```c
#include<stdio.h>
#include<stdlib.h>
#include<conio.h>
#include<string.h>
struct Menu
{
    int item_id;
    char item[25];
    float price;
};
int main()
{
    ///necessary variables
    int u_choice;///1st choice for user
    int m_choice;///choice made in menu(add,update,delete)
    FILE *fp,*fp1;///file pointer to Menu.dat which stores the menu
    struct Menu m,*mptr;///structure variable and its pointer for the Menu data type
    mptr=&m;
    int m_size,i,m_change;///size of menu, loop counter variable , variable for item update in menu
    int m_delete;///item id to be stored to delete in menu
    char rec_choice;///recurring choice to add N number of data as user pleases.
    int j;///Loop counter variable
    char bitemname[50];///search-item for bill to menu
    int quantity1;///quantity of item purchased for bill

    ///main code
    while(1)
    {
        system("cls");
        printf("%20s<<<<<< RESTAURANT MANAGEMENT SYSTEM >>>>>>\n"," ");
        printf("\n1.MENU");
        printf("\n2.Prepare Bill");
        printf("\n3.Exit");

        printf("\n\nYour Choice:\t");
        scanf("%d",&u_choice);

        /**Always open Menu.dat in append mode first to create a file so we don't face any errors*/
            fp=fopen("Menu.dat","ab+");
            fclose(fp);

            ///open file in rb+ mode to be able to update the datas easily
        fp=fopen("Menu.dat","rb+");


                ///if file cant be open it returns null so exit the application
                if(fp==NULL)
                {
                    printf("Cannot open file..\n\n");
                    exit(-1);
                }


        ///cases application
        switch (u_choice)
        {
            case 1:///MENU
                system("cls");
                printf("%15s<<<<<< MENU >>>>>>\n\n"," ");
                /**First Find weather the file is empty or not by applying fseek and ftell functions
                 * If the menu.dat is empty add the items
                 * If not view the items and give choice to either Add, Update or Delete the items
                 */
```

```
fseek(fp,0,SEEK_END);
m_size=ftell(fp)/sizeof(struct Menu);

if(m_size==0)
{
    printf("\nMenu is empty.Please add Items.\n\n");
    goto add_items;
}

///Display the MENU on the screen if file is not empty
printf("%*s%*s%*s\n",-20,"Item_Id",-20,"Items",-20,"Price");
rewind(fp);
for(i=0;i<m_size;i++)
{
    fread(&m,sizeof(struct Menu),1,fp);
    printf("%-20d%-20s%-20.2f\n",m.item_id,m.item,m.price);
}

///MENU add,update,delete choices
printf("\n1.Add Items\t\t2.Update Item\t\t3.Delete Item.\t\t4.Back\n");
printf("Input:\t");
getchar();///clear input buffer
scanf("%d",&m_choice);

/**2nd switch case for sub menu,
 * Case 1 should add items
 * case 2 should update items
 * case 3 should delete items
 * user data must be continued until user press Y
 */
switch (m_choice)
{
    case 1:///Add
        add_items:
        rec_choice='Y';
        while(rec_choice=='Y'||rec_choice=='y')
        {
            printf("\nEnter the item id:");
            scanf("%d",&(m.item_id));
            getchar();
            printf("Enter item name:");
            gets(m.item);
            printf("Enter price:");
            scanf("%f",&(m.price));

            fseek(fp,0,SEEK_END);

            ///write data in file as user input is given
            if(fwrite(&m,sizeof(struct Menu),1,fp)==1)
                printf("Data Read..");
            else
                printf("Cant read.\n");

            printf("\nEnter another data? (Y/N)\t");
            getchar();
            scanf("%c",&rec_choice);
        }
        printf("\nPress any key..");
        break;
    case 2:///Update
        printf("\nEnter the item id of data you would like to change:");
        scanf("%d",&m_change);
```

```
        m_size=ftell(fp)/sizeof(struct Menu);
        rewind(fp);

        for(i=0;i<m_size;i++)
        {
            fread(&m,sizeof(struct Menu),1,fp);

            if(m_change==m.item_id)
            {
                printf("\nEnter the new item id:");
                scanf("%d",&(m.item_id));
                getchar();
                printf("Enter the new item name:");
                gets(m.item);
                printf("Enter the new price:");
                scanf("%f",&(m.price));

                fseek(fp,-sizeof(m),SEEK_CUR);
                if(fwrite(&m,sizeof(struct Menu),1,fp)==1)
                    printf("\nData updated:");
                ///taking the file pointer to the required position as it was changed
                fseek(fp,sizeof(m),SEEK_CUR);
            }
        }
        printf("\nPress any key..");
        break;
    case 3:///Delete
        /**To perform delete operation we create a file illusion
         * First we find the item_id of data to be deleted
         * Compare the item_id with data to be deleted
         * After than copy all the remaining info to another Temporary file
         * Then remove original file and rename the temporary file as the original file
         */
        printf("\nEnter the item id of data you would like to delete:");
        scanf("%d",&m_delete);

        fseek(fp,0,SEEK_END);
        m_size=ftell(fp)/sizeof(struct Menu);
        rewind(fp);

        fp1=fopen("Temp.dat","wb");

        for(i=0;i<m_size;i++)
        {
            fread(&m,sizeof(struct Menu),1,fp);

            if(m_delete != m.item_id)
            {
                fwrite(&m,sizeof(struct Menu),1,fp1);
            }
            else
                printf("\nItem deleted..\n");
        }
        fclose(fp);
        fclose(fp1);
        remove("Menu.dat");
        rename("Temp.dat","Menu.dat");
        printf("\nPress any key..\n");
        break;
    case 4:
        printf("\nPress any key to confirm..");
        break;
    default :
```

```
                    printf("\n");
                }
                break;
            case 2:///Prepare Bill
                /**To prepare the bill, we take the input of the item name and the quantity
                 *Compare the item name with data from the Menu.dat file using strcmp() function
                 *Then calculate the total price to be paid by asking for bill item until user needs.
                 */
                system("cls");
                printf("%20s<<<<<< BILLING SYSTEM >>>>>>\n\n"," ");

                rec_choice='Y';
                float total=0;

                while(rec_choice=='Y'||rec_choice=='y')
                {
                    getchar();
                    printf("\nItem name:");
                    gets(bitemname);
                    printf("Quantity:");
                    scanf("%d",&quantity1);

                    fseek(fp,0,SEEK_END);
                    m_size=ftell(fp)/sizeof(struct Menu);
                    rewind(fp);

                    for(j=0;j<m_size;j++)
                    {
                        fread(&m,sizeof(struct Menu),1,fp);

                        if(strcmp(bitemname,m.item)==0)
                        {
                            total=total+(m.price*quantity1);
                        }
                    }

                    printf("\nAdd another item?(Y/N)\t");
                    getchar();
                    scanf("%c",&rec_choice);
                 }
                printf("\nTotal price= %.2f\n",total);
                printf("\nPress any key..");
                break;
            case 3:
                exit(0);
            default:
                printf("\nWrong Choice.");
        }
        fclose(fp);
        getch();
    }

    return 0;
}
```