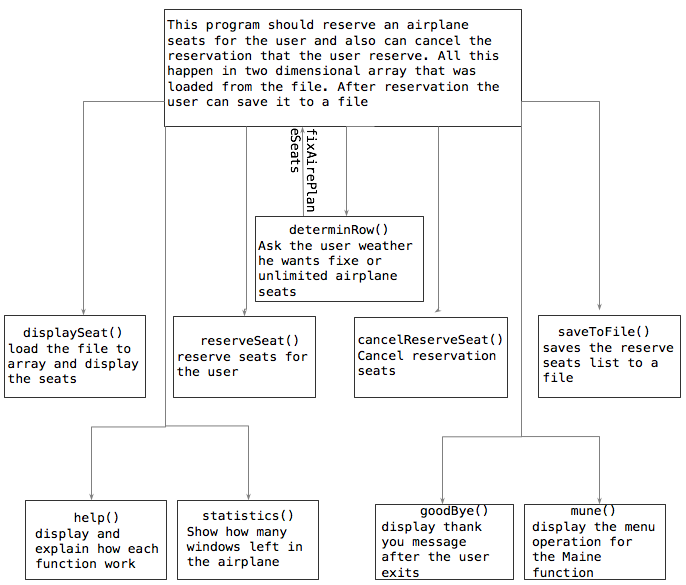
**Hisham Hussein**

Course: CIS-150-002

Term: Winter 2017

**Software System Design**

**source 1.1**

****

**Project code**

**source 1.2**

/\*

 main.cpp

 CIS 150 Winter 2017 Project 02

 Created by Hisham on 04/19/17.

 Last time modification by Hisham on 04/23/17.

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 Purpose: This is an airplane seat reservation where the user can reserve seat when he/she enter the row number and the column letter. any seat that is reserved will be market with the letter X. The user also can remove the reservation seats by just entering the row number and the letter he wants to cancel. Moreover the user can view the statistics of how many airplane seats windows left and aisle seats, and what is the percentage of the reserved seats. Also the user can save the reservation of the seats to a file with all the information.

 \*/

#include <iostream>

#include <fstream>

#include <string>

#include<iomanip>

#define ROW 26

#define COLUM  26

using namespace std;

//function protype

void mune(void);

int determinRow();

void displaySeat(ifstream&,string[][COLUM],int,int,int&);

void reserveSeat(string[][COLUM],int,int);

void cancelReserveSeat(string [ROW][COLUM],int,int);

void saveToFile(string [][COLUM],int,int);

void help(void);

void statistics(string [][COLUM],int,int,int&);

void goodBye(void);

int main(int argc, const char \* argv[]) {

    //variables

    string seatChart[ROW][COLUM]={};

    int cColum,rRow,countArray,holdRowDetermin,option;

    ifstream openAirPlaneSetsFile;

    //giving the user to choose option between the fixed array or unlimited array

    holdRowDetermin = determinRow();// function call

    //check what option does the user choose

    if(holdRowDetermin==1){

        openAirPlaneSetsFile.open("chartin.txt");//open the file called chartin.txt

        cColum = 23;

        rRow = 25;

    }else{

        openAirPlaneSetsFile.open("chartin2.txt");//open the file called chartin2.txt

        cColum = 4;

        rRow = 10;

    }

    do{

        mune(); //display mune

        //asking the user to choos one of the option from the mune

        cout<<"Choose one of the operation: ";

        cin>> option;

        switch (option) {

            case 1:

                //function call to load the fill data to the array

                displaySeat(openAirPlaneSetsFile, seatChart,rRow,cColum,countArray);

                openAirPlaneSetsFile.close();

                break;

            case 2:

                //function call the asks the user for seats number and row

                reserveSeat(seatChart,rRow,cColum);

                break;

            case 3:

                //function call that ask the use for row number and seat letter to cancel the reservation

                cancelReserveSeat(seatChart,rRow,cColum);

                break;

            case 4:

                //function call that save the airplan seats after the user choose the eats

                saveToFile(seatChart,rRow,cColum);

                break;

            case 5:

                //function call shows information like how many seats left on the windows and the total percentage of seat reserved

                statistics(seatChart,rRow,cColum,countArray);

                break;

            case 6:

                //function call that show the user how to user the program in detailed way

                help();

                break;

            case 7:

                //exit program

                goodBye();

                exit(0);

                break;

            default:

                cout<<"\n\nYou choose the wrong operation\n\n";

                break;

        }

    }while(option != '7');

    return 0;

}

void mune(void){

    /\*

     Purpose: This only display the menu to the user

     Author: Hisham Hussein

     Creation Date: 04/12/17

     Last time function modification by Hisham on 04/12/17.

     \*/

    //display a menu

    cout<<"------------------------ Menu ---------------------------";

    cout<<"\n1. Display Seat Chart";

    cout<<"\n2. Reserve Seat";

    cout<<"\n3. Cancel Reservation";

    cout<<"\n4. Save Seat Chart to File";

    cout<<"\n5. Statistics";

    cout<<"\n6. Help";

    cout<<"\n7. Quit";

    cout<<"\n---------------------------------------------------------"<<endl;

}

int determinRow(){

    /\*

     Purpose: This only determine if the user choose limited

     or unlimited seat plane

     Author: Hisham Hussein

     Creation Date: 04/16/17

     Last time function modification by Hisham on 04/16/17.

     \*/

    //gaving the user the option to choose weather he/she wants the limited or unlimited areaplane seats

    int fixAirePlaneSeats;

    do {

        cout<<"---------------------- Choose Plan ----------------------";

        cout<<"\nPlese choose the unlimited seat plane or the fixed seat \n";

        cout<<"1. Any row and colum\n";

        cout<<"2. Fixed row and colum\n";

        cout<<"Please choose one: ";

        cin>>fixAirePlaneSeats;

        cout<<endl;

        //check if the user enter values greater or less then the option we gave

        if(fixAirePlaneSeats > 2 || fixAirePlaneSeats < 1){

            cout<<"There is no option of "<<fixAirePlaneSeats<<endl<<endl;

        }

    }while(fixAirePlaneSeats > 2 || fixAirePlaneSeats < 1);

    return fixAirePlaneSeats; //send the choose to the function main

}

void displaySeat(ifstream &openAirPlaneSetsFile, string seatChart[ROW][COLUM],int rRow,int cColum,int &countArray){

    /\*

     Purpose: This function load the data from the file to

     the array and then print the airplane seats

     Author: Hisham Hussein

     Creation Date: 04/12/17

     Last time function modification by Hisham on 04/15/17.

     \*/

    //read all the information on the file to the array

    while(!openAirPlaneSetsFile.eof()){

        //put the file information into the array

        for(int r = 0; r<rRow;r++){

            for(int c = 0; c<cColum;c++){

                //information saved in the array now

                openAirPlaneSetsFile>> seatChart[r][c];

                countArray++;

            }//end of inner for loop

        }//end of outer for loop

    }//end of while lop

    //check weather the column the user choose limited or unlimited

    if(cColum==23){

        cout<<"ROW  "<<"A  B  C  D  E  F  G  H  I  J  K  L  M  N  O  P  Q  R  S  T  U  V  W\n";

        cout<<"---  "<<"-------------------------------------------------------------------\n";

        //print out the seat chart

        for(int r = 0; r<rRow;r++){

            cout<<r<<"\t ";

            for(int c = 0; c<cColum;c++){

                cout<< seatChart[r][c]<<"  ";

            }//end of inner for loop

            cout<<endl;

        }//end of outer for loop

    }else{

        //display the second limited airplane seats

        cout<<"ROW  "<<"A  B  C  D\n";

        cout<<"---  "<<"----------\n";

        //print out the seat chart

        for(int r = 0; r<rRow;r++){

            cout<<r<<"\t ";

            for(int c = 0; c<cColum;c++){

                cout<< seatChart[r][c]<<"  ";

            }//end of inner for loop

            cout<<endl;

        }//end of outer for loop

    }

}

void reserveSeat(string seatChart[][COLUM],int rRow,int cColum){

    /\*

     Purpose: This function is only reserve seats for the user when

     enter the seat information

     Author: Hisham Hussein

     Creation Date: 04/16/17

     Last time function modification by Hisham on 04/18/17.

