Restaurant Billing System

C Project Submission

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Restaurant Billing System

dec.h:

```c
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include <time.h>
#include <Windows.h>

void BillGenerateHead(char name[50], char date[30], char time[30],int ID);
void BillGenerateBody(char item[30], int qty, float price);
void BillGenerateFooter(float total);
void playSuccessTone();
void playErrorTone();

struct items
{
    char item[30];
    float price;
    int qty;
};

struct orders
{
    char customerName[50];
    char date[50];
    int billID;
    int QuantityofItems;
    struct items itm[50];
};
```

def.h:

```c
//==============Functions Define============
int generateBillID()
{
    // Seed the random number generator with the current time
    srand(time(NULL));
    // Generate a random number between 1000 and 9999
    int billID = rand() % 9000 + 1000;
    return billID;
}
void BillGenerateHead(char name[50], char date[30], char time[30],int ID)
{
    printf("\n");
    printf("\n\t----------------------------");
    printf("\n\t Welcome to Hamza Restaurant ");
    printf("\n\t----------------------------");
    printf("\n%s", time);
    printf("\nBill ID: %d", ID);
    printf("\nCustomer Name: %s", name);
    printf("\n");
    printf("-----------------------------------------\n");
    printf("Items\t\t");
    printf("Qty\t\t");
    printf("Total\t\t");
    printf("\n----------------------------------------");
    printf("\n\n");
}
void BillGenerateBody(char item[30], int qty, float price)
{
    printf("%s\t\t", item);
```

```c
        printf("%d\t\t", qty);
        printf("%.2f\t\t", qty * price);
    printf("\n");
}
void BillGenerateFooter(float total)
{
        printf("\n");
        float discount = 0.1 * total;
        float netTotal = total - discount;
        float GST = 0.09 * netTotal;
        float amountPayable = netTotal + GST;
        printf("------------------------------------------\n");
        printf("\nSub Total    \t\t\t%.2f", total);
        printf("\nDiscount @10%s\t\t\t%.2f", "%", discount);
        printf("\n\t\t\t      -----------");
        printf("\nNet Total    \t\t\t%.2f", netTotal);
        printf("\nGST @9%s  \t\t\t%.2f", "%", GST);
        printf("\n------------------------------------------");
        printf("\nAmount Payable \t\t\t%.2f", amountPayable);
        printf("\n------------------------------------------");
}
// Successful tone
void playSuccessTone() {
        Beep(800, 200); // Frequency: 800Hz, Duration: 200ms
}
// Error tone
void playErrorTone() {
        Beep(400, 500); // Frequency: 400Hz, Duration: 500ms
}
```

main.c:

```c
#include "dec.h"
#include "def.h"

int main()
{
    // DECLARATION
    int choice, qtyofitems;
    struct orders order;
    struct orders ord;
    char saveBill = 'y', startAgain = 'y';
    char name[50];
    int billID;
    int DeleteID;
    FILE *fp;
    while (startAgain == 'y')
    {
        float total = 0;
        int BillFound = 0;
        // Get the current time
        time_t currentTime;
        time(&currentTime);
        char *timeString = ctime(&currentTime);
        timeString[strlen(timeString) - 1] = '\0'; // Remove the newline character
        // START
        system("cls");
        printf("\n\t----------------");
        printf("\n\tHamza Restaurant ");
        printf("\n\t----------------");
        // Option Show
        printf("\nPlease Select Your Prefered Choice");
        printf("\n1: Generate Bill.");
```

```c
        printf("\n2: Show All Bills.");
        printf("\n3: Search Bill By Name.");
        printf("\n4: Search Bill By ID.");
        printf("\n5: Delete Bill by Name.");
        printf("\n6: Delete Bill by ID.");
        printf("\n7: Exit.\n");
        printf("\nYour Choice? ");
        scanf("%d", &choice);
        fgetc(stdin);
        playSuccessTone();
        switch(choice)
        {
            // Generate Bills
        case 1:
            system("cls");
            printf("\n-----Generate New Bill-----");
            order.billID = generateBillID();
            printf("\nPlease Enter Customer Name: ");
            fgets(order.customerName, 50, stdin);
            // Removing \n from fgets func
            order.customerName[strlen(order.customerName) - 1] = 0;
            strcpy(order.date, __DATE__);
            printf("Please Enter the Number of Items: ");
