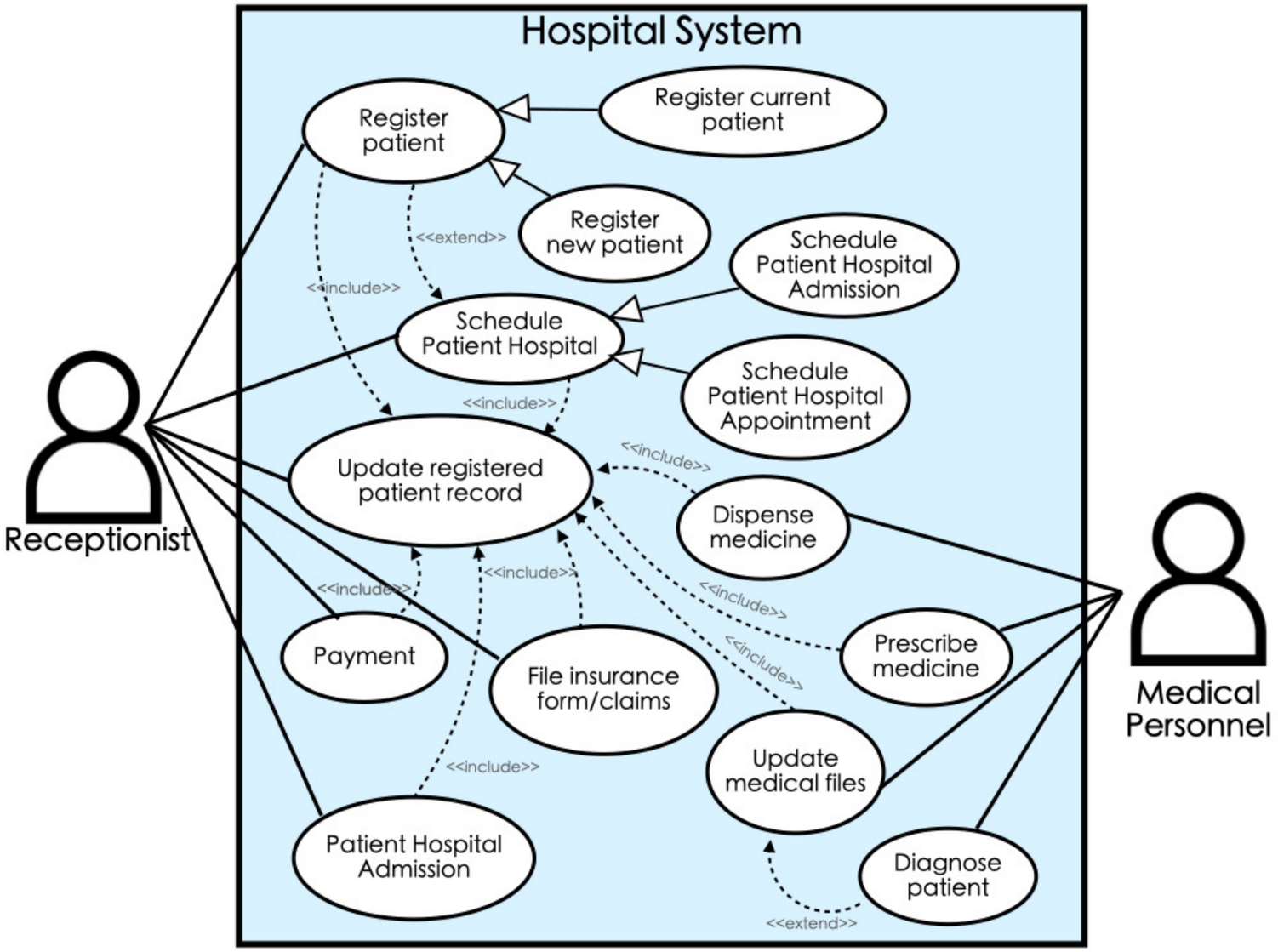
HOSPITAL SYSTEM

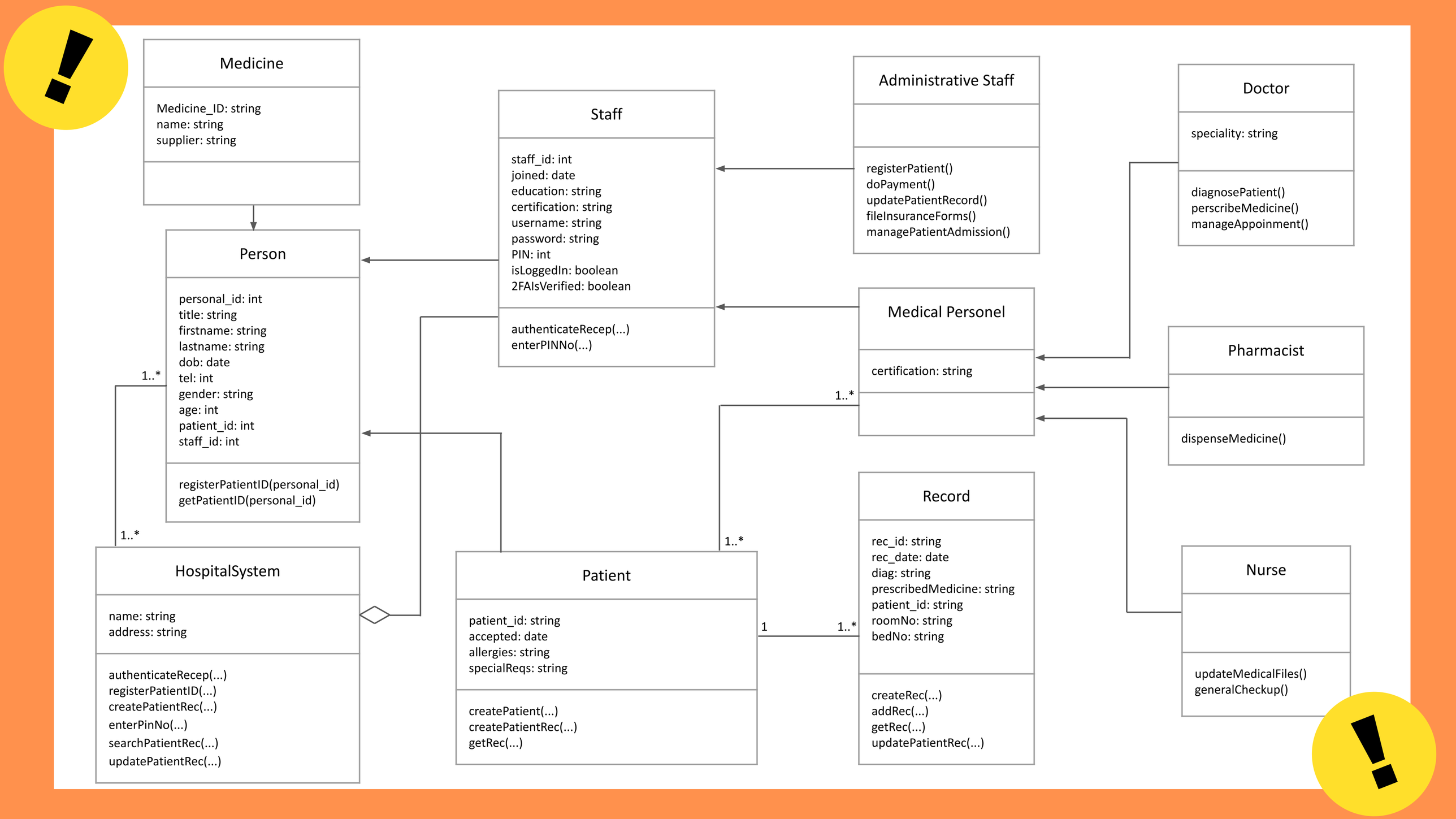
ITS329 SYSTEM ANALYSIS AND DESIGN

USE CASE DIAGRAM


Hospital System
Register patient
Register current patient
Register new patient
<<extend>>
<<include>>
Schedule Patient Hospital Admission
Schedule Patient Hospital
Schedule Patient Hospital Appointment
<<include>>
Update registered patient record
<<include>>
Dispense medicine
<<include>>
<<include>>
<<include>>
<<include>>
Payment
File insurance form/claims
Prescribe medicine
Update medical files
<<include>>
Patient Hospital Admission
Diagnose patient
<<extend>>
Receptionist
Medical Personnel

