



PES UNIVERSITY
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Course Title: Problem Solving with C Laboratory		
Course code: UE19CS152		
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PROJECT REPORT

1.Problem Statement

To create a customer database management system for a hotel using file handling in C.

2.Description

The goal of our project is to create a fully functional customer database management system for a hotel . It should be able to address all needs and concerns of a hotel owner , while managing the data of customers staying in his/her hotel efficiently.

Our project contains various features like appending a customer record, searching data from the database, displaying the records, modifying data, deleting a record etc.

We have designed the program by using various functions where the functions access the text files using different file modes.

3.C-concepts used

We have used various C-concepts like :

- File handling of text files in C using different modes.
- Creating a database using C.
- Appending data to a text file in C using file pointers and some functions like fscanf() and fprintf() in c whose syntax is given below.
- Modifying data in a file and accessing data from a file.
- Searching data from a file using file pointers.

The functions that we have used in our project include:

- **fprintf()**: This function is part of the stdio.h header file .

Syntax: `int fprintf(FILE * stream , const char* format , ...);`

FILE *stream is a pointer to the output file stream to which contents are to be written.

It returns a value of type integer .It writes the string format to the file pointed to by the file stream. It may contain format specifiers starting with % which are replaced by values of variables that are passes to fprintf() function as arguments.

It is the same as printf() except that it write the formatted string to the file through file pointer.

Eg: `fprintf(fp, "%d %d",a,b);`

- **fscanf():** This function is part of the `stdio.h` header file.

Syntax: `int fscanf(FILE *stream, const char * format ,...);`

`FILE *stream` is a pointer to the file which identifies the stream to be read to the program.

It returns a value of type integer. It reads the string format specified by using the file pointer. It may contain format specifiers starting with % which are replaced by values of variables that are passes to `fprintf()` function as arguments.

It is the same as `scanf()` except that it reads the formatted string from the file.

Eg: `fscanf(fp, "%d %d", &a, &b);`

- **fopen() and fclose():**

`fopen()` is used to open a file and set the pointer to the beginning of the file.

Syntax: `FILE *fopen(const char *file_name , const char* mode of operation);`

The first argument to this function is the name of the file with its extension. The second argument is the mode in which the file must be operated. For example, some of the file modes are "w" which is used to write/create a file , "r" to read from a file , "a" to append to a file, etc.

Eg: `fp= fopen("test.txt","w");`

`fclose()` is used to close a file and the stream associated with it.

Syntax: `int fclose(FILE *stream);`

Eg: `fclose(fp);`

- **feof():** This function is used to check whether a file pointer is pointing to the End Of File(EOF).

Syntax: `int feof(FILE * stream);`

Eg: `feof(fp);`

- **strcmp() and strcpy():** These functions are part of the `string.h` header file . It is compare and copy strings, respectively.

Syntax: `int strcmp(const char* s1, const char *s2);`

It returns 0 if the strings are equal, positive integer if the ASCII value of the first unmatched char is greater than the second, negative integer if the ASCII value of the first unmatched char is less than the second.

Syntax: `char* strcpy(const char* destination, const char *source);`

It copies the source string to the destination string.

Self – learning concepts :

- **fseek() :** `fseek()` is used to move file pointer to the desired location in a file.

Syntax: `int fseek(FILE *pointer, long int offset, int position);`

Where: `pointer` is the file pointer to the file .

`offset` is the number of bytes to offset from the position.

`position` is the position from where offset is added.

The various positions that are used :

`SEEK_END` : Denotes the end of the file ,`SEEK_CUR`: Denotes the current position of the file pointer, `SEEK_SET`: Denotes the starting of the file.

Eg: `fseek(fp,0,SEEK_SET);`

- **atoi():** It converts the string argument to an integer.

Syntax: `int atoi(const char * str);`

It returns an integer value and is part of the `stdlib.h` header file. It returns zero if it is unable to convert the string.

Eg: `atoi(str);`

where `str` "1234". It returns an integer value =1234.

- **strtoll():** It is used to convert a string to a long long integer.

Syntax: `long long strtoll(const char* str, char ** endptr, int base);`

where, str is a pointer to the string. Contains the string to be converted. On successful conversion, endptr points to first character after the number. Else, is set to NULL pointer.
The next parameter is the base of the input string(based of number system).
Eg: strtoll(str, &end, 10);

4.Learning Outcome

We learnt to use various function under different header files as described in the self – leaning concepts under C-concepts. We also learnt how to manage a customer database. We defined some user-defined functions to append , display, modify , delete records etc. from the text based database. We learnt about file pointers and their functions too. We also learnt how to implement database and file handling concepts in C.

