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| **Ex No: 16** | **Telephone directory using random access file** |

**AIM**

To insert, update, delete and append telephone details of an individual or a company into a telephone directory using random access file.

**ALGORITHM**

Step 1: Create a random access file  
Step 2: call the respective procedure to insert, update, delete or append based on user choice  
Step 3: Access the random access file to make the necessary changes and save

**PRE-LAB QUESTIONS**

1. Write a C program to read a single character from a file
2. Explain the syntax as given below:  
   fread(&my\_record, sizeof(struct rec), 1, ptr\_myfile);
3. Define file. Give its types
4. What is the use of fread() and fwrite()
5. What is the use of ftell() and rewind()

**PROGRAM**

#include "stdio.h"

#include "string.h"

#include<stdlib.h>

#include<fcntl.h>

struct dir

**{**

char name**[**20**];**

char number**[**10**];**

**};**

void insert**(**FILE **\*);**

void update**(**FILE **\*);**

void del**(**FILE **\*);**

void display**(**FILE **\*);**

void search**(**FILE **\*);**

int record **=** 0**;**

int main**(**void**)** **{**

int choice **=** 0**;**

FILE **\***fp **=** fopen**(** "telephone.dat"**,** "rb+" **);**

**if** **(**fp **==** **NULL** **)** perror **(**"Error opening file"**);**

**while** **(**choice **!=** 6**)**

**{**

printf**(**"\n1 insert\t 2 update\n"**);**

printf**(**"3 delete\t 4 display\n"**);**

printf**(**"5 search\t 6 Exit\n Enter choice:"**);**

scanf**(**"%d"**,** **&**choice**);**

**switch(**choice**)**

**{**

**case** 1**:** insert**(**fp**);** **break;**

**case** 2**:** update**(**fp**);** **break;**

**case** 3**:** del**(**fp**);** **break;**

**case** 4**:** display**(**fp**);** **break;**

**case** 5**:** search**(**fp**);** **break;**

**default:** **;**

**}**

**}**

fclose**(**fp**);**

**return** 0**;**

**}**

void insert**(**FILE **\***fp**)**

**{**

struct dir contact**,** blank**;**

fseek**(** fp**,** **-sizeof(**struct dir**),** SEEK\_END **);**

fread**(&**blank**,** **sizeof(**struct dir**),** 1**,** fp**);**

printf**(**"Enter individual/company name: "**);**

scanf**(**"%s"**,** contact**.**name**);**

printf**(**"Enter telephone number: "**);**

scanf**(**"%s"**,** contact**.**number**);**

fwrite**(&**contact**,** **sizeof(**struct dir**),** 1**,** fp**);**

**}**

void update**(**FILE **\***fp**)**

**{**

char name**[**20**],** number**[**10**];**

int result**;**

struct dir contact**,** blank**;**

printf**(**"Enter name:"**);**

scanf**(**"%s"**,** name**);**

rewind**(**fp**);**

**while(!**feof**(**fp**))**

**{**

result **=** fread**(&**contact**,** **sizeof(**struct dir**),** 1**,** fp**);**

**if(**result **!=** 0 **&&** strcmp**(**name**,** contact**.**name**)** **==** 0**)**

**{**

printf**(**"Enter number:"**);**

scanf**(**"%s"**,** number**);**

strcpy**(**contact**.**number**,** number**);**

fseek**(**fp**,** **-sizeof(**struct dir**),** SEEK\_CUR**);**

fwrite**(&**contact**,** **sizeof(**struct dir**),** 1**,** fp**);**

printf**(**"Updated successfully\n"**);**

**return;**

**}**

**}**

printf**(**"Record not found\n"**);**

**}**

void del**(**FILE **\***fp**)**

**{**

char name**[**20**],** number**[**10**];**

int result**,** record**=**0**;**

struct dir contact**,** blank **=** **{**""**,** ""**};**

printf**(**"Enter name:"**);**

scanf**(**"%s"**,** name**);**

rewind**(**fp**);**

**while(!**feof**(**fp**))**

**{**

result **=** fread**(&**contact**,** **sizeof(**struct dir**),** 1**,** fp**);**

**if(**result **!=** 0 **&&** strcmp**(**name**,** contact**.**name**)** **==** 0**)**

**{**

fseek**(**fp**,** record**\*sizeof(**struct dir**),** SEEK\_SET**);**

fwrite**(&**blank**,** **sizeof(**struct dir**),** 1**,** fp**);**

printf**(**"%d Deleted successfully\n"**,** record**-**1**);**

**return;**

**}**

record**++;**

**}**

printf**(**"not found in %d records\n"**,** record**);**

**}**

void display**(**FILE **\***fp**)**

**{**

struct dir contact**;**

int result**;**

rewind**(**fp**);**

printf**(**"\n\n Telephone directory\n"**);**

printf**(**"%20s %10s\n"**,** "Name"**,** "Number"**);**

printf**(**"\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n"**);**

**while(!**feof**(**fp**))**

**{**

result **=** fread**(&**contact**,** **sizeof(**struct dir**),** 1**,** fp**);**

**if(**result **!=** 0 **&&** strlen**(**contact**.**name**)** **>** 0**)**

printf**(**"%20s %10s\n"**,**contact**.**name**,** contact**.**number**);**

**}**

printf**(**"\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n"**);**

**}**

void search**(**FILE **\***fp**)**

**{**

struct dir contact**;**

int result**;** char name**[**20**];**

rewind**(**fp**);**

printf**(**"\nEnter name:"**);**

scanf**(**"%s"**,** name**);**

**while(!**feof**(**fp**))**

**{**

result **=** fread**(&**contact**,** **sizeof(**struct dir**),** 1**,** fp**);**

**if(**result **!=** 0 **&&** strcmp**(**contact**.**name**,** name**)** **==** 0**)**

**{**

printf**(**"\n%20s %10s\n"**,**contact**.**name**,** contact**.**number**);**

**return;**

**}**

**}**

printf**(**"Record not found\n"**);**

**}**

**OUTPUT**

1 insert 2 update

3 delete 4 display

5 search 6 Exit

Enter choice: 4

Telephone directory

Name Number

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

bb 11111

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

1 insert 2 update

3 delete 4 display

5 search 6 Exit

Enter choice: 5

Enter name: bb

bb 11111

1 insert 2 update

3 delete 4 display

5 search 6 Exit

Enter choice: 1

Enter individual/company name: aa

Enter telephone number: 222222

1 insert 2 update

3 delete 4 display

5 search 6 Exit

Enter choice: 2

Enter name: aa

Enter number: 333333

Updated successfully

1 insert 2 update

3 delete 4 display

5 search 6 Exit

Enter choice: 4

Telephone directory

Name Number

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

bb 11111

aa 333333

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

1 insert 2 update

3 delete 4 display

5 search 6 Exit

Enter choice: 3

Enter name: aa

1 Deleted successfully

1 insert 2 update

3 delete 4 display

5 search 6 Exit

Enter choice: 4

Telephone directory

Name Number

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

bb 11111

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1 insert 2 update

3 delete 4 display

5 search 6 Exit

Enter choice: 6

**POST-LAB QUESTIONS**

1. Explain in detail about random access file with example
2. Write a C program to read the contents of a file "input.txt" and write the contents to "output.txt"

**RESULT**

Thus the C program To insert, update, delete and append telephone details of an individual or a company into a telephone directory using random access file was successfully written and executed.