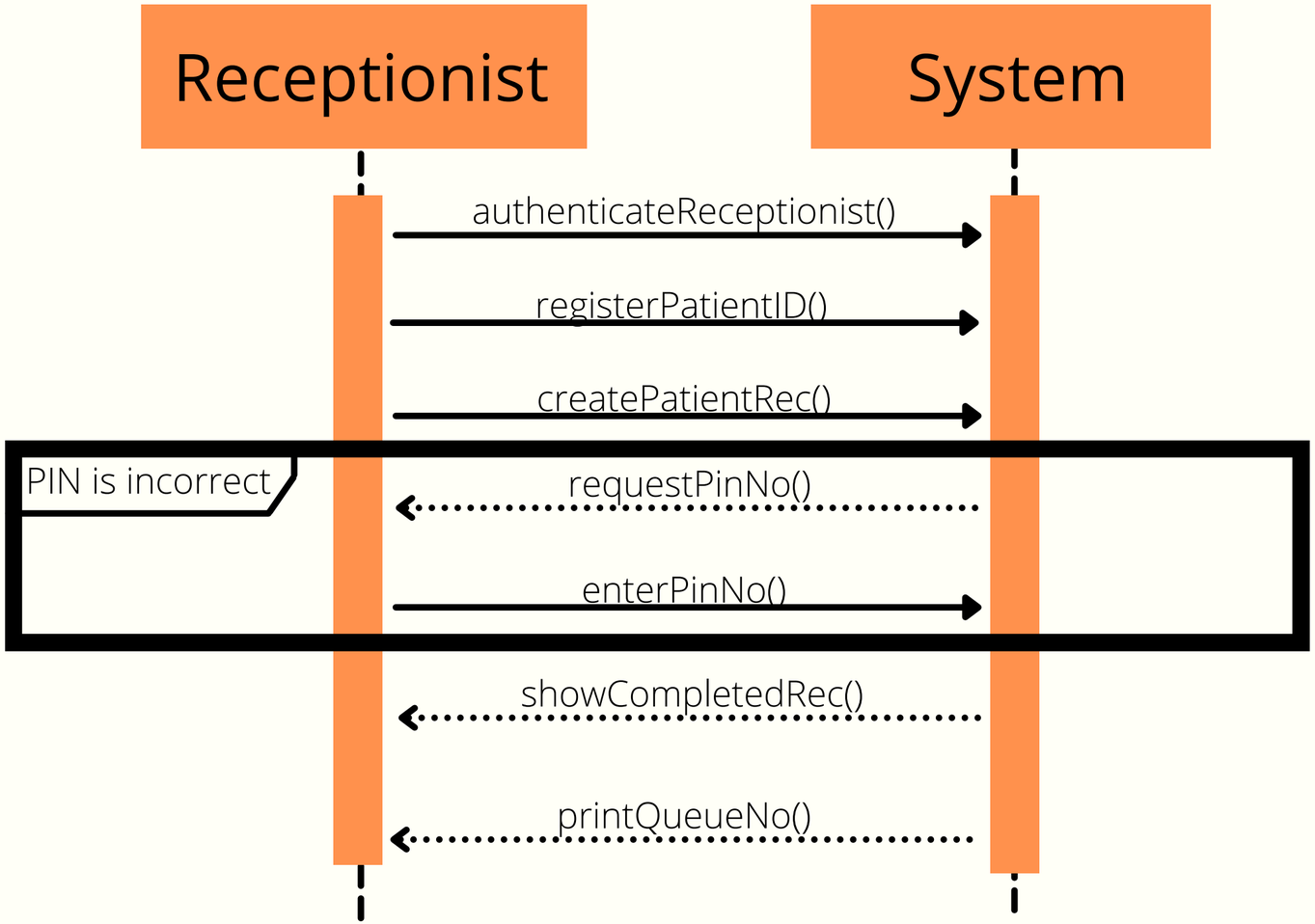
CLASS DIAGRAM

HOSPITAL SYSTEM CLASS DIAGRAM

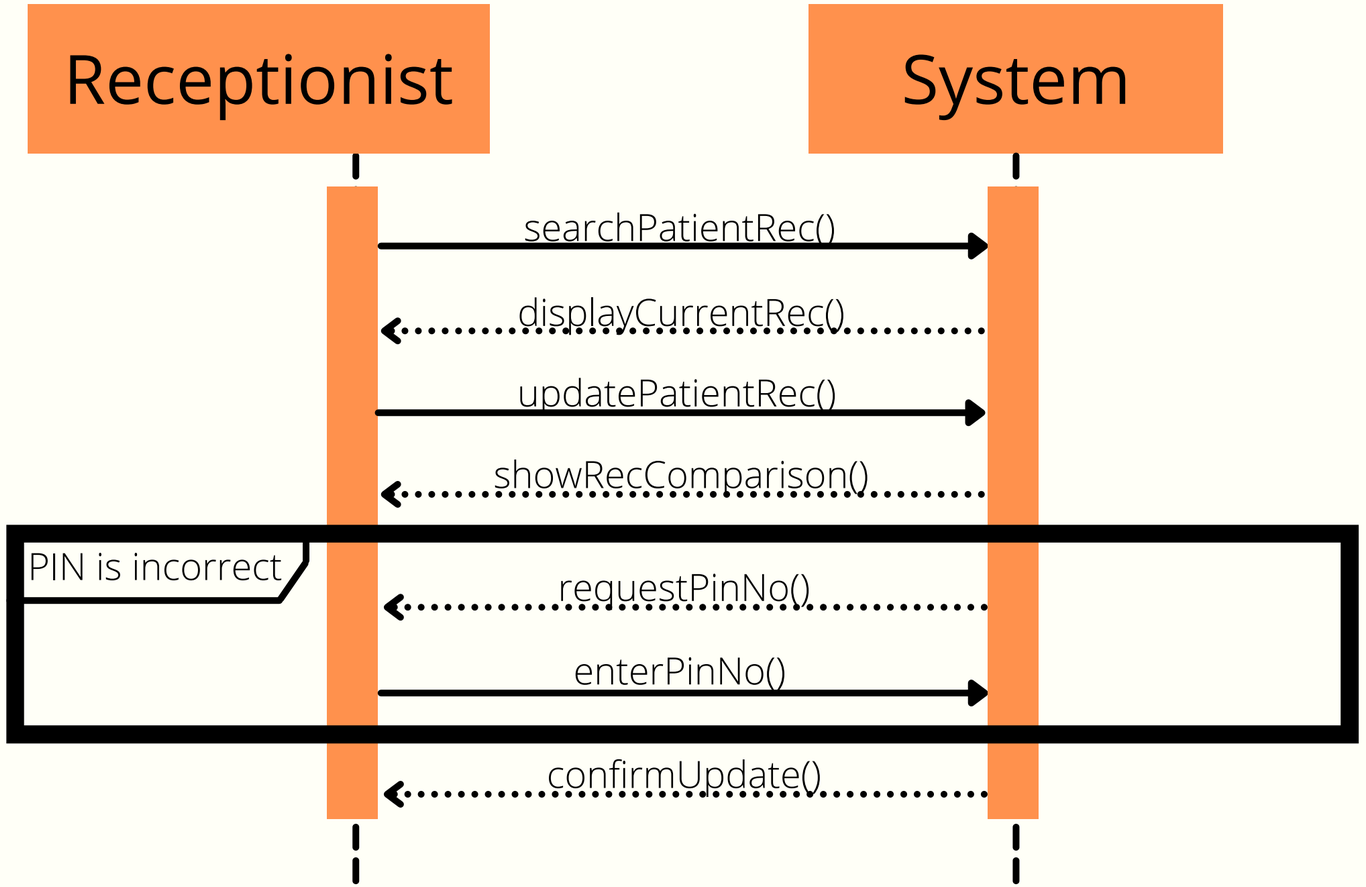

Medicine
Medicine_ID: string
name: string
supplier: string
Staff
staff_id: int
joined: date
education: string
certification: string
username: string
password: string
PIN: int
isLoggedIn: boolean
2FAIsVerified: boolean
authenticateRecep(...)
enterPINNo(...)
Administrative Staff
registerPatient()
doPayment()
updatePatientRecord()
fileInsuranceForms()
managePatientAdmission()
Doctor
speciality: string
diagnosePatient()
perscribeMedicine()
manageAppoinment()
Person
personal_id: int
title: string
firstname: string
lastname: string
dob: date
tel: int
gender: string
age: int
patient_id: int
staff_id: int
registerPatientID(personal_id)
getPatientID(personal_id)
Medical Personel
certification: string
Pharmacist
dispenseMedicine()
1..*
1..*
1..*
HospitalSystem
name: string
address: string
authenticateRecep(...)
registerPatientID(...)
createPatientRec(...)
enterPinNo(...)
searchPatientRec(...)
updatePatientRec(...)
Patient
patient_id: string
accepted: date
allergies: string
specialReqs: string
createPatient(...)
createPatientRec(...)
getRec(...)
1
1..*
Record
rec_id: string
rec_date: date
diag: string
prescribedMedicine: string
patient_id: string
roomNo: string
bedNo: string
createRec(...)
addRec(...)
getRec(...)
updatePatientRec(...)
Nurse
updateMedicalFiles()
generalCheckup()