5.Output screenshots

Fig.1: Welcome page

```
-----
000000 000000 000000 000000 000000 000000 0 0 000000 000000
0 0 0 0 0 0 0 0 0 0
0 000 000000 000000 000000 0 0 0 0 0 000 000000
0 0 0 0 0 0 0 0 0 0 0 0 0
000000 0 0 000000 000000 0 000000 0 0 0 000000 000000
-----
*****
*
* -----
* WELCOME TO HOTEL PINNACLE
* -----
*
*
*
*
*
*
*
*
*
*****
CONTACT US:9999999999,9000000000
*****
-----
Press any key to continue:
```

Fig.2:Login page

```
Welcome to Hotel PINNACLE PARADISE

***** LOGIN FORM *****
Username: hotel
Password: *****
```

```
Welcome to Hotel PINNACLE PARADISE

***** LOGIN FORM *****
Username: hotel
Password: ****
Incorrect password
Please enter correct data

Username: hotel
Password: *****
LOGIN SUCCESSFUL
```

Fig.3:Menu

```
Select option

1.Display all customer data
2.Append records
3.Search
4.Modify a record
5.Search and display record
6.Delete a customer record
7.Room availability information
8.Exit
```

Fig.4:Display all customer data

C-no.	Name	Roomno.	RoomType	Ph.no	Days	Total.amt.	Paid.amt.	Balance	Email-id
1	Asha	101	single	5432123456	2	2000	1000	1000	asha@gmail.com
2	Sam	109	single	8765456789	3	4000	2000	2000	sam@gmail.com
3	Sagar	102	single	6543234567	3	6000	4000	2000	sagar@gmail.com
4	Sundar	323	deluxe	9854637281	3	4000	3000	1000	sundar@gmail.com
5	Sujata	214	double	7654376543	8	9000	8000	1000	sujata@gmail.com
6	Ujwal	201	double	7654387654	6	8000	7000	1000	ujwal@yahoo.com
7	Bhagya	303	deluxe	9768756473	4	6000	5000	1000	bhagya@hotmail.com
8	Josh	212	double	9876545678	5	6000	5000	1000	joshua@yahoo.com
9	Sahana	115	single	9856754345	2	5000	3000	2000	sahana@gmail.com
10	Raj	216	double	9876545678	3	4000	2000	2000	raj@yahoo.com
11	Ankitha	307	deluxe	9675846787	4	5000	3000	2000	ankitha@gmail.com
12	Rohit	308	deluxe	7558945655	8	7000	4000	3000	rohit@yahoo.com
13	Dinesh	310	double	8765790008	4	3000	1500	1500	dinesh@hotmail.com
14	Suresh	113	single	9098765699	3	3000	1500	1500	suresh@gmail.com
15	Nikhil	304	deluxe	9876512387	2	3800	1700	2100	nikhil@gmail.com

Would you like to continue to use our database ..?
Enter
1.Yes or
2.No

Fig.4:Appending customer records

```
Number of customers: 2

Customer no.: 16
Name: Arjun
Room type(single,double or deluxe):single
Single rooms available for booking :
103,104,105,106,107,108,110,111,112,114,116,117,118,119,120,121,122,123,124,125,126,127,128,129,130,131,132,133,134,135,136,137,138,139,140,141,142,143,144,145,146,147,148,149,150

Enter room no.(101-150): 101
Room already booked.

Enter room no.(101-150): 103
Phone no: 9851709765
Email-id: arjun@gmail.com
Days: 3
Total amt: 5400
Paid amt: 2300

Customer no.: 17
Name: Sara
Room type(single,double or deluxe):double
Double rooms available for booking :
202,203,204,205,206,207,208,209,210,211,213,215,217,218,219,220,221,222,223,224,225,226,227,228,229,230,231,232,233,234,235,236,237,238,239,240,241,242,243,244,245,246,247,248,249,250

Enter room no.(201-250): 202
Phone no: 7816209119
Email-id: sara@yahoo.com
Days: 5
Total amt: 9200
Paid amt: 4100
Would you like to continue to use our database ..?
Enter
1.Yes or
2.No
1
```

Fig.5:Searching in a field

```
In which field would you like to search ?Enter respective
1.C-no.
2.Name
3.Roomno.
4.Roomtype (single/double/deluxe)
5.Phone.no
6.Email-id
7.Days
8.Totalamt
9.Paid.amt
10.Balamt
3
Enter the data to find :101
Found

Would you like to continue to use our database ..?
Enter
1.Yes or
2.No
1
```

```
In which field would you like to search ?Enter respective
1.C-no.
2.Name
3.Roomno.
4.Roomtype (single/double/deluxe)
5.Phone.no
6.Email-id
7.Days
8.Totalamt
9.Paid.amt
10.Balamt
3
Enter the data to find :111
Not found

Would you like to continue to use our database ..?
Enter
1.Yes or
2.No
```