            scanf("%d", &qtyofitems);
            order.QuantityofItems = qtyofitems;
            for (int i = 0; i < qtyofitems; i++)
            {
                fgetc(stdin);
                printf("\n\n");
                printf("Please Enter Item %d: ", i + 1);
                fgets(order.itm[i].item, 20, stdin);
                order.itm[i].item[strlen(order.itm[i].item) - 1] = 0;
```

```c
        printf("Please Enter the Quantity: ");
        scanf("%d", &order.itm[i].qty);
        printf("Please Enter the unit price: ");
        scanf("%f", &order.itm[i].price);
        total += order.itm[i].qty * order.itm[i].price;
    }
    system("cls");
    BillGenerateHead(order.customerName, order.date,timeString,order.billID);
    for (int i = 0; i < order.QuantityofItems; i++)
    {
        BillGenerateBody(order.itm[i].item, order.itm[i].qty, order.itm[i].price);
    }
    BillGenerateFooter(total);
    printf("\nDo You Want to save the Bill(y/n)?  ");
    scanf("%s", &saveBill);
    if (saveBill == 'y')
    {
        fp = fopen("RestaurantBill.txt", "a+");
        fwrite(&order, sizeof(struct orders), 1, fp);
        if (fwrite != 0)
        {
            playSuccessTone();
            printf("Successfully Saved!!");
        }
        else
        {
            playErrorTone();
            printf("\nTrouble in Saving..!");
            fclose(fp);
        }
        fclose(fp);
        break;
```

```c
        }
        // Show Bills
    case 2:
        system("cls");
        fp = fopen("RestaurantBill.txt", "r");
        printf("\n");
        printf("\n----------All Bills----------");
        while (fread(&ord, sizeof(struct orders), 1, fp))
        {
            float tot = 0;
            BillGenerateHead(ord.customerName, ord.date,timeString,ord.billID);
            for (int i = 0; i < ord.QuantityofItems; i++)
            {
                BillGenerateBody(ord.itm[i].item, ord.itm[i].qty, ord.itm[i].price);
                tot += ord.itm[i].qty * ord.itm[i].price;
            }
            BillGenerateFooter(tot);
        }
        fclose(fp);
        break;
        // Search Bill By Name
    case 3:
        system("cls");
        printf("\n-----Search Bill By Name-----");
        printf("\nEnter the Name of the Customer ");
        fgets(name, 50, stdin);
        name[strlen(name) - 1] = 0;
        system("cls");
        fp = fopen("RestaurantBill.txt", "r");
        printf("\n");
        printf("********Bill of %s********\n", name);
        while(fread(&ord, sizeof(struct orders), 1, fp))
```

```c
        {
            float tot = 0;
            // strcmp to compare two strings
            if (strcmp(ord.customerName, name) == 0)
            {
                 playSuccessTone();
                BillGenerateHead(ord.customerName, ord.date,timeString,ord.billID);
                for (int i = 0; i < ord.QuantityofItems; i++)
                {
                    BillGenerateBody(ord.itm[i].item, ord.itm[i].qty, ord.itm[i].price);
                    tot += ord.itm[i].qty * ord.itm[i].price;
                }
                BillGenerateFooter(tot);
                BillFound = 1;
            }
        }
        if (!BillFound)
        {
            playErrorTone();
            printf("\nBill of %s Not Found..!", name);
        }
        break;
        //Search Bill By ID
    case 4:
        system("cls");
        printf("\n-----Search Bill By ID-----");
        printf("\nEnter the Bill ID ");
        scanf("%d",&DeleteID);
        system("cls");
        fp = fopen("RestaurantBill.txt", "r");
        printf("\n");
        printf("***Bill %d***\n", DeleteID);
```

```c
            while(fread(&ord, sizeof(struct orders), 1, fp))
            {
                float TOT = 0;
                if (ord.billID == DeleteID)
                {
                     playSuccessTone();
                    BillGenerateHead(ord.customerName, ord.date,timeString,ord.billID);
                    for (int i = 0; i < ord.QuantityofItems; i++)
                    {
                        BillGenerateBody(ord.itm[i].item, ord.itm[i].qty, ord.itm[i].price);
                        TOT += ord.itm[i].qty * ord.itm[i].price;
                    }
                    BillGenerateFooter(TOT);
                    BillFound = 1;
                }
            }
            if (!BillFound)
