



# **PES UNIVERSITY**

**(Established under Karnataka Act No.16 of 2013)**

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## **Problem Solving with C Laboratory – UE19CS152**

### **C Mini Project**

**Project Topic :- Customer Billing System**

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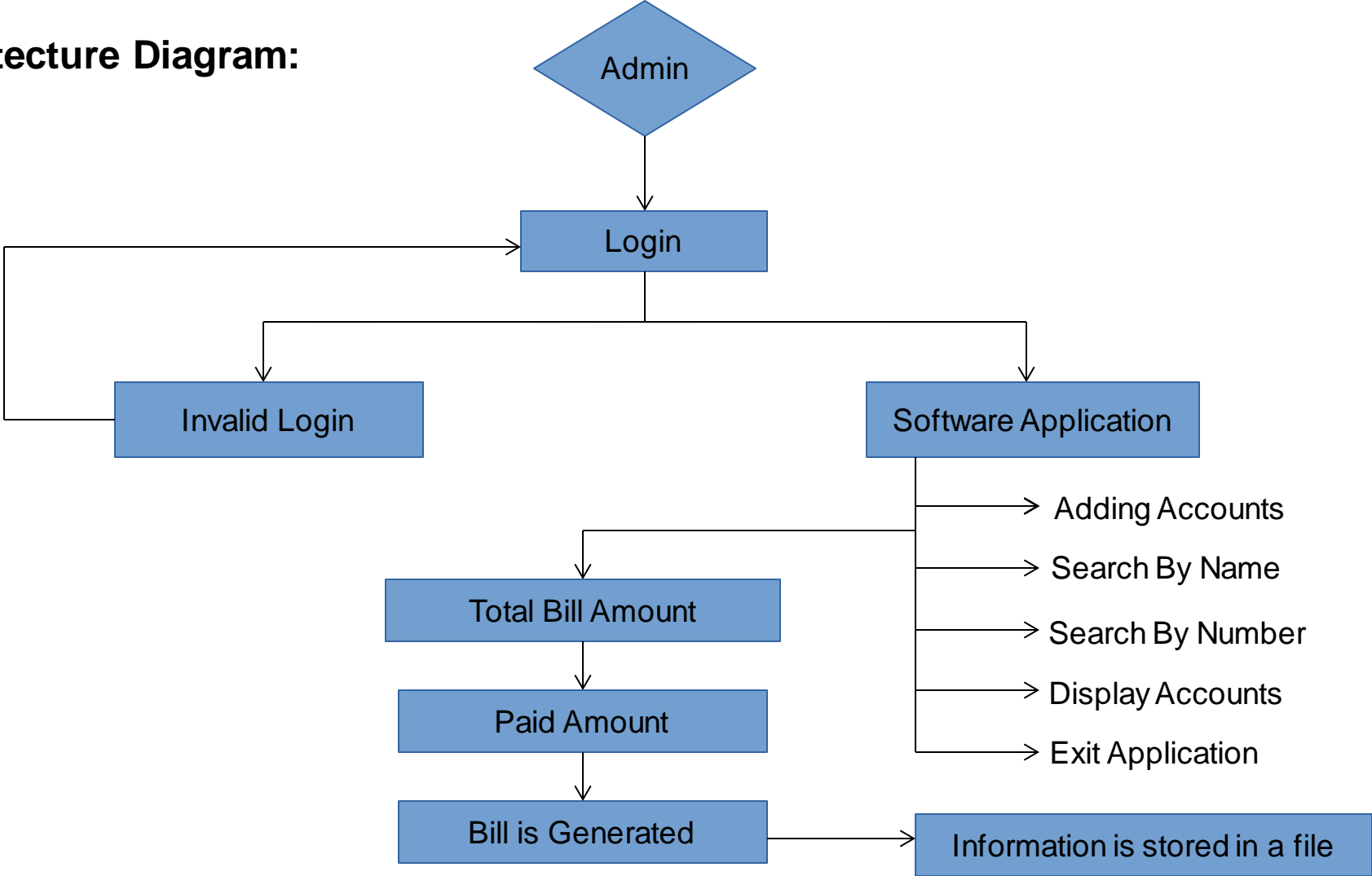
# Introduction

.Customer Billing System Project is a simple console application designed to demonstrate the practical use of C programming language and its features as well as to generate an application which can be used in any departmental stores,shops,cafes etc.for billing to the customer.