Fig.6:Modifying data in a field

```
Enter the Customer-no of the record to be updated: 12
Which field would you like to update:
Enter respective no for the field:
1.Name
2.Roomtype(single/double/deluxe) & Room no.
3.Phone.no
4.Email-id
5.Days
6.Totalamt
7.Paid.amt
8.Balamt
1
Enter the new data:Swathi
Record updated.

Would you like to continue to use our database ..?
Enter
1.Yes or
2.No
_
```

```
Enter the Customer-no of the record to be updated: 20
Which field would you like to update:
Enter respective no for the field:
1.Name
2.Roomtype(single/double/deluxe) & Room no.
3.Phone.no
4.Email-id
5.Days
6.Totalamt
7.Paid.amt
8.Balamt
1
Enter the new data:Sam
This customer no. does not exist.

Would you like to continue to use our database ..?
Enter
1.Yes or
2.No
```

```
Enter the Customer-no of the record to be updated: 32
Which field would you like to update:
Enter respective no for the field:
1.Name
2.Roomtype(single/double/deluxe) & Room no.
3.Phone.no
4.Email-id
5.Days
6.Totalamt
7.Paid.amt
8.Balamt
2
Enter the Roomtype:deluxe
Deluxe rooms available for booking :
301,302,305,306,309,311,312,313,314,315,316,317,318,319,320,321,322,324,325,326,327,328,329,330,331,332,333,334,335,336,337,338,339,340,341,342,343,344,345,346,347,348,349,350
Enter room no.(301-350): 301
Record updated.

Would you like to continue to use our database ..?
Enter
1.Yes or
2.No
_
```

Fig.7:Search and display the records

```

In which field would you like to search ?Enter respective no for the field:
1.C-no.
2.Name
3.Roomno.
4.Roomtype (single/double/deluxe)
5.Phone.no
6.Email-id
7.Days
8.Totalamt
9.Paid.amt
10.Balamt
4
Enter the data to find: single
C-no.      Name      Roomno.      RoomType      Ph.no      Days      Total.amt.      Paid.amt.      Balance      Email-id
1          Asha      101          single        5432123456      2          2000          1000          1000          asha@gmail.com
2          Sam      109          single        8765456789      3          4000          2000          2000          sam@gmail.com
3          Sagar      102          single        6543234567      3          6000          4000          2000          sagar@gmail.com
9          Sahana      115          single        9856754345      2          5000          3000          2000          sahana@gmail.com
14         Suresh      113          single        9098765699      3          3000          1500          1500          suresh@gmail.com
16         Arjun      103          single        9851709765      3          5400          2300          3100          arjun@gmail.com

Would you like to continue to use our database ??
Enter
1.Yes or
2.No
  
```

```

In which field would you like to search ?Enter respective no for the field:
1.C-no.
2.Name
3.Roomno.
4.Roomtype (single/double/deluxe)
5.Phone.no
6.Email-id
7.Days
8.Totalamt
9.Paid.amt
10.Balamt
2
Enter the data to find: Josh
C-no.      Name      Roomno.      RoomType      Ph.no      Days      Total.amt.      Paid.amt.      Balance      Email-id
8          Josh      212          double        9876545678      5          6000          5000          1000          joshua@yahoo.com

Would you like to continue to use our database ??
Enter
1.Yes or
2.No
  
```

Fig.8:Room availability information

C-no.	Name	Roomno.	RoomType
1	Asha	101	single
2	Sam	109	single
3	Sagar	102	single
4	Sundar	323	deluxe
5	Sujata	214	double
6	Ujwal	201	double
7	Bhagya	303	deluxe
8	Josh	212	double
9	Sahana	115	single
10	Raj	216	double
11	Ankitha	307	deluxe
12	Swathi	301	deluxe
13	Dinesh	310	double
14	Suresh	113	single
15	Nikhil	304	deluxe
16	Arjun	103	single
17	Sara	202	double

```

Would you like to continue to use our database ??
Enter
1.Yes or
2.No

Rooms occupied:
    single rooms:6
    double rooms:6
    deluxe rooms:5
Rooms available:
    single rooms:44
    double rooms:44
    deluxe rooms:45
Total rooms : 150
Total rooms booked : 17
Rooms available for booking: 133

Would you like to continue to use our database ??
Enter
1.Yes or
2.No
  
```

Fig.9:Deleting a record

```
Enter the Customer-no. of the record to delete: 17
Customer record deleted.
Would you like to continue to use our database ..?
Enter
1.Yes or
2.No
```

After deleting:

C-no.	Name	Roomno.	RoomType
1	Asha	101	single
2	Sam	109	single
3	Sagar	102	single
4	Sundar	323	deluxe
5	Sujata	214	double
6	Ujwal	201	double
7	Bhagya	303	deluxe
8	Josh	212	double
9	Sahana	115	single
10	Raj	216	double
11	Ankitha	307	deluxe
12	Swathi	301	deluxe
13	Dinesh	310	double
14	Suresh	113	single
15	Nikhil	304	deluxe
16	Arjun	103	single

Would you like to continue to use our database ..?
Enter
1.Yes or
2.No

```
Rooms occupied:
    single rooms:6
    double rooms:5
    deluxe rooms:5
Rooms available:
    single rooms:44
    double rooms:45
    deluxe rooms:45
Total rooms : 150
Total rooms booked : 16
Rooms available for booking: 134
Would you like to continue to use our database ..?
Enter
1.Yes or
2.No
```