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Assignment 5 Operation Pattern for createAppointment

Operation = createAppointment

Description = This system operation describes that a tutor creates an Appointment. Preconditions for this operation are that the input data for the email address matches the email address of an employee in the system.

Input = email: String, time: Date, online: boolean

Reads = map: ManageAppts,
mac: ManageAccounts with (mac, map) ∈ communicates|,
manages|, communicates|
t: TutorData with email = t.email ∧ (t, mac) ∈ manages|;

Changes = Appointment, appointment_new: Appointment type,
schedules, knows, onlineApp, campusApp

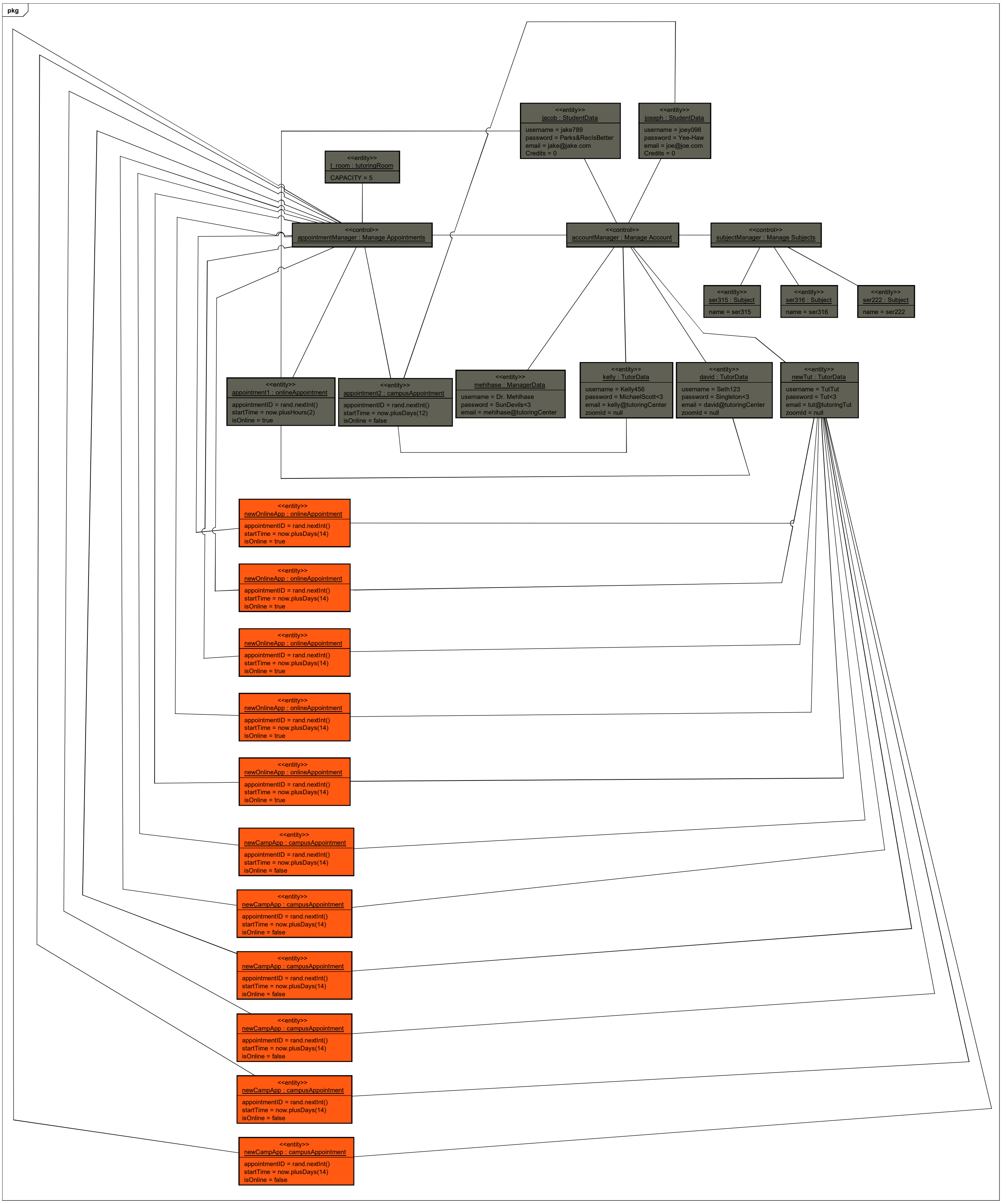
Sends = Tutor: {Already_5_appointments_at_this_time, Appointment_created
}