.This is an application to automate the process of billing of a departmental store,this is designed considering the chain of departmental store which is located in various cities.

.This application also administrates its users and customers.

# Architecture Diagram:



```

4  #include<stdio.h>          // .h header file for input and output
5  #include<stdlib.h>         // this header file is for exit() function
6  #include<termios.h>
7  #include<string.h>         // this header file is for string functions
8
9  #define USERNAME "sumitadmin" // defining username to be used
10 #define PASSWORD "sumit123"  // password for admin login
11
12 static struct termios old, new;
13
14 void initTermios(int echo)
15 {
16     tcgetattr(0,&old);
17     new = old;
18     new.c_lflag &= ~ICANON;
19     new.c_lflag &= echo ? ECHO : ~ECHO;
20     tcsetattr(0,TCSANOW,&new);
21 }
22
23 void resetTermios(void)
24 {
25     tcsetattr(0,TCSANOW,&old);
26 }
27
28 char getch_(int echo)
29 {
30     char ch;
31     initTermios(echo);
32     ch = getchar();
33     resetTermios();
34     return ch;
35 }
36
37 char getch(void)
38 {
39     return getch_(0);
40 }
41

```

termios.h header file

It contains the definitions used by the terminal I/O interfaces that is provided to control asynchronous communication ports.

This is declared as function and it is also defined as macros

Tcsetattr() shall set the parameters associated with the terminal referred to by the open file descriptor from the termios structure.

```

83 void addAccounts();
84 void searchAccountByName();
85 void runApplication(); //user defined function to run this application
86 int displayMenu(); // to display the menu that the admin wants to pe
87 void searchAccountBySlNum();
88 void displayAllCustomers();
89 void saveCustomers();
90 void loadSavedCustomers();
91 void flush();
92
93
94 struct Customer customer[100]; //creating array of structures to store each
95 int currentSelectedOption = -1;
96 int customerCount = 0;
97
98 int main () //main function of this program.
99 {
100     char user[30],pass[30];
101     int i;
102     printf("\n\n***** Admin Login *****\n\n");
103     printf("\tEnter username : ");
104     gets(user);
105     printf("\tEnter password : ");
106     getPassword(pass);
107
108
109     if(!strcmp(user,USERNAME) && !strcmp(pass,PASSWORD))
110     {
111         printf("\n\n\t\t\t\t\t Logged IN Successful \n\n");
112         loadSavedCustomers();
113         while(1) runApplication();
114     }
115     else
116     {
117         printf("\n\n\t\t\t\t\t Incorrect username and password!!!!!!! (please enter correct)\n\n");
118         main();
119     }
120     return 0;
121 }
122

```

Defining the selected option globally

Login Part where admin as to enter username and password  
So that only authorized users can use this application,this is one of the security feature has been implemented in this application.

Invalid Login

```

123 void runApplication()
124 {
125     //loadSavedCustomers();
126     currentSelectedOption = displayMenu();
127     switch (currentSelectedOption)
128     {
129         case 1:
130             addAccounts();
131             break;
132
133         case 2:
134             searchAccountByName();
135             break;
136
137         case 3:
138             searchAccountBySlNum();
139             break;
140
141         case 4:
142             displayAllCustomers();
143             break;
144
145         case 5:
146             // TODO: Save and Exit
147             saveCustomers();
148             exit(0);
149             break;
150
151         default:
152             printf("\n\nYou have made a wrong choice. Please retry!\n");
153             break;
154     }
155 }
156

