

strcpy(temp->Name,lineNam);

for(j=7; j<7+4; j++)

lineAdr[j-7]=l[j];

strcpy(temp->Addr,lineAdr);

sscanf(temp->Addr,"%X",&Adr);

Adr-=stAdr;

sprintf(temp->Addr,"%X",Adr);

temp->next=NULL;

t->next=temp;

}

else{

insert(t->next, l, stAdr);

}

}

int main(){

int n,nn,i=-1,j=0,stAddr,Adr,ans;

char fn[15]={0},fnp[20]={0},line[16]={0},lineNam[7]={0},lineAdr[5]={0},record[64]={0},text[10][64];

FILE\* fp;

n=3; // no of object pgm

struct estab\* tab[n],\*tmp;

for(j=0; j<n; j++){

tab[j]=(struct estab\*)malloc(sizeof(struct estab));

tab[j]->next=NULL;

}

fp=fopen(load.txt,"r")

while(!feof(fp)){

fscanf(fp,"%[^\n]\n",line);

if(strlen(line)==11)

insert(tab[i],line,stAddr);

else{

i++;

for(j=0; j<6; j++)

lineNam[j]=line[j];

strcpy(tab[i]->Name,lineNam);

for(j=8; j<8+4; j++)

lineAdr[j-8]=line[j];

strcpy(tab[i]->Addr,lineAdr);

if(i==0)

sscanf(tab[i]->Addr,"%X",&stAddr);

sscanf(tab[i]->Addr,"%X",&Adr);

Adr-=stAddr;

sprintf(tab[i]->Addr,"%X",Adr);

}

}fclose(fp);

fp=fopen(in,"r")

int k,ii,hex,hex1,length1,length,prog;

char mAdr[7]={0},mAdr1[7]={0},mAdr2[7]={0},leng1[3]={0},leng[3]={0};

while(!feof(fp)){

fscanf(fp,"%[^\n]\n",record);

if(record[0]=='H'){

for(i=0; i<6; i++)

lineNam[i]=record[2+i];

prog=find(tab,lineNam,n);

}

else if(record[0]=='T'){

k=0;char recc[64]={0};

for(i=2; i<strlen(record); i++){

if(record[i]!='^'){

recc[k]=record[i]; k++;

}

}

strcpy(text[nn],recc);

nn++;

}

else if(record[0]=='M'){

for(ii=0; ii<nn; ii++){

for(i=0; i<6; i++)

mAdr[i]=record[2+i];

sscanf(mAdr,"%X",&hex);

int ind=hex;

length1=6;

for(i=0; i<4; i++)

mAdr2[i]=text[ii][i];

mAdr2[i]='0';i++;

mAdr2[i]='0';i++;

sscanf(mAdr2,"%X",&hex1);

int val=hex1;

hex+=hex1;

for(i=0; i<6; i++)

mAdr2[i]=text[ii][i];

sscanf(mAdr2,"%X",&hex1);

int val1=hex1;

leng1[0]=text[ii][i];i++;

leng1[1]=text[ii][i];i++;

sscanf(leng1,"%X",&length);

hex1+=length;

if(hex1>hex){

k=0;char mAddr[7]={0};

int y=abs(((val1-val)-ind)\*2)+8;

for(i=y; i<(y+length1); i++){

mAddr[k]=text[ii][i]; k++;

}

sscanf(mAddr,"%X",&hex);

int initial\_length=strlen(mAddr);

hex+=0;

int ch=record[12];

char esName[7]={0};

for(i=0; i<6; i++)

esName[i]=record[13+i];

switch(ch){

case '+':

hex+=(stAddr+find(tab,esName,n));

break;

case '-':

hex-=(stAddr+find(tab,esName,n));

break;

}

sprintf(mAddr,"%X",hex);

char final\_[9]={0};

int final\_length=strlen(mAddr);

if(final\_length>initial\_length){

int z=final\_length-initial\_length; k=0;

for(i=z; i<z+initial\_length; i++){

final\_[k]=mAddr[i]; k++;

}

}

else if(initial\_length>final\_length){

int z=initial\_length-final\_length; k=0;

for(i=0; i<z; i++)

final\_[i]='0';

for(i=z; i<initial\_length; i++){

final\_[i]=mAddr[k]; k++;

}

}

else{

strcpy(final\_,mAddr);

}

k=0;

for(i=y; i<(y+length1); i++){

text[ii][i]=final\_[k]; k++;

}

ii=nn;

}

}

}

else if(record[0]=='E'){

for(ii=0; ii<nn; ii++){

for(i=0; i<6; i++)

mAdr[i]=text[ii][i];

sscanf(mAdr,"%X",&hex);

sprintf(mAdr,"%X",hex);

for(i=0; i<4; i++)

text[ii][2+i]=mAdr[i];

for(i=0; i<6; i++)

mAdr[i]= text[ii][i];

sscanf(mAdr,"%X",&hex);

hex+=(stAddr+prog);

leng[0]= text[ii][i];i++;

leng[1]= text[ii][i];i++;

sscanf(leng,"%X",&length);

for(i=8; i<(length\*2)+8; i+=2){

printf("%X\t",hex);

hex++;

leng[0]= text[ii][i];

leng[1]= text[ii][i+1];

sscanf(leng,"%X",&k);

for(j=7; j>=0; j--){

ans= k>>j;

if(ans&1) printf("1");

else printf("0");

}printf("\n");

}

}nn=0;

}

}

return 0;

}

root@AumrudhLalKumarTJ:~/lab/systemsoftware/ex7/fv# ./a.out

4020 00000011

4021 00100000

4022 00011101

4023 01110111

4024 00010000

4025 01000000

4026 11000111

4027 00000101

4028 00000000

4029 00010100

4054 00000000

4055 01000001

4056 00100110

4057 00000000

4058 00000000

4059 00001000

405A 00000000

405B 01000000

405C 01010001

405D 00000000

405E 00000000

405F 00000100

4060 00000000

4061 00000000

4062 10000011

4099 00000011

409A 00010000

409B 01000000

409C 01000000

409D 01110111

409E 00100000

409F 00100111

40A0 00000101

40A1 00010000

40A2 00000000

40A3 00010100

40D3 00000000

40D4 01000001

40D5 00100110

40D6 00000000

40D7 00000000

40D8 00001000

40D9 00000000

40DA 01000000

40DB 01010001

40DC 00000000

40DD 00000000

40DE 00000100

40DF 00000000

40E0 00000000

40E1 10000011

40FA 00000011

40FB 00010000

40FC 01000000

40FD 01000000

40FE 01110111

40FF 00010000

4100 01000000

4101 11000111

4102 00000101

4103 00010000

4104 00000000

4105 00010100

4124 00000000

4125 01000001

4126 00100110

4127 00000000

4128 00000000

4129 00001000

412A 00000000

412B 01000000

412C 01010001

412D 00000000

412E 00000000

412F 00000100

4130 00000000

4131 00000000

4132 10000011