Pre = implicit

Scanned with CamScanner

```
Post = let
        max_appointments_exceeded == #{a: Appointment | (a, map) ∈
        knows ∧ a ∈ onlineApp} ≥ 5
        is_online == online

        (is_online =>
              (max_appointments_exceeded =>
                    is_sent{Already_5_appointments_at_this_time} ∧
                            no_effect) ∧
              (¬max_appointments_exceeded =>
                    is_sent{Appointment_created} ∧
                    appointment_new n̂ew ∧
                    appointment_new.startTime = time ∧
                    schedules' = schedules ∪ {(t, appointment_new)} ∧
                    knows' = knows ∪ {(appointment_new, map)} ∧
                    onlineApp' = onlineApp ∪ {appointment_new} ∧
                    no_effect) ∧
        (¬is_online =>
              is_sent{Appointment_created} ∧
              appointment_new new ∧
              appointment_new.startTime = time ∧
              schedules' = schedules ∪ {(t, appointment_new)} ∧
              knows' = knows ∪ {(appointment_new, map)} ∧
              campusApp' = campusApp ∪ {appointment_new} ∧
              no_effect))
```


pkg
<<entity>>
jacob : StudentData
username = jake789
password = Parks&RecIsBetter
email = jake@jake.com
Credits = 0
<<entity>>
joseph : StudentData
username = joey098
password = Yee-Haw
email = joe@joe.com
Credits = 0
<<entity>>
t_room : tutoringRoom
CAPACITY = 5
<<control>>
appointmentManager : Manage Appointments
<<control>>
accountManager : Manage Account
<<control>>
subjectManager : Manage Subjects
<<entity>>
ser315 : Subject
name = ser315
<<entity>>
ser316 : Subject
name = ser316
<<entity>>
ser222 : Subject
name = ser222
<<entity>>
appointment1 : onlineAppointment
appointmentID = rand.nextInt()
startTime = now.plusHours(2)
isOnline = true
<<entity>>
appointment2 : campusAppointment
appointmentID = rand.nextInt()
startTime = now.plusDays(12)
isOnline = false
<<entity>>
mehlhase : ManagerData
username = Dr. Mehlhase
password = SunDevils<3
email = mehlhase@tutoringCenter
<<entity>>
kelly : TutorData
username = Kelly456
password = MichaelScott<3
email = kelly@tutoringCenter
zoomId = null
<<entity>>
david : TutorData
username = Seth123
password = Singleton<3
email = david@tutoringCenter
zoomId = null
<<entity>>
newTut : TutorData
username = TutTut
password = Tut<3
email = tut@tutoringTut
zoomId = null
<<entity>>
newOnlineApp : onlineAppointment
appointmentID = rand.nextInt()
startTime = now.plusDays(14)
isOnline = true
<<entity>>
newOnlineApp : onlineAppointment
appointmentID = rand.nextInt()
startTime = now.plusDays(14)
isOnline = true
<<entity>>
newOnlineApp : onlineAppointment
appointmentID = rand.nextInt()
startTime = now.plusDays(14)
isOnline = true
<<entity>>
newOnlineApp : onlineAppointment
appointmentID = rand.nextInt()
startTime = now.plusDays(14)
isOnline = true
<<entity>>
newOnlineApp : onlineAppointment
appointmentID = rand.nextInt()
startTime = now.plusDays(14)
isOnline = true
<<entity>>
newCampApp : campusAppointment
appointmentID = rand.nextInt()
startTime = now.plusDays(14)
isOnline = false
<<entity>>
newCampApp : campusAppointment
appointmentID = rand.nextInt()
startTime = now.plusDays(14)
isOnline = false
<<entity>>
newCampApp : campusAppointment
appointmentID = rand.nextInt()
startTime = now.plusDays(14)
isOnline = false
<<entity>>
newCampApp : campusAppointment
appointmentID = rand.nextInt()
startTime = now.plusDays(14)
isOnline = false
<<entity>>
newCampApp : campusAppointment
appointmentID = rand.nextInt()
startTime = now.plusDays(14)
isOnline = false
<<entity>>
newCampApp : campusAppointment
appointmentID = rand.nextInt()
startTime = now.plusDays(14)
isOnline = false