```

This is the main part of the application  
 In the first displayMenu() function is called  
 And it takes the input from user as current  
 Selected option and returns that input.  
 According to the input given by the user  
 It will perform the particular operation by  
 Calling that function, which is called in  
 Particular switch cases.

```

260 void addAccounts()
261 {
262     int s=0;
263     customer[customerCount].number = customerCount + 1;
264     printf("*****\n");
265     printf("Customer no          : %d\n",customer[customerCount].number);
266     printf("Enter Customer Name      : ");
267     scanf("%s^\n",customer[customerCount].name);
268     printf("Payment Date (dd/mm/yyyy)   : ");
269     scanf("%s^\n",customer[customerCount].date);
270     printf("How many products %s has bought : ",customer[customerCount].name);
271     scanf("%d",&customer[customerCount].no_of_products);
272     for(int i=0 ; i<customer[customerCount].no_of_products ; i++)
273     {
274         printf("-----\n");
275         printf("Enter name of product %d      : ",i+1);
276         scanf("%s^\n",customer[customerCount].product[i].item_name);
277         printf("Enter unit price of product %d : ",i+1);
278         scanf("%d",&customer[customerCount].product[i].unit_price);
279         printf("Enter no of quantity purchased : ");
280         scanf("%d",&customer[customerCount].product[i].no_of_items);
281         //printf("-----\n");
282         customer[customerCount].product[i].total_price=((customer[customerCount].product[i].unit_price*customer[customerCount].product[i].no_of_items));
283     }
284     for(int i=0 ; i<customer[customerCount].no_of_products ; i++)
285     {
286         s = s + customer[customerCount].product[i].total_price;
287     }
288     customer[customerCount].bill_amount = s;
289     printf("\nItem          Unit Price      Quantity      Total Price \n");
290     for(int i=0 ; i<customer[customerCount].no_of_products ; i++)
291     {
292         printf("   %s          %d          %d          %d ",customer[customerCount].product[i].item_name, customer[customerCount].product[i].unit_price, customer[customerCount].product[i].no_of_items, customer[customerCount].product[i].total_price);
293         printf("\n");
294     }
295     printf("-----\n");
296     printf("                Total Bill Amount      :      %d          \n ",customer[customerCount].bill_amount);
297     printf("-----\n");
298     printf("Enter Paid Amount          : ");
299     scanf("%d",&customer[customerCount].paid_amount);
300     customer[customerCount].due_amount = customer[customerCount].bill_amount - customer[customerCount].paid_amount;
301     printf("*****\n");
302     printf("Due Amount is              : %d \n\n ",customer[customerCount].due_amount);
303     printf("*****\n");

```

Definition of the function to add customer account and entering the details of each products, and accordingly toll bill amount is generated. Paid amount and due amount



```

310 int displayMenu()
311 {
312     printf("\n***** CUSTOMER BILLING SYSYTEM ***** \n");
313     printf("..... \n");
314     printf("          MENU          \n");
315     printf("..... \n\n");
316     printf("1. Add accounts. \n");
317     printf("2. Search account by Customer Name. \n");
318     printf("3. Search account by Customer Serial number. \n");
319     printf("4. Display All customers. \n");
320     printf("5. Exit Application. \n");
321     printf("..... \n\n");
322     printf("Please Enter Your Choice ? : ");
323     if(scanf("%d",&currentSelectedOption)!=1)
324     {
325         flush();
326         return 0;
327     }
328     else
329     {
330         flush();
331         return currentSelectedOption ;
332     }
333 }
334
335 void loadSavedCustomers()
336 {
337     FILE *infile;
338     struct Customer tempCustomer;
339     infile = fopen ("accounts.txt", "r");
340
341     if (infile == NULL)
342         return;
343
344     while(fread(&tempCustomer, sizeof(struct Customer), 1, infile))
345     {
346         customer[customerCount] = tempCustomer;
347         customerCount++;
348     }
349 }
350
351 void saveCustomers()
352 {

```

Displaying menu so,we can perform any operation by entering our choice

If user enters wrong input like character or a string,for entering the choice,flush() function will avoid the program to run in infinite loop.

Loading all saved customer accounts Into a text file accounts.txt, so that user Can read all customer accounts.



