Project 3

Diem Pham

Dtp160130

Classes

Base Node (abstract)

Members

Int Row

Int Seat

Methods

Overloaded constructor

Mutators

Accessors

DoubleLinkNode (derived)

Members

Next (pointer)

Prev (pointer)

Methods

Overloaded constructor

Mutators

Accessors

Linked list (separate class, same package)

Members

Head (DoubleLinkNode pointer)

Tail (DoubleLinkNode pointer)

Methods

Overloaded constructor

Take DoubleLinkNode parameter for head

Assign tail to proper node

Mutators

Accessors

Other methods that are necessary to interact with a linked list

ReadFileIntoLinkedList()

Take file as a parameter and store seats in 2 linked lists, one for reserved seats and one for available seats

Return 2 linked lists

MainMenu()

1. Reserve Seats
2. View Auditorium
3. Exit

AuditoriumMenu()

1. Auditorium 1
2. Auditorium 2
3. Auditorium 3

DisplayAuditorium()

Take the file name as a parameter

Read the file

Print the seats

TakeUserRequest()

Get the user number of tickets, the row and seat number of the first seat

Return number of tickets, the row, and seat number of the first seat

IsEnoughtSeat()

Check whether there is enough seats that meet the requirement

ReserveSeat()

Move the nodes from the available linked list into reserved linked list

Display a confirmation

OfferBestSeats()

Check the distance between the first seat of the section and the center, get the starting seat with the smallest distance

In case of a tie for distance, select the row closest to the middle of the auditorium

Display the offer

If the user declines the best available seats, return to the MainMenu()

If the user accepts the best available seats, call the reserveSeat() method

WriteDataToFile()

Use recursive function to write data back to the file

ReserveSeatProcess()

AuditoriumMenu()

DisplayAuditorium()

TakeUserRequest()

IsEnoughSeat()

If (there is enough seat)

ReservedSeat()

If not

OfferBestSeats()

WriteToFile()

Main()

Show the main menu

If user input == 1, reserveSeatProcess()

If user input == 2, show Auditorium

If user input == 3, exit