**SIDDAGANGA INSTITUTE**

**OF TECHNOLOGY**

*Computer Science and Engineering*

**DATA STRUCTURES**

**OPEN ENDED PROJECT**

**Application of data structures in Gas Agency**

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***TITLE:*** Development of online registration page for gas agency using data structures in C.

***AIM:***

This project offers the user to perform various operations related to gas booking and cancellation in a gas agency.

***DESCRIPTION OF THE PROJECT:***

The Gas Agencies and the number of gas users are increasing day by day. The transactions like booking gas, releasing gas, keeping records of all customers, etc. when being processed manually take up a lot of time and thus to keep track of the transactions of the gas agency, a software package is the best way as it will speed up work time and lesson the complexities of management.

This project provides a number of choices in the menu page which will help the customer to book a gas by giving his/her member number. One could cancel the gas code- booked. If the user is new he can create an account for which the member code will be automatically generated. Moreover, the gas agency also provides the option of *“give up your subsidy”* to the customer. The gas agency provides the options of myLPG, Services, Customer Care, How Do I, Customer Education which can be chosen by the user according to his/her need. This project includes the implementation of data structures such as queues.The implementation can be understood using the below given flowchart.

WELCOME PAGE

User manual

Register Now

Administrator

Existing User

Password

Password

Password

Fill personal details

DeleteRecords

ModifyRecords

Cancel booking

Place order

Know your turn

ViewOrders

***PROJECT CODE:***

#include <stdio.h>

#include <stdlib.h>

#include<time.h>

#include<string.h>

void delay(unsigned int mseconds)

{

clock\_t goal=mseconds+clock();

while(goal>clock());

}

struct node

{

char uname[30];

int memno;

int order\_flg;

int subsidy\_flg;

char pwd[30];

char addr[100];

long int phno;

char email\_id[30];

struct node \*next;

};

typedef struct node\* nodeptr;

nodeptr allocnode()

{

nodeptr newnode=(nodeptr)malloc(sizeof(struct node));

if(newnode==NULL)

{

printf("INSUFFIECENT HEAP MEMORY!\n");

exit(0);

}

return newnode;

}

int memnogen()

{

int randnum;

unsigned int seedval;

time\_t t;

seedval=(unsigned)time(&t);

//time(&t) function will initialize time variable t with system time.

srand(seedval);

randnum=(rand()%1000)+1;//to limit the values of randomly generated member numbers from 1 to 1000

return randnum;

}

nodeptr password(nodeptr newnode)

{

char pass[30],re[30];

printf("Please Enter a Password for your ID :");

scanf("%s",pass);getchar();

printf("Please Re-Enter the Password for verification :");

scanf("%s",re);getchar();

if((strcmp(pass,re))==0)

{

strcpy(newnode->pwd,pass);

return newnode;

}

else

password(newnode);

return newnode;

}

nodeptr insert\_at\_rear(nodeptr first)

{

char ch='n';

long int no=0;

nodeptr cur,newnode;

newnode=allocnode();

getchar();

printf("\t====WELCOME to the new user registration page==== \n");

printf("Please Enter Your Name :");

gets(newnode->uname);

getchar();

printf("Please Enter Your Gas Delivery Address :");

gets(newnode->addr);

getchar();

printf("Please Enter Your E-Mail Address :");

scanf("%s",newnode->email\_id);

getchar();

printf("Please Enter Your Contact Number :");

scanf("%ld",&no);

getchar();

newnode->phno=no;

newnode=password(newnode);

delay(2000);

newnode->memno=memnogen();

printf("\nREGISTRATION SUCCESSFULL...\n");

printf("Your Member number is :%u\n",newnode->memno);

printf("Do you want to book a gas right now? (y/n)");

scanf("%c",&ch);getchar();

if(ch=='y')

{

newnode->order\_flg=1;

printf("\*\*GAS BOOKED\*\*\n");

}

else

{

newnode->order\_flg=0;

}

newnode->next=NULL;

if(first==NULL)

{

first=newnode;

//\*cnt=\*cnt+1;

return(first);

}

cur=first;

while(cur->next!=NULL)

{

cur=cur->next;

}

cur->next=newnode;

//\*cnt=\*cnt+1;

return(first);

}

nodeptr modify\_record(nodeptr first,int key)

{

char ch,co;

nodeptr cur;

cur=first;

if(first==NULL)