     \*/

    int row,c;

    char colum;

    //check weather the column the user choose limited or unlimited

    if(cColum != 23){

        do{

            //ask the user for the row number and the column letter to reserve the seats

            cout<<"Enter the row number with colum letter ex(0 A): ";

            cin>>row>>colum;

            //convert the letter the user enter to upper letter

            colum = toupper(colum);

            c= int(colum - 'A');// subtract A because will convert it to an array like A-A=0,B-A=1,C-A=2

            //convert the char to string to compare letters of ABC

            string convertColumToString(1, colum);

            //check if the seats is taken or not

            if (seatChart[row][c] == "X"){

                cout<<"seat is already taken\n\n";

            }

            //validate the user if he entered value greater then D

            if(convertColumToString>"D"){

                cout<<"\nThere is no letter "<<colum<<" in the airplane seats!\n\n";

            }

            //keep loop if he keeps enter any value Greater then D or value is equal X

        }while(seatChart[row][c] == "X" || colum>'D');

        //if the inforamtion all correct then resrve the seats

        seatChart[row][c] = "X";

        cout<<"your successfully reserve your seat\n\n";

    }else{

        string convertLetter;

        do{

            //ask the user for the row number and the colum letter to reserve the seats

            cout<<"Enter the row number with colum letter ex(0 A): ";

            cin>>row>>colum;

            //convert the letter the user enter to upper letter

            colum = toupper(colum);

            c= int(colum - 'A');// subtrac A because will convert it to an array like A-A=0,B-A=1,C-A=2

            //validate the user if he entered value greater then D

            if (seatChart[row][c] == "X"){

                cout<<"seat is already taken\n\n";

            }//end of first end statment

            //convert char to string so i can compare them

            convertLetter =to\_string(colum);

            //check if the user enter letter greater or equal Z

            if(convertLetter<="Z"){

                cout<<"\nThere is no letter "<<colum<<" in the airplane seats!\n\n";

            }//end of second if stament

        }while(seatChart[row][c] == "X" || colum>'W');

        //if the inforamtion all correct then resrve the seats

        seatChart[row][c] = "X";

        cout<<"your successfully reserve your seat\n\n";

    }

}

void cancelReserveSeat(string seatChart[ROW][COLUM],int rRow,int cColum){

    /\*

     Purpose: This function is only canceling seats for the user when

     enter the seat information

     Author: Hisham Hussein

     Creation Date: 04/12/17

     Last time function modification by Hisham on 04/15/17.

     \*/

    //varibles names

    int row;

    char colum,askAgain;

    //check weather the column the user choose limited or unlimited

    if(colum != 23){

        do{

            //ask the user for the row number and the colum letter to cancel the seats

            cout<<"Enter the row number with colum letter to cancel ex(0 A): ";

            cin>>row>>colum;

            colum = toupper(colum);

            int c= int(colum - 'A');

            string convertColumToString(1, colum);

            //check if the letter is less then D

            if(convertColumToString <="D"){

                //check if the seat is taken if not then assign seatChar to the letter of the user entered

                if(seatChart[row][c] == "X"){

                    seatChart[row][c] = colum;//assign the column to the correct position

                    cout<<"\nYour seat has been canceled\n";

                }

                else{

                    //display error if the seats is not taken

                    cout<<"\nSeat is not taken to cancel\n";

                }

            }

            else

            {

                //display error if the user enter out of range letter for the column

                cout<<"\nThere is no letter "<<colum<<" in the airplane seats to cancel!\n\n";

            }

            //ask the user if there is another seats to cancel

            cout<<"\n\nIs There another seat to cancel y/n: ";

            cin >>askAgain;

            askAgain = tolower(askAgain);

        }while(askAgain != 'n');

