**SSN COLLEGE OF ENGINEERING (Autonomous)**

**Affiliated to Anna University**

**DEPARTMENT OF CSE**

**UCS 1211 PROGRAMMING IN C LABORATORY**

**A6: User Defined Data Types in C**

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**CLASS: CSE-B (SEMESTER-2)**

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1. **Generate the salary slip of a single employee using structure and functions. Use separate functions for getting input, computing and displaying output. Pass the structure by reference. Display the pay slip with proper formatting. Use pointer notation. (Hint: Take the required data from Ex. 1)**

#include<stdio.h>

#include<stdlib.h>

void main(int argc,char \*argv[])

{

FILE \*fp1,\*fp2;

char ch[3]="w",c;

fp1=fopen(argv[1],"r");

fp2=fopen(argv[2],"r");

if(fp1==NULL)

printf("\nSource File do not exist");

else

{

if(fp2!=NULL)

{

printf("\nDo you want to overwrite or append to the file?(w/a): ");

scanf("%s",ch);

fclose(fp2);

}

fp2=fopen(argv[2],ch);

while((c=getc(fp1))!=EOF)

{

putc(c,fp2);

}

printf("\nThe contents copied successfully!!\n");

}

fclose(fp1);

fclose(fp2);

}

Output:

Do u want to overwrite or append to the file?(w/a):w

The contents copied successfully

**2. Define a structure called Medicine which contains the attributes Name, Vendor, Manufacture Date, Expiry Date, Cost and other required attributes. Simulate the working of an online medical store. Write a method that automatically generates a message whenever any particular medicine is low in stock and also perform the following operations: i) Buy a new drug ii) Sell a drug iii) Check availability of a drug iv) Display all drugs with details in table format Whenever a drug is bought or sold, update the available stock. Write required functions for the above operations and develop as an application.**

PROGRAM:

#include<stdio.h>

#include<stdlib.h>

#include<string.h>

struct rec

{

char name[30],add[30];

unsigned long ph;

};

struct rec input()

{

struct rec object;

printf("\nEnter Name: ");

scanf("%s",object.name);

printf("\nEnter address:" );

scanf("%s",object.add);

printf("\nEnter phone number: ");

scanf("%lu",&object.ph);

return object;

}

void display(struct rec object)

{

printf("\nNAME: %s",object.name);

printf("\nADDRESS: %s",object.add);

printf("\nPHONE NO: %lu\n",object.ph);

}

void add()

{

struct rec object;

FILE \*fp;

fp = fopen("phonebook.dat", "ab");

object=input();

fprintf(fp,"%s\n",object.name);

fprintf(fp,"%s\n",object.add);

fprintf(fp,"%lu\n",object.ph);

fclose(fp);

}

void ret(char name[30])

{

struct rec object;

FILE \*fp;

fp = fopen("phonebook.dat", "rb");

while(1)

{

fscanf(fp," %[^\n]",object.name);

fscanf(fp," %[^\n]",object.add);

fscanf(fp," %lu",&object.ph);

if((strcmp(name,object.name)==0)&&(!feof(fp)))

display(object);

if(feof(fp))

break;

}

fclose(fp);

}

void modify()

{

int op;

char name[30];

struct rec object,newobject;

FILE \*fp1,\*fp2;

fp1 = fopen("phonebook.dat", "a+b");

fp2 = fopen("phonenew.dat", "a+b");

printf("\nEnter name to search and modify: ");

scanf(" %[^\n]",name);

while(1)

{

fscanf(fp1," %[^\n]",object.name);

fscanf(fp1," %[^\n]",object.add);

fscanf(fp1," %lu",&object.ph);

if((strcmp(name,object.name)==0)&&(!feof(fp1)))

{

display(object);

printf("\nDo you want to modify\n1.NAME\n2.ADDRESS\n3.PHONE NUMBER");

printf("\nEnter (1/2/3): ");

scanf("%d",&op);

switch(op)

{

case 1:

printf("\nEnter new name: ");

scanf(" %[^\n]",object.name);

break;

case 2:

printf("\nEnter new address: ");

scanf(" %[^\n]",object.add);

break;

case 3:

printf("\nEnter new phone number: ");

scanf(" %lu",&object.ph);

break;