File pointer

Saving all customer accounts  
In a text file accounts.txt

For storing all customer accounts  
we have used file concept, and we  
can also read information from  
the file, we can also display all  
customer accounts.

```
351 void saveCustomers()
352 {
353     FILE *fp;
354     fp = fopen("accounts.txt", "w");
355     if(fp == NULL)
356     {
357         fprintf(stderr, "\nError open file\n");
358         exit(1);
359     }
360     for(int i=0 ; i<customerCount ; i++)
361     {
362         fwrite(&customer[i], sizeof(customer[i]), 1, fp);
363     }
364     fclose(fp);
365 }
366 void flush()
367 {
368     int c;
369     while((c=getchar())!=EOF && c!='\n');
370 }
371 // END OF THE PROJECT.
372
373
```

```

188 void searchAccountByName()
189 {
190     char name[100];
191     printf("Enter the name to search: ");
192     scanf("%s", name);
193
194     for (int i = 0; i < customerCount; i++)
195     {
196         if (strcmp(name, customer[i].name) == 0)
197         {
198             //printf("Found customer -> ID: %d, Name: %s, Age: %d", customer[i].id, customer[i].name, customer[i].age);
199             printf("\n*****\n");
200
201             printf("Customer Name      : %s\n",customer[i].name);
202             printf("Customer Number    : %d\n",customer[i].number);
203             printf("Date (dd/mm/yyyy)   : %s\n",customer[i].date);
204             printf("\nItem          Unit Price    Quantity    Total Price \n");
205             for(int j = 0 ; j<customer[i].no_of_products ; j++)
206             {
207                 printf(" %s          %d          %d          %d ",customer[i].product[j].item_n
208                 printf("\n");
209             }
210             printf("-----\n");
211             printf("                Total Bill Amount      :          %d          \n ",customer[i].bill_amount);
212             printf("-----\n");
213             printf("Paid Amount          : %d \n",customer[i].paid_amount);
214             printf("-----\n"); //due amount or th
215             printf("Due Amount is        : %d \n\n ",customer[i].due_amount);
216             printf("-----\n\n");
217
218             printf("*****\n");
219             return;
220         }
221     }
222     printf("\n\n Could not find the customer name. Please retry!\n");
223 }
224

```

Searching the customer account by name.

## Output Screenshots:

```
***** Admin Login *****  
  
Enter username : sumitadmin  
Enter password : *****  
  
Logged IN Successful  
  
***** CUSTOMER BILLING SYSYTEM *****  
.....  
                        MENU  
.....  
  
1. Add accounts.  
2. Search account by Customer Name.  
3. Search account by Customer Serial number.  
4. Display All customers.  
5. Exit Application.  
.....  
  
Please Enter Your Choice ? : 1
```

Login Page

\*\*\*\*\* CUSTOMER BILLING SYSTEM \*\*\*\*\*

.....  
MENU  
.....

1. Add accounts.
  2. Search account by Customer Name.
  3. Search account by Customer Serial number.
  4. Display All customers.
  5. Exit Application.
- .....

Please Enter Your Choice ? : 1

\*\*\*\*\*

Customer no : 4  
Enter Customer Name : arjun  
Payment Date (dd/mm/yyyy) : 15/03/2020  
How many products arjun has bought : 2

-----  
Enter name of product 1 : coke  
Enter unit price of product 1 : 79  
Enter no of quantity purchased : 3

-----  
Enter name of product 2 : book  
Enter unit price of product 2 : 50  
Enter no of quantity purchased : 2

Item	Unit Price	Quantity	Total Price
coke	79	3	237
book	50	2	100

-----  
Total Bill Amount : 337  
-----

Enter Paid Amount : 337

\*\*\*\*\*

Due Amount is : 0

\*\*\*\*\*

Adding customer account

\*\*\*\*\* CUSTOMER BILLING SYSYTEM \*\*\*\*\*

.....  
MENU  
.....

1. Add accounts.
  2. Search account by Customer Name.
  3. Search account by Customer Serial number.
  4. Display All customers.
  5. Exit Application.
- .....

Please Enter Your Choice ? : 2  
Enter the name to search: chandru

\*\*\*\*\*

Customer Name : chandru  
Customer Number : 2  
Date (dd/mm/yyyy) : 23/10/2020

Item	Unit Price	Quantity	Total Price
chocolate	50	3	150

-----  
Total Bill Amount : 150  
-----

Paid Amount : 140  
-----

Due Amount is : 10  
-----

\*\*\*\*\*

ing customer account  
e

\*\*\*\*\* CUSTOMER BILLING SYSYTEM \*\*\*\*\*

.....  
MENU  
.....

- 1. Add accounts.
  - 2. Search account by Customer Name.
  - 3. Search account by Customer Serial number.
  - 4. Display All customers.
  - 5. Exit Application.
- .....