    }//end of first if statment colum != 23

    else{

        do{

            //ask the user for the row number and the column letter to cancel the seats

            cout<<"Enter the row number with colum letter to cancel ex(0 A): ";

            cin>>row>>colum;

            colum = toupper(colum); //convert letter to upper case

            int c= int(colum - 'A');    //an array of abcd

            string convertColumToString(1, colum); //converting char to string

            //check if the user enter greater then W to display error

            if(convertColumToString >"W"){

                //check if the seat is taken if not then assign seatChar to the letter of the user entered

                if(seatChart[row][c] == "X"){

                    seatChart[row][c] = colum;

                    cout<<"\nYour seat has been canceled\n";

                }else{

                    //display error if the seats is not taken

                    cout<<"\nSeat is not taken to cancel\n";

                }

            }else{

                //display error if the user enter out of range column letter

                cout<<"\nThere is no letter "<<colum<<" in the airplane seats to cancel!\n\n";

            }

            //ask the user if there is another seats to cancel

            cout<<"\n\nIs There another seat to cancel y/n: ";

            cin >>askAgain;

        }while(askAgain != 'n');

    }//end of else statment for the first if statment if colum != 23

}

void saveToFile(string seatChart[][COLUM],int rRow,int cColum){

    /\*

     Purpose: This only save the seat information array to

     a file

     Author: Hisham Hussein

     Creation Date: 04/16/17

     Last time function modification by Hisham on 04/16/17.

     \*/

    string fileName;

    //ask the user for a file name

    cout<<"Enter the name of the file with .txt at the end: ";

    cin>>fileName;

    //opens the file name

    ofstream writSeatchartReservation(fileName.c\_str());

    if(cColum == 23){

        //orginize the file into more readable

        writSeatchartReservation<<"ROW\t"<<" A  B  C  D  E  F  G  H  I  J  K  L  M  N  O  P  Q  R  S  T  U  V  W\n";

        writSeatchartReservation<<"---\t"<<" -------------------------------------------------------------------\n";

        //loop thorugh the array

        for(int r = 0; r<rRow;r++){

            writSeatchartReservation<< r<<"\t "; //write down to file

            for(int c = 0; c<cColum;c++){

                writSeatchartReservation<< seatChart[r][c]<<"  "; //write down the seats to the file

            }//end of inner for loop

            writSeatchartReservation<<endl;

        }//end of outer for loop

        writSeatchartReservation.close();// close the file after the information is saved

        cout<<"\nYour airplane seats file is saved\n\n";

    }else{

        //orginize the file into more readable

        writSeatchartReservation<<"ROW\t"<<" A  B  C  D\n";

        writSeatchartReservation<<"---\t"<<" ----------\n";

        //loop thorugh the array

        for(int r = 0; r<rRow;r++){

            writSeatchartReservation<< r<<"\t "; //write down to file

            for(int c = 0; c<cColum;c++){

                writSeatchartReservation<< seatChart[r][c]<<"  "; //write down the seats to the file

            }//end of inner for loop

            writSeatchartReservation<<endl;

        }//end of outer for loop

        writSeatchartReservation.close();// close the file after the information is saved

        cout<<"\nYour airplan seats file is saved\n\n";

    }

}

void help(void){

    /\*

     Purpose: This function is only show help if

     the user get stuck

     enter the seat information

     Author: Hisham Hussein

     Creation Date: 04/12/17

     Last time function modification by Hisham on 04/12/17.