}

}

if(feof(fp1))

break;

else

{

fprintf(fp2,"%s\n",object.name);

fprintf(fp2,"%s\n",object.add);

fprintf(fp2,"%lu\n",object.ph);

}

}

fclose(fp1);

fclose(fp2);

remove("phonebook.dat");

rename("phonenew.dat","phone.dat");

printf("\n\nRECORD MODIFIED SUCCESSFULLY!!!");

}

void disp()

{

struct rec object;

FILE \*fp;

fp = fopen("phonebook.dat", "rb");

while(1)

{

fscanf(fp," %[^\n]",object.name);

fscanf(fp," %[^\n]",object.add);

fscanf(fp," %lu",&object.ph);

if(!feof(fp))

display(object);

else

break;

}

fclose(fp);

}

void main()

{

struct rec object;

int op;

char name[30];

do

{

printf("\nMENU\n");

printf("\n1.Add a record \n2.Modify \n3.Retrieve and display \n4.Display all records\n5.Exit");

printf("\nEnter your choice: ");

scanf("%d",&op);

switch(op)

{

case 1:

printf("\nADD NEW RECORD");

add();

break;

case 2:

printf("\nMODIFY EXISTING RECORD");

modify();

break;

case 3:

printf("\nRETRIEVE EXISTING RECORD");

printf("\nEnter name to search: ");

scanf(" %[^\n]",name);

ret(name);

break;

case 4:

printf("\nDISPLAY ALL RECORDS");

disp();

break;

}

}while(op!=5);

}

OUTPUT: MENU

1.Add a record

2.Modify

3.Retrieve and display

4.Display all records

5.Exit

Enter your choice: 1

ADD NEW RECORD

Enter Name: prathyush

Enter address:chennai

Enter phone number: 123

MENU

1.Add a record

2.Modify

3.Retrieve and display

4.Display all records

5.Exit

Enter your choice: 1

ADD NEW RECORD

Enter Name: praveen

Enter address:chennai

Enter phone number: 54321

MENU

1.Add a record

2.Modify

3.Retrieve and display

4.Display all records

5.Exit

Enter your choice: 2

MODIFY EXISTING RECORD

Enter name to search and modify: prathyush

NAME: prathyush

ADDRESS: chennai

PHONE NO:12345

Do you want to modify

1.NAME

2.ADDRESS

3.PHONE NUMBER

Enter (1/2/3): 2

Enter new address: Mumbai

RECORD MODIFIED SUCCESSFULLY!!!

MENU

1.Add a record

2.Modify

3.Retrieve and display

4.Display all records

5.Exit

Enter your choice: 3

RETRIEVE EXISTING RECORD

Enter name to search: praveen

NAME: raghu

ADDRESS: chennai

PHONE NO: 54321

MENU

1.Add a record

2.Modify

3.Retrieve and display

4.Display all records

5.Exit

Enter your choice: 4

DISPLAY ALL RECORDS

NAME: prathyush

ADDRESS: chennai

PHONE NO: 12345

NAME: praveen

ADDRESS: chennai

PHONE NO: 54321

MENU

1.Add a record

2.Modify

3.Retrieve and display

4.Display all records

5.Exit

Enter your choice: 5

3. Modify 2 by using fread and fwrite functions for reading and writing. Perform the following operations: i) Insert a new record in m th position ii) Delete a record based upon the given name iii) Display n th record Hint: Existing records should not get affected during insertion and deletion operation. Use fseek

PROGRAM:

#include<stdio.h>

#include<stdlib.h>

FILE \*fp;

typedefstruct

{

Int sno;

char name[100],address[100],number[10];

}telephone;

Int write();

void read(intlen);

void update(intlen);

int append(intlen);

intdelete(intlen);

void main()

{

int l=0;

int choice;

again:

printf("\nEnter\n1.Insert\n2.Display\n3.Update\n4.Append\n5.Delete\n6.Exit\n");

scanf("%d",&choice);

switch(choice)

{

case 1:

l=write();

goto again;

break;

case 2:

read(l);

goto again;

break;

case 3:

printf("\nRecords\n");

read(l);

update(l);

printf("\nModified Records\n");

read(l);

goto again;

break;

case 4:

printf("\nRecords\n");

read(l);

l=append(l);

printf("\nAppend\n");

read(l);

goto again;

break;

case 5:

printf("\nRecords\n");

read(l);

l=delete(l);

printf("\nDeleted\n");

read(l);

goto again;

break;

case 6:

break;

default:

printf("Invalid input");

goto again;

