**Programming Coursework 2 Design and Testing**

**Introduction –**

This document will cover the design of the Seat booking system including UML class diagrams and pseudocode as well the testing carried out on the program.

**Classes –**

The system will utilise a numbered seating system instead of system consisting of numbers and characters, this is so it makes it easier look through an array as well reducing the number of classes (potentially methods) needed.

Two classes will be used in the program in order to create a Seat object and a Waiting list seat object, both have multiple methods used to access and manipulate data regarding each seat.



**Pseudo Code –**

1. **Seat Booking System**

01 IF seats file and waiting file exists

02 Open seats file

03 Read seat data into Array

04 Open waiting file

05 Read waiting list seat data into array

06 else

07 File not found message

* 1. **Main Menu**

01 Show main menu options

02 Do while option != 0

03 [1] Book Seat

04 [2] Cancel Seat

05 [3] Seat Reservations

06 [4] Waiting List

07 [5] Show Seat File

08 [0] Exit

09 IF option = 1

10 Show book seat menu

11 IF option = 2

12 Show cancel seat menu

13 IF option = 3

14 Show seat reservations

15 IF option = 4

16 Show waiting list

17 IF option = 5

18 Show seats data

19 IF option = 0

20 Exit

* 1. **Book Seat**

01

|| User inputs seat data true or false

10

11 pointer = 0

13 match = false

12 while point < length of seats file and match = false

13 if seats = user input seat

14 print line “match” reserve seat (users email = seat email(default email))

15 else if

16 if seat = reserved

17 print line “seat already reserved”

18 print user seat to waiting list

19 else

20 print line no match

21 increment pointer

22 return to main menu

* 1. **Cancel Seat**

01 User inputs seat number

02 pointer = 0

03 match = false

04 while pointer < length of seats file and match = false

05 if seat number = infile seat number

06 set email infile to “X”

07 else if seat unreserved

08 print line “already unreserved”

08 else

09 print line “no match”

10 return to main menu

* 1. **Seat Reservations**

01 while not at end of file

02 IF seat in file = reserved

03 print seat data to screen

04 Return to main menu

* 1. **Waiting list**

01 while not at end of file

02 print data in seat waiting list to screen

03 Return to main menu

* 1. **Show Seat File**

01 while not at end of file

02 print data in seat file to screen

03 return to main menu

* 1. **Exit**

01 save changes to seats file and close

02 save changes to waiting file and close

03 Print line “Exiting”

**Testing –**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test** | **State** | **Input** | **Expected Outcome** | **Actual Outcome** | **Comment** |
| 1.1 | BOOK SEAT MAIN MENU OPTION | User inputs 1 | Begins bookSeat() method | As expected - PASS | N/A |
| 1.2 | CANCEL SEAT MAIN MENU OPTION | User inputs 2 | Begins cancelSeat() method | As expected - PASS | N/A |
| 1.3 | SHOW RESERVATIONS MAIN MENU OPTION | User inputs 3 | Begins bookSeat() method. Outputs reserved seats to screen. | As expected - PASS | N/A |
| 1.4 | SHOW WAITING LIST MAIN MENU OPTION | User inputs 4 | Begins viewSeatReservations() method. Outputs waiting list data to screen. | As expected - PASS | N/A |
| 1.5 | SHOW SEAT DATA FILE OPTION | User inputs 5 | Begins viewWaitingSeatReservations() method. Outputs contents of Seats array/file to screen. | As expected - PASS | N/A |
| 1.6 | MAIN MENU -EXIT PROGRAM | User inputs 0 | Program closes, files are saved. | As expected - PASS | N/A |
| 1.7 | MAIN MENU – INCORRECT INPUT | Any value other that 1, 2, 3, 4. 5 or 0. | Prints error message, returns to main menu. | As expected - PASS | N/A |
| 2.1 | BOOKING - MATCH | Seat Details(class, window, aisle, table, facing, ease of access)  User inputs email | Seat is booked  Also asks if user would like to book another seat | As expected - PASS | N/A |
| 2.2 | BOOKING – NO MATCH | Seat Details(class, window, aisle, table, facing, ease of access)  User inputs email | Prints message (“No match found”) continues through the array looking for a matching seat.  Also asks if user would like to book another seat | As expected - PASS | N/A |
| 2.3 | BOOKING – ALREADY RESERVED | Seat Details(class, window, aisle, table, facing, ease of access)  User inputs email | Prints message (“Seat Already Reserved”), continues to look through file.  Also asks if user would like to book another seat | As expected - PASS | N/A |
| 2.4 | BOOKING – EMAIL INPUT ERROR | Email without @ symbol | Error message (“Incorrect format”)  Return to main menu | As expected - PASS | N/A |
| 2.5 | BOOKING – EMAIL INPUT ERROR | Email input that is not greater than 1 character in length | Error message (“Incorrect format”)  Return to main menu | As expected - PASS | N/A |
| 2.6 | BOOKING – BOOK ANOTHER SEAT | User inputs 1 or 2, in this case 1 (Book another seat) | After booking a seat a message shows asking the user if they would like to book another seat. Entering 1 should return to the start of the booking option and allow the user to book another seat. | As expected - PASS | If user inputs a character other than a number an error occurs in eclipse. |
| 2.7 | BOOKING – BOOK ANOTHER SEAT | User inputs 1 or 2, in this case 1 (Book another seat) | After booking a seat a message shows asking the user if they would like to book another seat. Entering 2 should return the user to the main menu. | As expected - PASS | If user inputs a character other than a number an error occurs in eclipse. |
| 3.1 | CANCELLING - CANCEL SEAT | User inputs seat number between 1 and 43 | Seat number is found and the email for that seat is set to “X”. Returns to main menu. | As expected - PASS | N/A |
| 3.2 | CANCELLING – SEAT ALREADY UNRESERVED | User inputs seat number between 1 and 43 | If seat email = “X” (default value) a message should print saying “Seat already unreserved” and continue through the array. | As expected - PASS | N/A |
| 3.3 | CANCELLING –  INCORRECT INPUT | Any value outside of 1-43. | Error message prints “Ensure seat number is between 1 and 43”  Returns to main menu. | As expected - PASS | If user inputs a character other than a number an error occurs in eclipse. |