     \*/

    //expale in detial what each function do and how to use them

    cout<<"\n------------------------ HELP ---------------------------";

    cout<<"\n      Welcome to University of Michigan airline help";

    cout<<"\n---------------------------------------------------------\n";

    cout<<"\n-Option 1 is the first thing to do befor anything,\n";

    cout<<"      option 1 which display the seats of the airplane\n";

    cout<<"      the airplane seats ";

    cout<<"\n\n-option 2 lets you reserve a seats in the airplane;\n";

    cout<<"      the way to reserve a seats is by entering the row\n";

    cout<<"      number that between 0-9 with space and a letter\n";

    cout<<"      from A-D EXAMPLE(5  D), this will reserve row\n";

    cout<<"      number 5 seat D   ";

    cout<<"\n\n-option 3 lets you cancel reserve a seats, the way\n";

    cout<<"      to cancel a reserve seats is by entering the row\n";

    cout<<"      number that between 0-9 with space and a letter \n";

    cout<<"      from A-D EXAMPLE(5  D), this will cancel the\n";

    cout<<"      resrvation seat row number 5 seat D";

    cout<<"\n\n-option 4 lets you save reservetion of seats, to a\n";

    cout<<"      file that you have to enter the name of the file\n";

    cout<<"      number that between 0-9 with space and a letter\n";

    cout<<"      then the program will save it to your computer\n";

    cout<<"      you do this after you sure that you want the seat\n";

    cout<<"\n\n-option 5 shows the Statistics of airplane seats\n";

    cout<<"      ,it shows you how many seats avilbel,how many \n";

    cout<<"      seats left on the window,and aisle of the airplan\n";

    cout<<"      and lastly it will show you the percentage of \n";

    cout<<"      a total airplane seats resrvation\n";

    cout<<"\n\n-option 6 is where you at now, which is seeking \n";

    cout<<"      help and helps you what each function do\n";

    cout<<"\n\n-option 7 is where to exit. After you finish \n";

    cout<<"      and you want to exit, just press option 7 \n\n";

}

void statistics(string seatChart[][COLUM],int rRow,int cColum,int &countArray){

    /\*

     Purpose: This function show the statistics information like how

     many seats left on the windows side, percentage of

     seat reserved, and aisle seats

     enter the seat information

     Author: Hisham Hussein

     Creation Date: 04/16/17

     Last time function modification by Hisham on 04/19/17.

     \*/

    int windowsSeats=0,aisleSeats=0, availableSeats=0;

    float percReserved= 0.0;

    //run thourgh the two dimensional array

    for(int r = 0; r<rRow; r++){

        for(int c = 0; c< cColum; c++){

            //check if the user choose the unlimited or not

            if(cColum!=23){

                //check how many seats available for windows position

                if(seatChart[r][c] == "A" || seatChart[r][c] == "D"){

                    windowsSeats++;

                }

                //check how many seats available for aisle

                if(seatChart[r][c] == "B" || seatChart[r][c] == "C"){

                    aisleSeats++; //count how many aisle seats

                }

                //check the reserved seats

                if(seatChart[r][c] != "X"){

                    availableSeats++; //count total of available seats

                }

            }else{

                if(seatChart[r][c] == "A" || seatChart[r][c] == "W"){

                    windowsSeats++; //calculate windows seats

                }

                //check how many seats available for aisle

                if(seatChart[r][c] >= "B" && seatChart[r][c] <="V") {

                    aisleSeats++; //calculate the aisle seats

                }

                //check the reserved seats

                if(seatChart[r][c] != "X"){

                    availableSeats++;

                }

            }//end of else statement

        }//end for inner  loop

    }//end for outer loo[

    //calculate the percentage of seat reserve

    percReserved =((countArray-float(availableSeats))/countArray) \*100;

    //dsiplay the result

    cout<<"\nPercentage of reserved seats is: "<<fixed<<showpoint<<setprecision(2)<<percReserved<<"%";

    cout<<"\nSeats available: "<<availableSeats;

    cout<<"\nWindows seats available: "<<windowsSeats;

    cout<<"\nAisle seats available: "<<aisleSeats<<endl;

}

void goodBye(){

    /\*

     Purpose: This only display thank you message after the

     user exit the program

     Author: Hisham Hussein

     Creation Date: 04/12/17

     Last time function modification by Hisham on 04/12/17.