{

printf("No Record to modify!\n");

return(first);

}

while(cur!=NULL)

{

if(key==cur->memno)

{

printf("\t\t\*\*\*\*Record Found!\*\*\*\*\n\t\t");

printf("Name of customer :");

puts(cur->uname);

printf("\t\tMember No. %d\n",cur->memno);

printf("Delivery Address: ");

puts(cur->addr);printf("\t\t");

printf("Phone Number :%ld\n\t\t",cur->phno);printf("Email Address :");

puts(cur->email\_id);

/\* printf("\nWant to modify the record ?(y/n)");

scanf("%c",&ch);getchar();

if(ch=='y')

{

\*/

printf("Do you want to modify address ?:(y/n)");

scanf("%\*c%c%\*c",&co);

if(co=='y')

gets(cur->addr);

printf("Do you want to modify email ?:(y/n)");

scanf("%c%\*c",&co);

if(co=='y')

scanf("%s",cur->email\_id);

printf("Do you want to modify phone number ?:(y/n)");

scanf("%\*c%c%\*c",&co);

if(co=='y')

scanf("%ld",&(cur->phno));

getchar();

return first;

}

cur=cur->next;

}

printf("Member Number not found.\nWant to re-enter the Member number?(y/n)");

scanf("%\*c%c",&ch);getchar();

if(ch=='y')

{

modify\_record(first,key);

}

return(first);

}

void display(nodeptr first)

{

nodeptr cur;

if(first==NULL)

{

printf("There are no records to display\n");

return;

}

cur=first;

system("cls");

while(cur!=NULL)

{

printf("Customer Name: ");

puts(cur->uname);

printf("Member No. %d\n",cur->memno);

printf("Delivery Address: ");

puts(cur->addr);

printf("Phone No. %ld\n",cur->phno);

printf("Email-id: %s\n",cur->email\_id);

if(cur->order\_flg==1)

printf("Gas Booking Status: Yes\n");

else

printf("Gas Booking Status: NO\n");

printf("\n-------------------------------\n");

cur=cur->next;

}

return;

}

nodeptr delete\_record(nodeptr first,int key,int \*cnt)

{

char ch;

nodeptr cur,prev;

prev=NULL;

cur=first;

if(first==NULL)

{

printf("No Record to delete!\n");

return(first);

}

while(cur!=NULL)

{

if((key==cur->memno))

{

printf("\t\t\*\*\*\*Record Found!\*\*\*\*\n\t\t");

printf("Name of customer :");

puts(cur->uname);

printf("\t\tMember no :%d\n\t\t",cur->memno);

printf("Delivery Address: ");

puts(cur->addr);printf("\n\t\t");

printf("Phone Number :%ld\n\t\t",cur->phno);printf("Email Address :");

puts(cur->email\_id);

printf("\nWant to delete the record ?(y/n)");

scanf("%\*c%c%\*c",&ch);

if(ch=='y')

{

if(prev==NULL){

free(cur);

printf("Record is Deleted...\n");\*cnt=\*cnt-1;

return NULL;

}

prev->next=cur->next;

free(cur);

printf("Record is Deleted...\n");

//\*cnt=\*cnt-1;

return(first);

}

}

prev=cur;

cur=cur->next;

}

printf("Member Number not found.\nWant to re-enter the Member number?(y/n)");

scanf("%c",&ch);getchar();

if(ch=='y')

{

delete\_record(first,key,cnt);

}

return(first);

}

nodeptr submenu(nodeptr first)

{

FILE \*fp,\*fp1;

int i=-1,cnt=-1;

nodeptr cur=first;

struct node data;

/\* fp1=fopen("cnt.txt","r");

cnt=getw(fp1);

fclose(fp1);\*/

fp=fopen("database.txt","rb");

while(!feof(fp)&&i!=cnt)

{

fread(&data,sizeof(struct node),1,fp);

/\* The fread function takes four arguments

1. A memory address

2. Number of bytes to read per block

3. Number of blocks to read

4. a file variable

Binary files have two features that distinguish

them from text files:

One can change the contents of a structure anywhere in the file.

