RNS Institute of Technology

Department of ISE

File Structures Lab Mini-Project (17ISL68) on:

Food Order Management System

Guide- Mrs. Vinutha G K

By- Vibha S Navale   V Harshitha

1RN17IS115   1RN17IS111

AIM

- The main aim of the project is to digitalize the food order management system right from menu updating to ordering all the way to billing.
- Restaurants still work in ancient waiter and manual billing systems.
- This can be improved by giving the ordering and bill generation powers to the user, which is the current trend of the world right now.
- This project aims to reduce the hassle of updating the menu for the owners as well.

FILE STRUCTURES

- The file structure used in the project is fixed length records.

- They are a simple and easy way to implement file structures.

- They allow for easy computation of record address or in this case hash key values and their respective addresses.

- Each line contains a record of fixed length which is 78 characters long.

- Traversal is fast as we needn't check each and every intermittent record to reach the nth record.

Class Declaration

```cpp
class Order
{
public:
    char order_no[12],restaurant_code[10],cust_name[12],phone[12];
    char order_time[7],delivery_time[7],order[60], amount_paid[5];
public:
        void initial();
        void read();
        void pack();
        void unpack();
        int  retrieve(int addr,char k[],int i);
        void datadisp();
        int  remove(int addr,char k[]);
        void modify(int addr ,char k[]);
};
```

Creating a empty file at the beginning using buckets and fixed length records

```cpp
int i,j;
file.open(datafile,ios::in);
if(!file)
{
        file.open(datafile,ios::out);
        if(!file)
        {
                cout<<"UNABLE TO OPEN THE FILE\n";
                getch();
                exit(1);
        }
        for(i=0;i<max;i++)
        {
                file.seekp(i*recsize*3,ios::beg);
                for(j=0;j<(recsize*3)-2;j++)
                    file<<"#";
                file<<endl;
        }
        cout<<"EMPTY FILE CREATED\n";
}
file.close();
```

```
23451234|1ADIGAAS|HARSHITHA|8759362019|13:10|13:45|Noodles,Dosa  |80|#######
#####################################################################################
87654321|1ATHITHI|VIBHA|9876543201|12:35|13:05|Manchurian,Paneer roll |125|
#####################################################################################
#####################################################################################
#####################################################################################
```

SEARCHING TECHNIQUE

➡ The searching technique used in the project is *Hashing*.

➡ It is used to decrease search times by reducing the list of records to a limited number of entries i.e. size of hash table.

➡ Further hash key computation ensures no data can be stolen by knowing the entry sequence or by just checking the order.

➡ Here the maximum hash table size is 8 which limits our capacity to the same number.

➡ We get a time complexity of **O(n)** for hashing.

Folding method for generating hash key

```cpp
int hash(char order_no[])
{
int i=0,sum=0,c,len;
len=strlen(order_no);
if(len%2==1)
    len++;
for(i=0;i<len;i+=2)
    sum=(sum+((order_no[i]+order_no[i+1])-96));
c=sum%max;
cout<<"\n\t\t     HASH KEY GENERATED IS: "<<c<<endl;
return c;
}
```

COLLISION AVOIDANCE

- The collision avoidance technique used in the project is linear probing.

- It is easy and archaic way of avoiding collisions.

- It checks for the next available free space to place the record if collision occurs.

- It guarantees a free space being found but is very slow in doing so.

Record Key validation

```
LABEL:
    cout<<"\n\t\t\tENTER THE ORDER ID: ";
    gets(ord_no);
    len=strlen(ord_no);
    addr=hash(ord_no);
    if(len!=8)
    {
            cout<<"\n\t   ENTER THE VALID ORDER ID(8 CHARACTERS): ";
            goto LABEL;
    }


    if(retrieve(addr,ord_no,0)>0)
    {
            cout<<"!!*** ORDER ID IS ALREADY PRESENT***!!\n";
            goto LABEL;
    }
    file.close();
    strcpy(order_no,ord_no);
```

FEATURES

➡ The project aims to make saving customer orders easy and simple for the restaurant owner/manager with flexibility to add and change/modify or delete the customer details.

➡ The project also has a feature of user menu selection and ordering.

➡ This feature reduces the chances of mistakes and also speeds up the process of ordering removing the need of a waiter in the process.

➡ Users can easily sift through the menu and choose the item they wish to order on their own convenience.

➡ Billing is quick and error free as the order is already digitally stored and just needs to be printed in the required format.