Please Enter Your Choice ? : 3  
Enter the Sl number to search: 4

\*\*\*\*\*

Customer Name : arjun  
Customer Number : 4  
Date (dd/mm/yyyy) : 15/03/2020

Item	Unit Price	Quantity	Total Price
coke	79	3	237
book	50	2	100

-----  
Total Bill Amount : 337  
-----

Paid Amount : 337  
-----

Due Amount is : 0  
-----

\*\*\*\*\*

hing customer account  
mber

```
***** CUSTOMER BILLING SYSYTEM *****
.....
                        MENU
.....

1. Add accounts.
2. Search account by Customer Name.
3. Search account by Customer Serial number.
4. Display All customers.
5. Exit Application.
.....
```

Please Enter Your Choice ? : 4

```
*****
Customer Name      : rajesh
Customer Number    : 1
Date (dd/mm/yyyy) : 12/03/2019
```

Item	Unit Price	Quantity	Total Price
soap	1	1	1
coke	2	1	2

-----

Total Bill Amount	:	3
-------------------	---	---

-----

Paid Amount : 2

-----

Due Amount is : 1

-----

```
*****
Customer Name      : chandru
Customer Number    : 2
Date (dd/mm/yyyy) : 23/10/2020
```

Item	Unit Price	Quantity	Total Price
choclote	50	3	150

-----

Total Bill Amount	:	150
-------------------	---	-----

-----

Paid Amount : 140

-----

Due Amount is : 10

-----

isplaying all customer accounts



\*\*\*\*\*

Customer Name : ajay  
Customer Number : 3  
Date (dd/mm/yyyy) : 23/03/2020

Item	Unit Price	Quantity	Total Price
pen	20	3	60
book	50	2	100
coke	120	2	240

-----  
Total Bill Amount : 400  
-----

Paid Amount : 400  
-----

Due Amount is : 0  
-----

\*\*\*\*\*

\*\*\*\*\*

Customer Name : arjun  
Customer Number : 4  
Date (dd/mm/yyyy) : 15/03/2020

Item	Unit Price	Quantity	Total Price
coke	79	3	237
book	50	2	100

-----  
Total Bill Amount : 337  
-----

Paid Amount : 337  
-----

Due Amount is : 0  
-----

\*\*\*\*\*

```
***** CUSTOMER BILLING SYSYTEM *****  
.....  
                        MENU  
.....  
1. Add accounts.  
2. Search account by Customer Name.  
3. Search account by Customer Serial number.  
4. Display All customers.  
5. Exit Application.  
.....  
Please Enter Your Choice ? : 5  
hrithik@pesu:~/Documents$
```

To exit applicaion

```
***** Admin Login *****
```

```
Enter username : sumitpes
```

```
Enter password : *****
```

```
Incorrect username and password!!!!!!! (please enter correct login credentials)
```

```
***** Admin Login *****
```

```
Enter username : sumitadmin
```

```
Enter password : *****
```

```
Logged IN Successful
```

```
***** CUSTOMER BILLING SYSYTEM *****
```

```
.....  
MENU
```

```
.....
```

1. Add accounts.
2. Search account by Customer Name.
3. Search account by Customer Serial number.
4. Display All customers.
5. Exit Application.

```
.....
```

```
Please Enter Your Choice ? : █
```

# Invalid Login

```
***** CUSTOMER BILLING SYSYTEM *****
```

```
.....  
MENU  
.....
```

- ```
1. Add accounts.  
2. Search account by Customer Name.  
3. Search account by Customer Serial number.  
4. Display All customers.  
5. Exit Application.  
.....
```

```
Please Enter Your Choice ? : 9
```

```
You have made a wrong choice. Please retry!!!!!!
```

```
***** CUSTOMER BILLING SYSYTEM *****
```

```
.....  
MENU  
.....
```

- ```
1. Add accounts.  
2. Search account by Customer Name.  
3. Search account by Customer Serial number.  
4. Display All customers.  
5. Exit Application.  
.....
```

```
Please Enter Your Choice ? : three
```

```
You have made a wrong choice. Please retry!!!!!!
```

## Invalid choice

Entering wrong choice

```
***** CUSTOMER BILLING SYSYTEM *****  
.....  
                        MENU  
.....  
1. Add accounts.  
2. Search account by Customer Name.  
3. Search account by Customer Serial number.  
4. Display All customers.  
5. Exit Application.  
.....  
Please Enter Your Choice ? : 2  
Enter the name to search: tarun  
  
Could not find the customer name. Please retry!
```

Exception: customer name  
doesn't exist.

```
***** CUSTOMER BILLING SYSYTEM *****  
.....  
                        MENU  
.....  
1. Add accounts.  
2. Search account by Customer Name.  
3. Search account by Customer Serial number.  
4. Display All customers.  
5. Exit Application.  
.....  
Please Enter Your Choice ? : 3  
Enter the Sl number to search: 10  
  
Could not find the customer number. Please retry!
```

Exception: customer number  
doesn't exist.

**Thank You**