}

}

intwrite()

{

fp=fopen("number.dat","wb");

if(fp==NULL)

{

printf("File not found\n");

exit(1);

}

telephone a[100];

char ch='y';

inti=0;

while(ch!='n')

{

a[i].sno=i+1;

printf("Enter Name : ");

scanf(" %[^\n]",a[i].name);

printf("Enter Address : ");

scanf(" %[^\n]",a[i].address);

printf("Enter phone number : ");

scanf("%s",a[i].number);

fwrite(&a[i],sizeof(telephone),1,fp); //writing

printf("\nDo you want to continue (y/n): ");

scanf(" %c",&ch);

i++;

}

fclose(fp);

return i;

}

void read(intlen)

{

fp=fopen("number.dat","rb");

if(fp==NULL)

{

printf("File not found\n");

exit(1);

}

telephone b[100];

inti;

printf("\nSNo Name Address Number\n");

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

{

fread(&b[i],sizeof(telephone),1,fp); //reading

printf("%d %10s %10s %s\n",b[i].sno,b[i].name,b[i].address,b[i].number);

}

fclose(fp);

}

void update(intlen)

{

fp=fopen("number.dat","rb+");

if(fp==NULL)

{

printf("File not found\n");

exit(1);

}

telephone c;

inti,sno;

printf("Enter the Sno to update : ");

scanf("%d",&sno);

fseek(fp,0,0);

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

{

fread(&c,sizeof(telephone),1,fp);

if(c.sno==sno)

{

printf("Enter new address : ");

scanf(" %[^\n]",c.address);

printf("Enter new phone number : "); //updating

scanf("%s",c.number);

fseek(fp,-sizeof(telephone),1);

fwrite(&c,sizeof(telephone),1,fp);

break;

}

}

fclose(fp);

}

intappend(intlen)

{

fp=fopen("number.dat","ab+");

if(fp==NULL)

{

printf("File not found\n");

exit(1);

}

telephone d;

d.sno=len;

printf("Enter Name : ");

scanf(" %[^\n]",d.name);

printf("Enter Address : ");

scanf(" %[^\n]",d.address);

printf("Enter phone number : ");

scanf("%s",d.number);

fwrite(&d,sizeof(telephone),1,fp);

len++;

fclose(fp);

return len;

}

intdelete(intlen)

{

fp=fopen("number.dat","rb+");

if(fp==NULL)

{

printf("File not found\n");

exit(1);

}

telephone e[100];

inti,sno;

printf("Enter the Sno to delete : ");

scanf("%d",&sno);

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

fread(&e[i],sizeof(telephone),1,fp);

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

if(sno!=e[i].sno)

fwrite(&e[i],sizeof(telephone),1,fp);

len--;

return len;

}

Output:

Enter

1.Insert

2.Display

3.Update

4.Append

5.Delete

6.Exit

1

Enter Name : a

Enter Address : 1

Enter phone number : 1

Do you want to continue (y/n): n

Enter

1.Insert

2.Display

3.Update

4.Append

5.Delete

6.Exit

2

SNo Name Address Number

1 a 1 1

Enter

1.Insert

2.Display

3.Update

4.Append

5.Delete

6.Exit

3

Records

SNo Name Address Number

1 a 1 1

Enter the Sno to update : 1

Enter new address : q

Enter new phone number : 12

Modified Records

SNo Name Address Number

1 a q 12

Enter

1.Insert

2.Display

3.Update

4.Append

5.Delete

6.Exit

4

Records

SNo Name Address Number

1 a q 12

Enter Name : b

Enter Address : w

Enter phone number : 34

Append

SNo Name Address Number

1 a q 12

1 b w 34

Enter

1.Insert

2.Display

3.Update

4.Append

5.Delete

6.Exit

5

Records

SNo Name Address Number

1 a q 12

1 b w 34

Enter the Sno to delete : 2

Deleted

SNo Name Address Number

1 a q 12

Enter

1.Insert

2.Display

3.Update

4.Append

5.Delete

6.Exit