            {
                playErrorTone();
                printf("\nBill %d Not Found..!", DeleteID);
            }
            break;
        // Delete Bill By Name
    case 5:
        system("cls");
        printf("\n-----Delete Bill By Name-----");
        printf("\nEnter the Name of the Customer: ");
        fgets(name, 50, stdin);
        name[strlen(name) - 1] = '\0';
        system("cls");
        fp = fopen("RestaurantBill.txt", "r+");
        FILE *tempFile = fopen("temp.txt", "w"); // Create a temporary file for writing
```

```c
        struct orders ord;

        int found = 0;

        while (fread(&ord, sizeof(struct orders), 1, fp))

        {

            if (strcmp(ord.customerName, name) != 0)

            {

                // Write the non-matching bill entries to the temporary file

                fwrite(&ord, sizeof(struct orders), 1, tempFile);

            }

            else

            {

                found = 1;

            }

        }

        fclose(fp);

        fclose(tempFile);

        remove("RestaurantBill.txt"); // Remove the original file

        rename("temp.txt", "RestaurantBill.txt"); // Rename the temporary file to the original file name


        if (found)

        {

            playSuccessTone();

            printf("\nBill of %s deleted successfully!", name);

        }

        else

        {

            playErrorTone();

            printf("\n%sBill Not Found..!", name);

        }

        break;

        // Delete Bill By ID

    case 6:
```

```c
system("cls");
printf("\n-----Delete Bill By ID-----");
printf("\nEnter the ID of the Bill: ");
scanf("%d", &billID);
system("cls");
fp = fopen("RestaurantBill.txt", "r");
FILE *tempFILE = fopen("temp.txt", "w"); // Create a temporary file for writing
int Found = 0;
while (fread(&ord, sizeof(struct orders), 1, fp))
{
    if (ord.billID != billID)
    {
        // Write the non-matching bill entries to the temporary file
        fwrite(&ord, sizeof(struct orders), 1, tempFILE);
    }
    else
    {
        Found = 1;
    }
}
fclose(fp);
fclose(tempFILE);
remove("RestaurantBill.txt"); // Remove the original file
rename("temp.txt", "RestaurantBill.txt"); // Rename the temporary file to the original file name

if (Found)
{
    playSuccessTone();
    printf("\nBill with ID %d deleted successfully!", billID);
}
else
{
```

```c
                playErrorTone();

                printf("\nBill with ID %d not found..!", billID);

            }

            break;

//Exit

            case 7:

                 playSuccessTone();

                printf("\n\t\t Bye Bye.........!");

                exit(0);

                break;


            default:

                playErrorTone();

                printf("\nInvalid Choice");

                break;

        }

        printf("\nStart Again? [y/n] ");

        scanf(" %c", &startAgain);

    }

    printf("\n\n");

    printf("\n\t\tByeee....!");

    return 0;

}
```

```
        -----------------------------
        Welcome to Hamza Restaurant
        -----------------------------
Wed Jul 12 15:06:30 2023
Bill ID: 8297
Customer Name: Hamza
-------------------------------------
Items           Qty          Total
-------------------------------------

Pizza            1           60.00

-------------------------------------

Sub Total                    60.00
Discount @10%                 6.00
                          -----------
Net Total                    54.00
GST @9%                       4.86
-------------------------------------
Amount Payable               58.86
-------------------------------------
Do You Want to save the Bill(y/n)?
```

```
        -----------------------------
        Welcome to Hamza Restaurant
        -----------------------------
Wed Jul 12 15:06:30 2023
Bill ID: 8297
Customer Name: Hamza
-------------------------------------
Items           Qty          Total
-------------------------------------

Pizza            1           60.00

-------------------------------------

Sub Total                    60.00
Discount @10%                 6.00
                          -----------
Net Total                    54.00
GST @9%                       4.86
-------------------------------------
Amount Payable               58.86
-------------------------------------
Do You Want to save the Bill(y/n)?  y
Successfully Saved!!