One can instantly use a structure anywhere in the file

\*/

if(cur==NULL)

{

cur=allocnode();

strcpy(cur->uname,data.uname);

cur->memno=data.memno;

cur->order\_flg=data.order\_flg;

cur->subsidy\_flg=data.subsidy\_flg;

strcpy(cur->pwd,data.pwd);

strcpy(cur->addr,data.addr);

cur->phno=data.phno;

strcpy(cur->email\_id,data.email\_id);

cur->next=NULL;

i++;

}

else

{

cur->next=allocnode();

cur=cur->next;

strcpy(cur->uname,data.uname);

cur->memno=data.memno;

cur->order\_flg=data.order\_flg;

cur->subsidy\_flg=data.subsidy\_flg;

strcpy(cur->pwd,data.pwd);

strcpy(cur->addr,data.addr);

cur->phno=data.phno;

strcpy(cur->email\_id,data.email\_id);

cur->next=NULL;

i++;

}

if(feof(fp))break;

}

fclose(fp);

int ch,ch1,mno,ans=1;

while(ans)

{

printf("\n\n\t\t\tMENU\n");

printf("\t\t\t====\n");

printf("\n\t\t1.Existing user\n\n\t\t2. Register Now\n\n\t\t3.Administrator\n\n\nEnter choice: ");

scanf("%d",&ch);getchar();

switch(ch)

{

case 1:display(first);

break;

case 2:first=insert\_at\_rear(first);++cnt;

break;

case 3:system("cls");

printf("\n\n\t\t\tMENU\n");

printf("\t\t\t====\n");

printf("\n\t\t1. Display records\n\n\t\t2. Modify record\n\n\t\t3. Delete record\n\nEnter choice: ");

scanf("%d",&ch1);getchar();

if(ch1==1)

{

display(first);

}

else if(ch1==2)

{

printf("Enter the member number :");

scanf("%d",&mno);

first=modify\_record(first,mno);

}

else if(ch1==3)

{

printf("Enter the member number :");

scanf("%d",&mno);

first=delete\_record(first,mno,&cnt);

}

else

{

printf("INVALID CHOICE!");

break;

}

break;

}

printf("Do you want to continue in customer Zone Section?(Press 1 for yes else press 0) ");

scanf("%d%\*c",&ans);

}

fp=fopen("database.txt","wb");

fclose(fp);

fp=fopen("database.txt","ab");

cur=first;

while(cur!=NULL)

{

fwrite(cur, sizeof(struct node), 1, fp);

cur=cur->next;

}

fclose(fp);

/\*fp1=fopen("cnt.txt","w");

putw(cnt,fp1);

fclose(fp1);\*/

return first;

}

int main()

{

int ch,ans=1;

char str;

FILE \*fp;

nodeptr first=NULL;

printf("\n\n\n\n\n\n\n\n\n\t\t\t\t\tWelcome to Bhavani gas agency\n\n");

delay(2000);

while(ans){

system("cls");

printf("\n\n\t\t\t\t\t\tBHAVANI GAS AGENCY\n");

printf("\t\t\t\t\t\t==================\n");

printf("\n\t\t1. About us\n\n\t\t2. Customer Zone\n\n\t\t3. Customer Education\n\n\t\t4. Contact\n\n\t\t5. Exit\n\n\nEnter choice: ");

scanf("%d",&ch);

switch(ch)

{

case 1:system("cls");

fp=fopen("about.txt","r");

while((str=getc(fp))!=EOF )

{

/\* writing content to stdout \*/

putc(str,stdout);

}

fclose(fp);

break;

case 2:system("cls");

first=submenu(first);

break;

case 3:system("cls");

printf("\t\t\t\t\t\tHealth & safety\n");

printf("Safety of our Customers is of prime concern to us for which we follow specific system approach.\n\n");

fp=fopen("do.txt","r");

while((str=getc(fp))!=EOF )

{

/\* writing content to stdout \*/

putc(str,stdout);

}

printf("\n-----------------\n");

fclose(fp);

system("pause");

system("cls");

fp=fopen("dont.txt","r");

while((str=getc(fp))!=EOF )

{

/\* writing content to stdout \*/

putc(str,stdout);

}

fclose(fp);

break;

case 4:

break;

case 5:exit(0);

default:printf("\n\n\t\t\tINVALID CHOICE\n");

}

printf("\n\n-------------------------\n\nDo you want to continue? (press 1 else press 0)\t");

scanf("%d",&ans);getchar();

}

return 0;

}

***PROGRAM OUTPUT:***











