

### **1- Description of The Platform:**

When implementing this project, I used Clion on MacBook. I wrote my all code from scratch on Clion Platform. It has gcc compiler and pthread library so it didn't cause any problem. When I checked my code Ubuntu, I realized that I need to add -pthread command to compile it correctly. The purpose of checking on Ubuntu was to see if there was any problem to fix but my code works correctly on ubuntu using command line.

### **2- Description of My Algorithm:**

For this project, I used two mutexes. One is for client and the other one is for server. I also used global seat array of size of 101, counter to give unique id to each client and ofstream instance. I created two methods other than main method.

In main method, I opened output file. Main method writes the total number of seats to output file and creates all clients in a for loop. Then, main method waits until all clients finish their tasks. Then main method writes to output file and exit.

In method for client thread, firstly critical section begins. There, an id is assigned to client and random sleep time is produced. Then, critical section ends. After this step, client sleeps and then create server thread and looks for available seats. After finding available seat, it waits until server thread finishes and then exits.

In method for server thread, firstly critical section begins, id of client is taken as parameter and then critical section ends. In busy waiting, server thread searches the array until it finds the which seat is requested by the corresponding client. After it finds, critical section begins again and there, seat is reserved, status of seat is written to output file and then critical section ends. Server thread exits.

### **3- How to Compile:**

In this project, we are requested to write a Makefile. Typing "make" command on the command line in the folder where my source code and Makefile are located will produce an executable named "hello". Then, typing "./hello [number of seats]" will produce an output file. Number of seats must be between 50 and 100 inclusive. I didn't check if the given

number satisfies the condition because in description, it is written that number will be between 50 and 100.

You can also compile my program by using following command  
`g++ main.cpp -o hello -pthread`