     \*/

    //display message when the user exit

    cout<<"\n------------------------ Thank You ----------------------";

    cout<<"\n      For Using University of Michigan airline";

    cout<<"\n               We hope so you again";

    cout<<"\n---------------------------------------------------------\n";

}

**Table Summery**

**source 1.3**

|  |  |  |
| --- | --- | --- |
| **Options** | **Input** | **Output** |
| **Start Program option** | | |
| Unlimited seats | 1,0 or -1 | Take you to mean program, Error, only have 1 and 2 options operation |
| Fixed seats | 2,3 | Take you to mean program, Error only have 1 and 2 options operation |
| **Main program operation** | | |
| Display Seat | Seats Fil.txt Chart | Display the seat chart in file to array |
| Reserve Seat | Choose Rows from 0 to the determine size and column from letter A to the determine letter | When the user determine the seats he wants reserve for example he choose 0 A then the seats will be reserved by X like the example “0 A B C D” after “0 X B C D” |
| Cancel Reservation | Choose Rows from 0 to the determine size and column from letter A to the determine letter | When the user determine the seats he wants to cancel for example he choose 0 A to cancel then the seats will be canceled by the letter he enters like the example he choose 0 A to cancel so “0 X B C D” after “0 A B C D” |
| Save Seat Chart to File | Gave a name to the file to be saved | It Will save all the result after the user choose everything to a a file with airplane reserve seats |
| Statistics | Array of airplane seats | Display how many seats available on windows and how many aisle seats are available and what is the percentage of the reserve seats |
| Help | Nothing | Display how the program works and what does each function do |
| Quit | 7 to quit | It quit from the program and display thank you message |

**Screenshot Demo**

**source 1.4**

|  |  |
| --- | --- |
| **Choose plane** | **If Error Display** |
| ../../Desktop/Screen%20Shot%202017-04-17%20at%205.23.57%20PM.pn | **../../Desktop/Screen%20Shot%202017-04-17%20at%205.27.59%20PM.pn** |
| **Two Files to load the array that depends on the user choose** | |
| ../Desktop/Screen%20Shot%202017-04-23%20at%2012.54.01%20PM.png  ../Desktop/Screen%20Shot%202017-04-23%20at%2012.53.40%20PM.png | |
| **Main program operation** | |
| **Display Seat Chart** | **If Error Display** |
| ../../Desktop/Screen%20Shot%202017-04-17%20at%205.48.19%20PM.pn | ../../Desktop/Screen%20Shot%202017-04-17%20at%206.14.08%20PM.pn |
| **Reserve Seat** | **If Result** |
| ../../Desktop/Screen%20Shot%202017-04-17%20at%206.33.30%20PM.pn  ../../Desktop/Screen%20Shot%202017-04-17%20at%206.48.39%20PM.pn../../Desktop/Screen%20Shot%202017-04-17%20at%206.48.20%20PM.pn | ../../Desktop/Screen%20Shot%202017-04-17%20at%206.50.07%20PM.pn../../Desktop/Screen%20Shot%202017-04-17%20at%206.46.54%20PM.pn |
| **Error** |
| ../../Desktop/Screen%20Shot%202017-04-17%20at%207.05.53%20PM.pn../../Desktop/Screen%20Shot%202017-04-17%20at%207.00.58%20PM.pn../../Desktop/Screen%20Shot%202017-04-17%20at%207.01.24%20PM.pn |
| **Cancel Reservation** | **If Result** |
| ../../Desktop/Screen%20Shot%202017-04-17%20at%207.57.27%20PM.pn  ../../Desktop/Screen%20Shot%202017-04-17%20at%208.14.37%20PM.pn../../Desktop/Screen%20Shot%202017-04-17%20at%208.18.26%20PM.pn | ../../Desktop/Screen%20Shot%202017-04-17%20at%208.22.36%20PM.pn../../Desktop/Screen%20Shot%202017-04-17%20at%208.10.58%20PM.pn |
| **Error** |
| ../../Desktop/Screen%20Shot%202017-04-17%20at%208.28.27%20PM.pn../../Desktop/Screen%20Shot%202017-04-17%20at%208.24.56%20PM.pn |
| **Save Seat Chart to File** | **Result** |
| ../../Desktop/Screen%20Shot%202017-04-17%20at%208.47.18%20PM.pn | ../../Desktop/Screen%20Shot%202017-04-17%20at%208.53.21%20PM.pn |
| **Statistics** | |
| ../../Desktop/Screen%20Shot%202017-04-21%20at%208.08.51%20PM.pn../../Desktop/Screen%20Shot%202017-04-17%20at%206.50.07%20PM.pn  ../../Desktop/Screen%20Shot%202017-04-21%20at%208.14.47%20PM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%208.12.25%20PM.pn | |
| **Quit** | |
| ../../Desktop/Screen%20Shot%202017-04-17%20at%209.19.03%20PM.pn | |
| **Help** | |
| ../../Desktop/Screen%20Shot%202017-04-17%20at%209.16.06%20PM.pn | |