SYSTEM SEQUENCE DESIGN

SSD1: Register patient



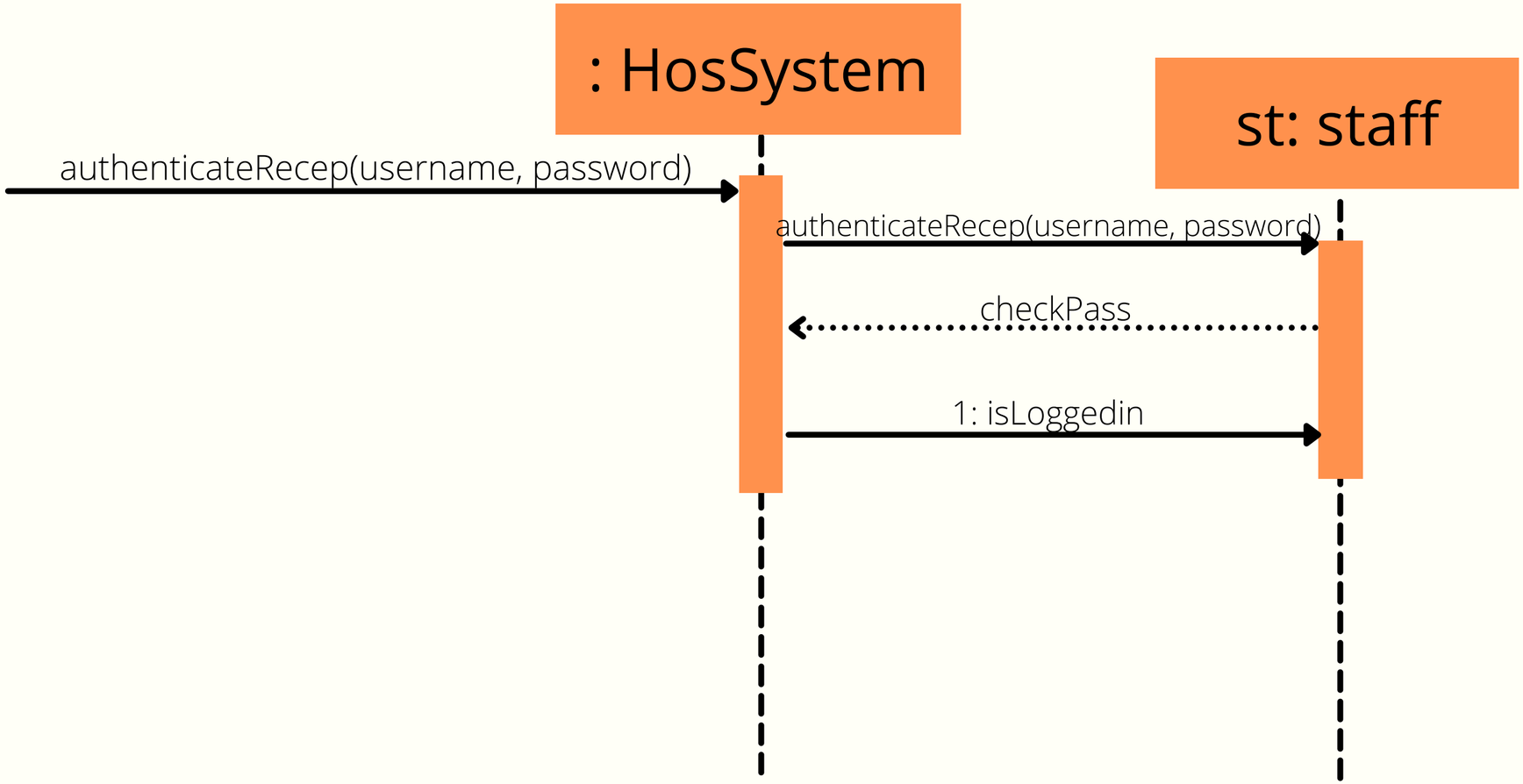
SSD2: Update registered patient record



OBJECT-INTERACTION DESIGN

OBJECT-INTERACTION DESIGN