The Menu

Inserting a record

```
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
        ENTER THE FOOD ORDER RECORD DETAILS
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~


        ENTER THE ORDER ID: 12345678

HASH KEY GENERATED IS: 4


        ENTER RESTAURANT CODE: 1ATHITHI


        ENTER THE CUSTOMER NAME: VIBHA


        ENTER THE PHONE: 9876543210


MENU:
1.NOODLES                       Rs.45
2.VEG THALI                     Rs.110
3.MANCHURIAN                    Rs.70
4.BIRYANI                       Rs.80
5.DOSA                          Rs.35
6.PANEER ROLL                   Rs.55
7.PLACE ORDER
ENTER YOUR CHOICE: 1_
```

```
ENTER YOUR CHOICE: 1

MENU:
1.NOODLES                       Rs.45
2.VEG THALI                     Rs.110
3.MANCHURIAN                    Rs.70
4.BIRYANI                       Rs.80
5.DOSA                          Rs.35
6.PANEER ROLL                   Rs.55
7.PLACE ORDER
ENTER YOUR CHOICE: 3

MENU:
1.NOODLES                       Rs.45
2.VEG THALI                     Rs.110
3.MANCHURIAN                    Rs.70
4.BIRYANI                       Rs.80
5.DOSA                          Rs.35
6.PANEER ROLL                   Rs.55
7.PLACE ORDER
ENTER YOUR CHOICE: 7


ENTER THE ORDER TIME IN 24 HRS FORMAT: 12:35

ENTER THE DELIVERY TIME IN 24 HRS FORMAT: 13:10
```

Modifying a record

```
                    MODIFYING FOOD ORDER RECORD

================================================================
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

             ENTER THE FOOD ORDER RECORD TO MODIFY:
                         12345678_
```

```
        FOOD ORDER RECORD TO BE MODIFIED IS DISPLAYED

*****************************************************************

        ORDER ID              :   12345678

        RESTAURANT CODE        :   1ATHITHI

        CUSTOMER NAME          :   VIBHA

        PHONE NUMBER           :   9876543210

        YOUR ORDER             :   Noodles,Manchurian

        ORDER TIME             :   12:30

        DELIVERY TIME          :   13:10

        AMOUNT PAID            :   115

*****************************************************************

        FOOD ORDER RECORD TO BE MODIFIED IS FOUND
                RECORD DELETED...!!
```

```
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

*****************************************************************

             ENTER THE NEW(MODIFIED) FOOD ORDER RECORD:

             ENTER THE ORDER ID: 12345123

        HASH KEY GENERATED IS: 5

             ENTER RESTAURANT CODE: 1ATHITHI

             ENTER THE CUSTOMER NAME: HARSHITHA

             ENTER THE PHONE: 9876598760

        MENU:
        1.NOODLES                        Rs.45
        2.VEG THALI                      Rs.110
        3.MANCHURIAN                     Rs.70
        4.BIRYANI                        Rs.80
        5.DOSA                           Rs.35
        6.PANEER ROLL                    Rs.55
        7.PLACE ORDER
        ENTER YOUR CHOICE: 2_
```

Searching a record


```
        SEARCHING FOOD ORDER RECORD
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

     ENTER THE ORDER ID TO BE SEARCHED:
              12345678_
```

```
THE SEARCHED FOOD ORDER RECORD IS DISPLAYED

*********************************************************

    ORDER ID              :  12345678

    RESTAURANT CODE        :  1ATHITHI

    CUSTOMER NAME          :  VIBHA

    PHONE NUMBER           :  9876543210

    YOUR ORDER             :  Noodles,Manchurian

    ORDER TIME             :  12:30

    DELIVERY TIME          :  13:10

    AMOUNT PAID            :  115


*********************************************************

        FOOD ORDER RECORD FOUND...!!
```

Deleting a record

Displaying all records

DELETING FOOD ORDER RECORD

^^
^^

ENTER THE ORDER ID TO BE DELETED:
12345123

FOOD ORDER RECORD DISPLAYED
****

ORDER ID	:	12345123
RESTAURANT CODE	:	1ATHITHI
CUSTOMER NAME	:	HARSHITHA
PHONE NUMBER	:	9876598760
YOUR ORDER	:	Veg thali
ORDER TIME	:	13:15
DELIVERY TIME	:	13:55
AMOUNT PAID	:	110

****

FOOD ORDER RECORD TO BE DELETED IS FOUND
RECORD IS DELETED... !!

DISPLAYING FOOD ORDER RECORDS

****

ORDER ID	:	12345678
RESTAURANT CODE	:	1ATHITHI
CUSTOMER NAME	:	VIBHA
PHONE NUMBER	:	9876543210
YOUR ORDER	:	Noodles,Manchurian
ORDER TIME	:	12:30
DELIVERY TIME	:	13:10
AMOUNT PAID	:	115

****

ADVANTAGES

- ➡ As people are very used to online ordering this application will not have any kind of hinderance in its implementation or usage.

- ➡ The customers details and orders can easily be stored, modified and retrieved.

- ➡ Any changes in menu or prices can easily and effectively be updated on the application contrary to the cumbersome method of reprinting menu cards.

- ➡ Digital bills can also be generated to avoid losing bills and is helpful in tracking history.

FUTURE ENHANCEMENTS

- The project can be made to work on multiple platforms like tablets in order to make ordering easy.

- The project can also have options for pre-ordering before you reach the restaurant so that waiting time is reduced.

- We can track and send promotional offers more easily to the users using this application.

- Tracking orders helps tax filing and other administrative decisions easy.

CONCLUSION

➡ The project is very useful and follows the current trends of giving power to the user.

➡ It streamlines a sector that is still not embraced technology as well as other flourishing sectors.

➡ Making it owner friendly in terms of updating menus reduces overheads of hiring external agencies to do so.