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| **Mini Project** | **Railway reservation system** |

**AIM**

Create a Railway reservation system in C with the following modules

* Booking
* Availability checking
* Cancellation
* Prepare chart

**ALGORITHM**

Step 1: Create a random access file  
Step 2: Call the respective procedure to book, cancel, count, check or prepare chart based on user choice  
Step 3: Access the random access file to make the necessary changes and save

**PROGRAM**

#include "stdio.h"

#include "string.h"

#include<stdlib.h>

#include<fcntl.h>

#define AMAX 10

#define FMAX 50

#define SMAX 100

**typedef** enum **{**A3**,** FC**,** SL**}** ClassType**;**

struct ticket

**{**

char name**[**30**];**

int age**;**

int number**;**

ClassType Class**;**

**};**

int A**,** F**,** S**;** // available seats

void book**(**FILE **\*);**

void cancel**(**FILE **\*);**

void chart**(**FILE **\*);**

void check**();**

void count**(**FILE **\*);**

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

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

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

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

count**(**fp**);**

check**();**

**while** **(**choice **!=** 5**)**

**{**

printf**(**"\n1 Book\t \t 2 Check availability\n"**);**

printf**(**"3 Cancel\t 4 Prepare Chart\n"**);**

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

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

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

**{**

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

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

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

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

**default:** **;**

**}**

**}**

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

**return** 0**;**

**}**

void count**(**FILE **\***fp**)**

**{**

struct ticket t**;**

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

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

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

**{**

record **=** fread**(&**t**,** **sizeof(**t**),** 1**,** fp**);**

**if(**record **&&** strcmp**(**t**.**name**,**""**))**

**{**

**if** **(**t**.**Class **==** A3**)** A**++;**

**else** **if** **(**t**.**Class **==** FC**)** F**++;**

**else** **if** **(**t**.**Class **==** SL**)** S**++;**

**}**

**}** // end-while

**}**

void book**(**FILE **\***fp**)**

**{**

struct ticket t**;**

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

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

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

scanf**(**"%d"**,** **&**t**.**number**);**

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

scanf**(**"%d"**,** **&**t**.**age**);**

printf**(**"Enter Class (AC - 0, FC - 1, SL - 2): "**);**

scanf**(**"%d"**,&**t**.**Class**);**

**if** **(**t**.**Class **==** A3**)** A**++;**

**else** **if** **(**t**.**Class **==** FC**)** F**++;**

**else** **if** **(**t**.**Class **==** SL**)** S**++;**

fwrite**(&**t**,** **sizeof(**struct ticket**),** 1**,** fp**);**

**}**

void cancel**(**FILE **\***fp**)**

**{**

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

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

struct ticket t**,** blank **=** **{**""**,** 0**,** 0**,** 0**};**

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

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

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

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

**{**

result **=** fread**(&**t**,** **sizeof(**struct ticket**),** 1**,** fp**);**

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

**{**

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

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

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

**if** **(**t**.**Class **==** A3**)** A**--;**

**else** **if** **(**t**.**Class **==** FC**)** F**--;**

**else** **if** **(**t**.**Class **==** SL**)** S**--;**

**return;**

**}**

record**++;**

**}**

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

**}**

void chart**(**FILE **\***fp**)**

**{**

struct ticket t**;**

int result**;**

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

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

printf**(**"Class Type: AC - 0, FC - 1, SL - 2 \n\n"**);**

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

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

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

**{**

result **=** fread**(&**t**,** **sizeof(**struct ticket**),** 1**,** fp**);**

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

printf**(**"%20s %10d %10d %10d\n"**,**t**.**name**,** t**.**number**,**

t**.**age**,** t**.**Class**);**

**}**

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

**}**

void check**()**

**{**

printf**(**"Available A3 = %d, FC = %d, SL = %d\n"**,**   
 AMAX **-** A**,** FMAX **-** F**,** SMAX **-** S**);**

**}**

**OUTPUT**

Available A3 = 10, FC = 47, SL = 99

1 Book 2 Check availability

3 Cancel 4 Prepare Chart

5 Exit

Enter choice: 4

Chart

Class Type: AC - 0, FC - 1, SL - 2

Name Number Age Class

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

John 9843098430 43 1

Ashok 9843094560 39 1

Bob 9843099999 42 1

Tom 9999999999 27 2

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1 Book 2 Check availability

3 Cancel 4 Prepare Chart

5 Exit

Enter choice: 5

**RESULT**

Thus the C program for railway reservation system was successfully written and executed.