CO1 - authenticateRecep(username: string, password: int)



CONTRACT CO1:

Operation: authenticateRecep(username: string, password: int)

Cross References: Use case: Register patient

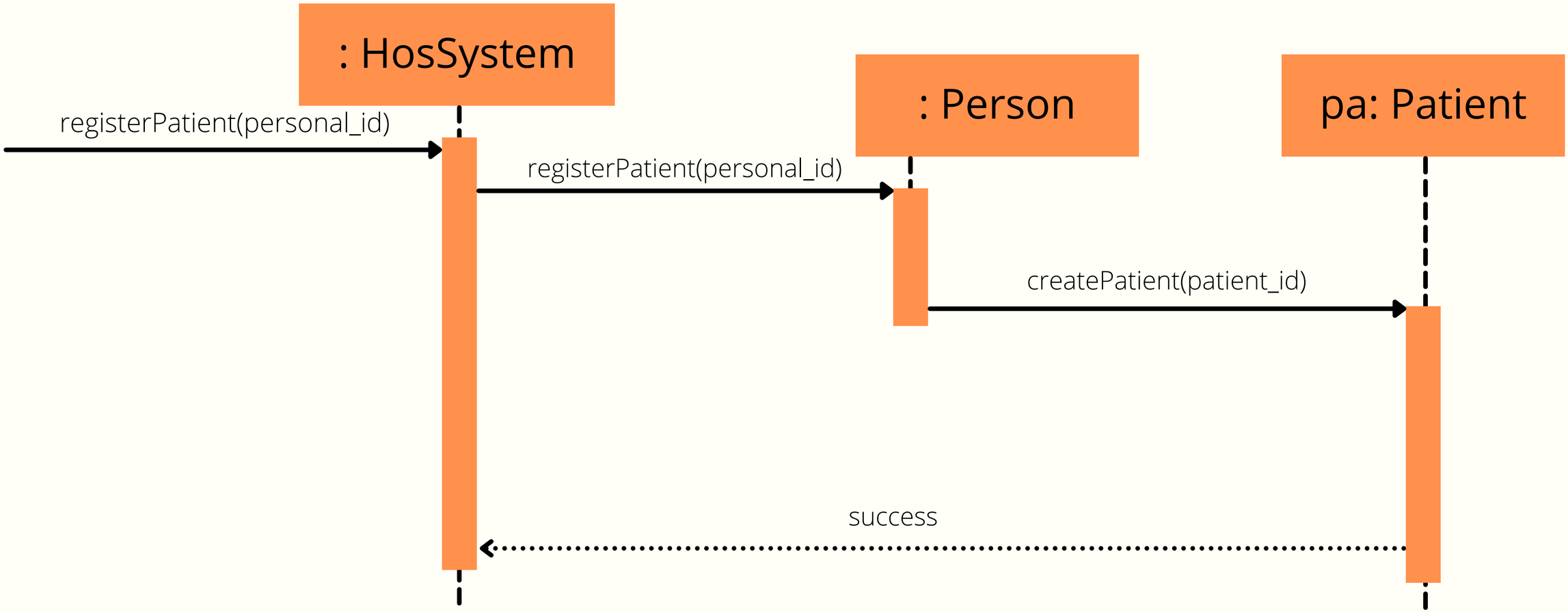
Preconditions:

- There is staff, st instance underway

Postconditions:

- st.isLoggedIn became 'true' (attribute modification)

CO2 - registerPatient(personal_id: int)



CONTRACT CO2:

Operation: registerPatient(personal_id: int)

Cross References: Use Cases: Register Patient

Preconditions:

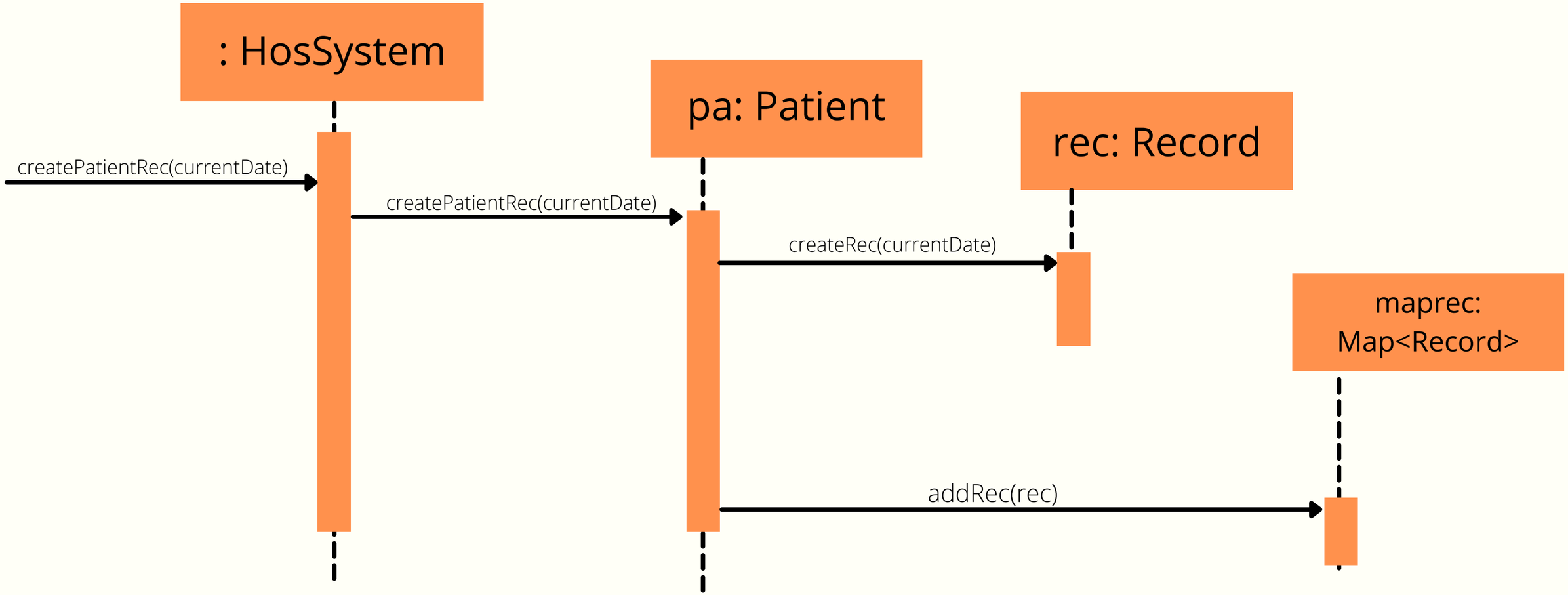
- There is an instance of Staff, st underway.