**Extra Credit Demo**

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| **Airplane seat plan** | **Error** |
| **../../Desktop/Screen%20Shot%202017-04-21%20at%2012.13.10%20AM.pn**  **../../Desktop/Screen%20Shot%202017-04-21%20at%2012.22.18%20AM.pn** | **../../Desktop/Screen%20Shot%202017-04-21%20at%2012.19.36%20AM.pn**  **../../Desktop/Screen%20Shot%202017-04-21%20at%2012.19.27%20AM.pn** |
| **Operation one: display seat Chart** | |
| ../../Desktop/Screen%20Shot%202017-04-21%20at%2012.25.25%20AM.pn    ../../Desktop/Screen%20Shot%202017-04-21%20at%2012.23.07%20AM.pn | |
| **../../Desktop/Screen%20Shot%202017-04-21%20at%2012.38.32%20AM.pnOperation two: Reserve Seat** | **Operation Two: Validate user, Errors** |
| ../../Desktop/Screen%20Shot%202017-04-21%20at%2012.38.12%20AM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%2012.37.16%20AM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%2012.37.50%20AM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%2012.38.03%20AM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%2012.38.20%20AM.pn | ../../Desktop/Screen%20Shot%202017-04-21%20at%2012.45.59%20AM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%2012.47.13%20AM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%2012.46.53%20AM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%2012.48.00%20AM.pn |
| **Operation two: Result** | |
| ../../Desktop/Screen%20Shot%202017-04-21%20at%201.11.15%20AM.pn | |

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| **Operation three: cancel reserved Seat** | **Operation three: Validate user, Errors** |
| ../../Desktop/Screen%20Shot%202017-04-21%20at%201.55.15%20PM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%201.53.07%20PM.pn | ../../Desktop/Screen%20Shot%202017-04-21%20at%203.49.18%20PM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%202.03.44%20PM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%202.03.03%20PM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%202.01.03%20PM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%202.00.29%20PM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%202.02.10%20PM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%201.54.04%20PM.pn |
| **Operation three: Result** | |
| ../../Desktop/Screen%20Shot%202017-04-21%20at%203.50.19%20PM.pn | |

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| **Operation four: save seats to a file** |
| ../../Desktop/Screen%20Shot%202017-04-21%20at%204.01.24%20PM.pn |
| **Operation four: result saved file** |
| ../../Desktop/Screen%20Shot%202017-04-21%20at%204.23.15%20PM.pn |

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| **Operation five: Statistics** |
| ../../Desktop/Screen%20Shot%202017-04-21%20at%207.37.06%20PM.pn../../Desktop/Screen%20Shot%202017-04-21%20at%207.32.59%20PM.pn |
| **Operation five: Statistics Result** |
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| **Operation six: Help** |
| ../../Desktop/Screen%20Shot%202017-04-21%20at%207.47.10%20PM.pn |
| **Operation six: help Result** |
| ../../Desktop/Screen%20Shot%202017-04-21%20at%207.52.02%20PM.pn |

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| **Operation seven: Quit** |
| ../../Desktop/Screen%20Shot%202017-04-21%20at%207.58.58%20PM.pn |
| **Operation seven: Quit result** |
| ../../Desktop/Screen%20Shot%202017-04-21%20at%207.59.49%20PM.pn |