**Product Functions**

Reserve Function: A user can reserve a specific room at a specific timeslot. If the room is already reserved, the user is put on a waiting list. If the reservation is cancelled, the first user on the waiting list is given the reservation and they are consequently taken off any other waiting list at that timeslot. This is part of the write functions, where only one user can be active at a time.

Cancel Function: A user can delete a reservation at a specific timeslot for a specific room, as long as they are the user who created the reservation. This is part of the write functions, where only one user can be active at a time.

Modify Function: A user can modify the timeslot or the room for their reservation. This is under the condition that the room or timeslot the user wants to modify to is available. This is part of the write functions, where only one user can be active at a time.

View Reservations Function: A user can view any reservations or availabilities. This is a read function so multiple users can view simultaneously.

Identification and authentication: When a user attempts to log in, their username is compared to those in the database to identify the user. If their username is not found, then they are told that no account information can be found for their username. The password entered is used for authentication. If the password is confirmed, they will be allowed to access the system. If not, the user is notified the password is wrong and may try again.

If a client wishes to write and the resource is not available (another client is writing on the resource), then the client must wait, until the resource becomes available. Writers and readers operate in mutual exclusion. The system may allow multiple readers at a time, however only one writer may make a reservation to a specific room at any point in time. The system must provide safety, liveness and fairness.