Start Again? [y/n]
```

```
----------All Bills----------

          ---------------------------
          Welcome to Hamza Restaurant
          ---------------------------
Wed Jul 12 15:07:12 2023
Bill ID: 9366
Customer Name: Hamza
-------------------------------------
Items          Qty          Total
-------------------------------------

Pizza          1            1.00

-------------------------------------
Sub Total                   1.00
Discount @10%               0.10
                         -----------
Net Total                   0.90
GST @9%                     0.08
-------------------------------------
Amount Payable              0.98
-------------------------------------


          ---------------------------
          Welcome to Hamza Restaurant
          ---------------------------
Wed Jul 12 15:07:12 2023
Bill ID: 8297
Customer Name: Hamza
-------------------------------------
Items          Qty          Total
-------------------------------------

Pizza          1            60.00
```

```
Bill of Hamza deleted successfully!
Start Again? [y/n] _
```

```
-----Delete Bill By ID-----
Enter the ID of the Bill: 8499
```

```
Bill with ID 8499 deleted successfully!
Start Again? [y/n]
```
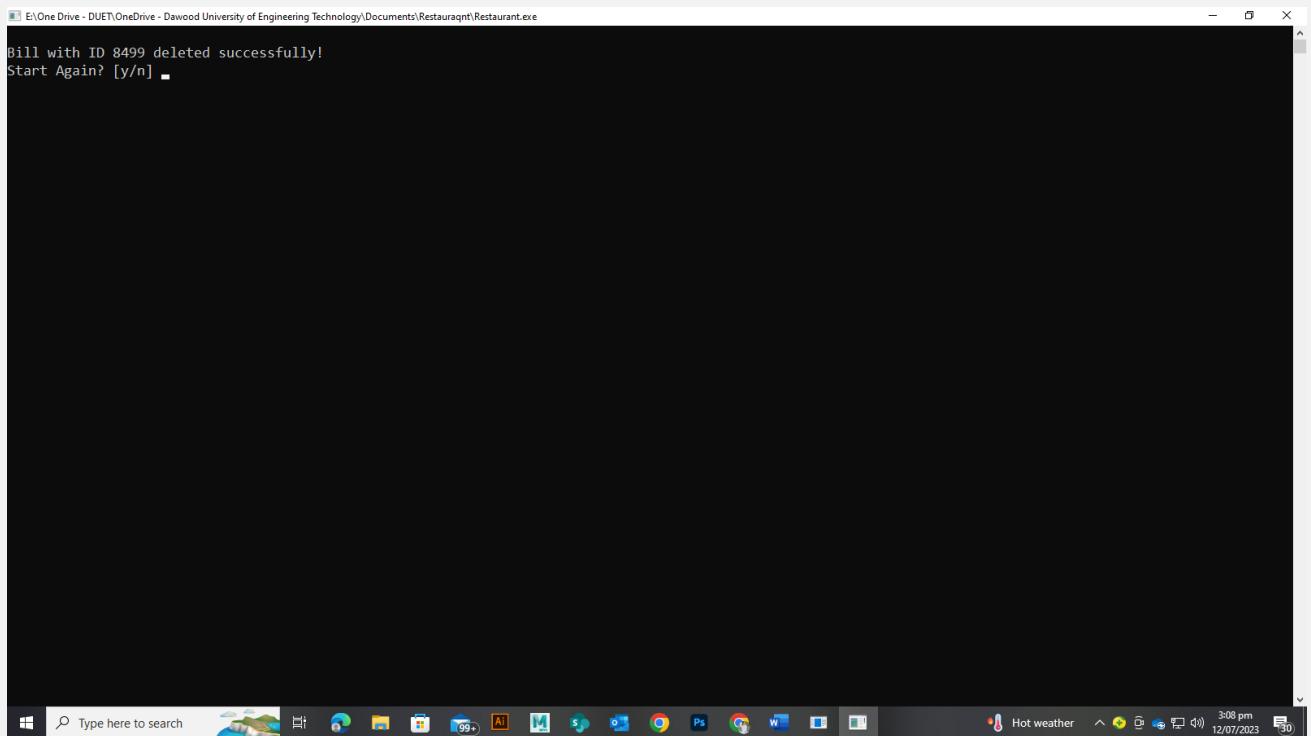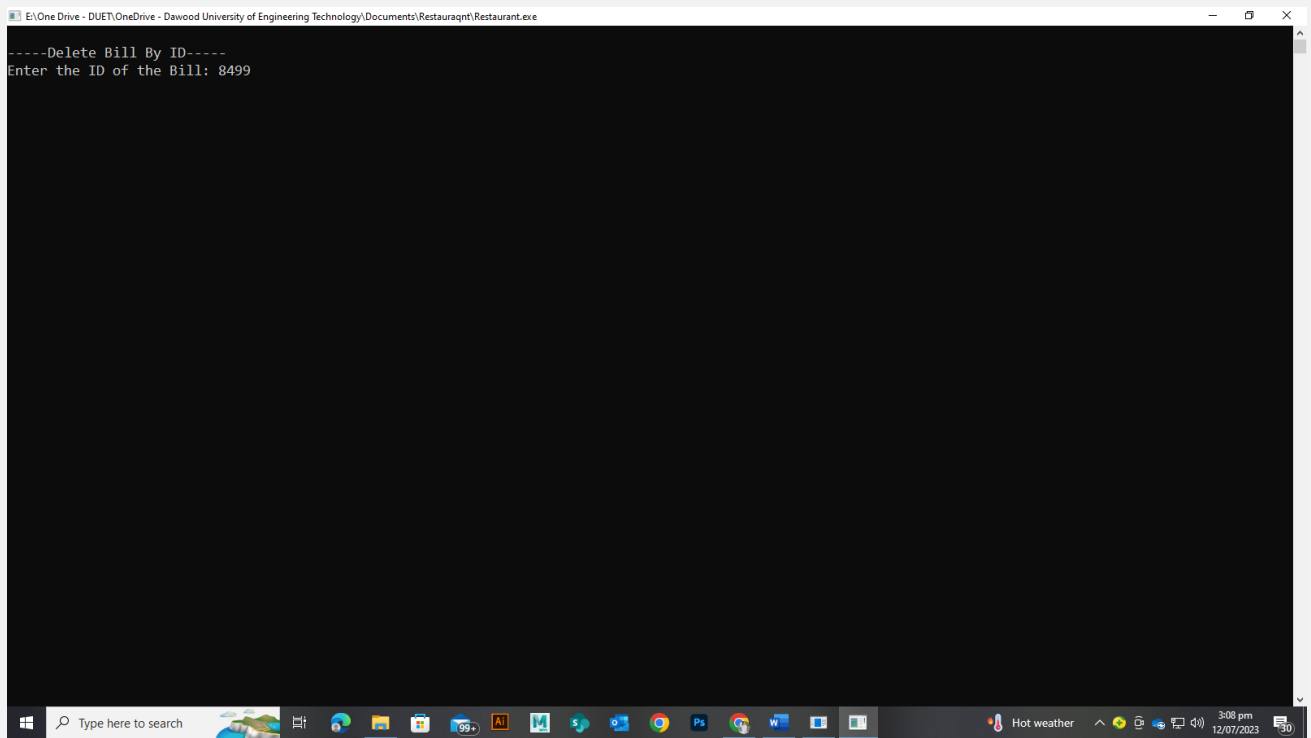
```
-----Search Bill By Name-----
Enter the Name of the Customer hamza_
```

```
********Bill of hamza********


        ----------------------------
        Welcome to Hamza Restaurant
        ----------------------------
Wed Jul 12 15:08:29 2023
Bill ID: 8597
Customer Name: hamza
----------------------------------------
Items          Qty          Total
----------------------------------------

1              1            1.00

----------------------------------------
Sub Total                   1.00
Discount @10%               0.10
                          -----------
Net Total                   0.90
GST @9%                     0.08
----------------------------------------
Amount Payable              0.98
----------------------------------------
Start Again? [y/n]
```

```
***Bill 8599***

Bill 8599 Not Found..!
Start Again? [y/n]
```

```
***Bill 8597***


         -----------------------------
         Welcome to Hamza Restaurant
         -----------------------------
Wed Jul 12 15:08:53 2023
Bill ID: 8597
Customer Name: hamza
----------------------------------------
Items          Qty           Total
----------------------------------------

1              1             1.00


----------------------------------------
Sub Total                    1.00
Discount @10%                0.10
                            -----------
Net Total                    0.90
GST @9%                       0.08
----------------------------------------
Amount Payable               0.98
----------------------------------------
Start Again? [y/n] _
```