Postconditions:

- A Patient instance pa was created. (instance creation)

OBJECT-INTERACTION DESIGN

CO3 - createPatientRec(currentDate: date)



CONTRACT CO3:

Operation: createPatientRec(currentDate: date)

Cross References: Use Cases: Register Patient

Preconditions:

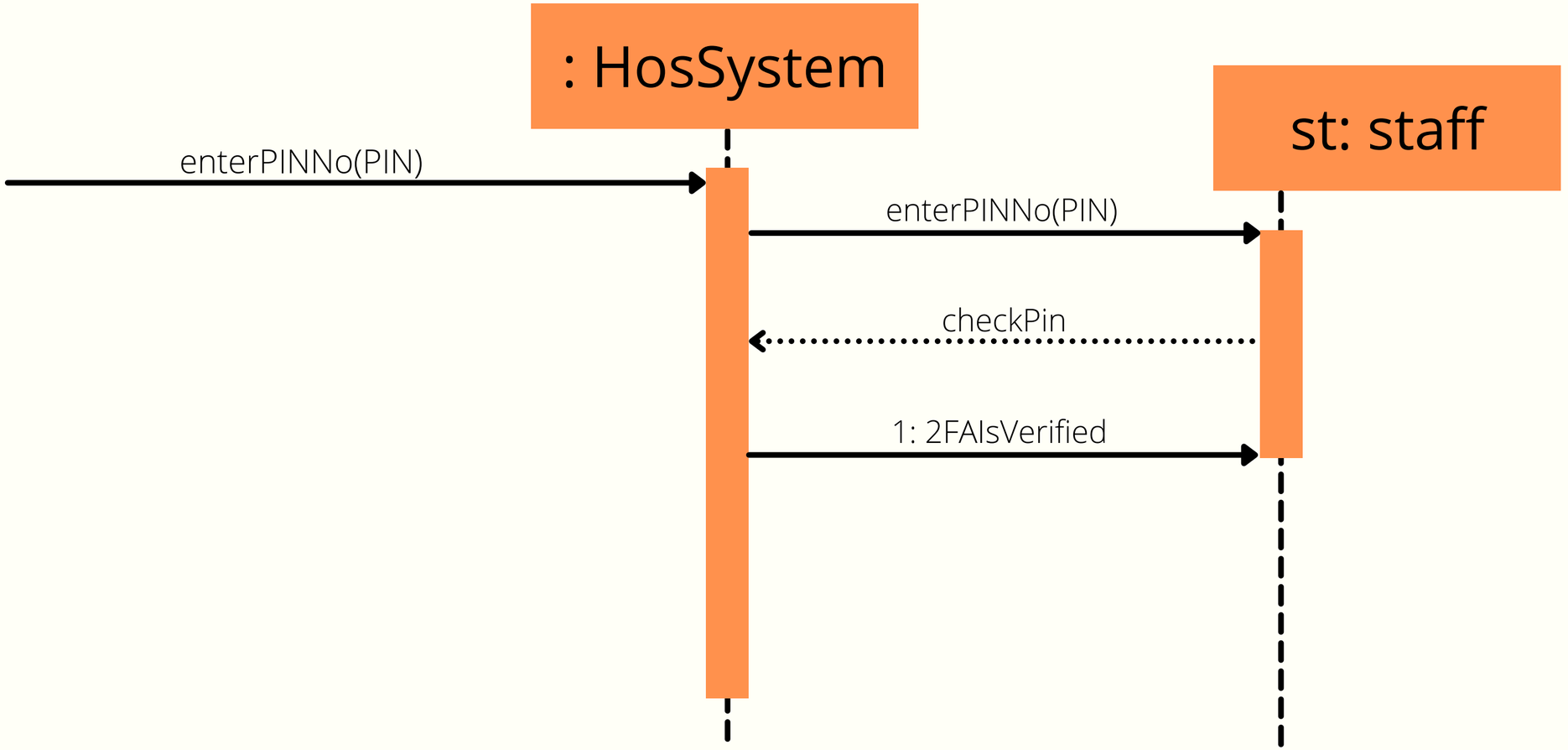
- There is a pa instance underway

Postconditions:

- pa was associated with a Record (association formed)
- A Record rec was created (instance creation)

OBJECT-INTERACTION DESIGN

CO4 - enterPINNo(PIN: integer)



CONTRACT CO4:

Operation: enterPINNo(PIN: int)

Cross References: Use Cases: Register Patient, Update Patient Record

Preconditions:

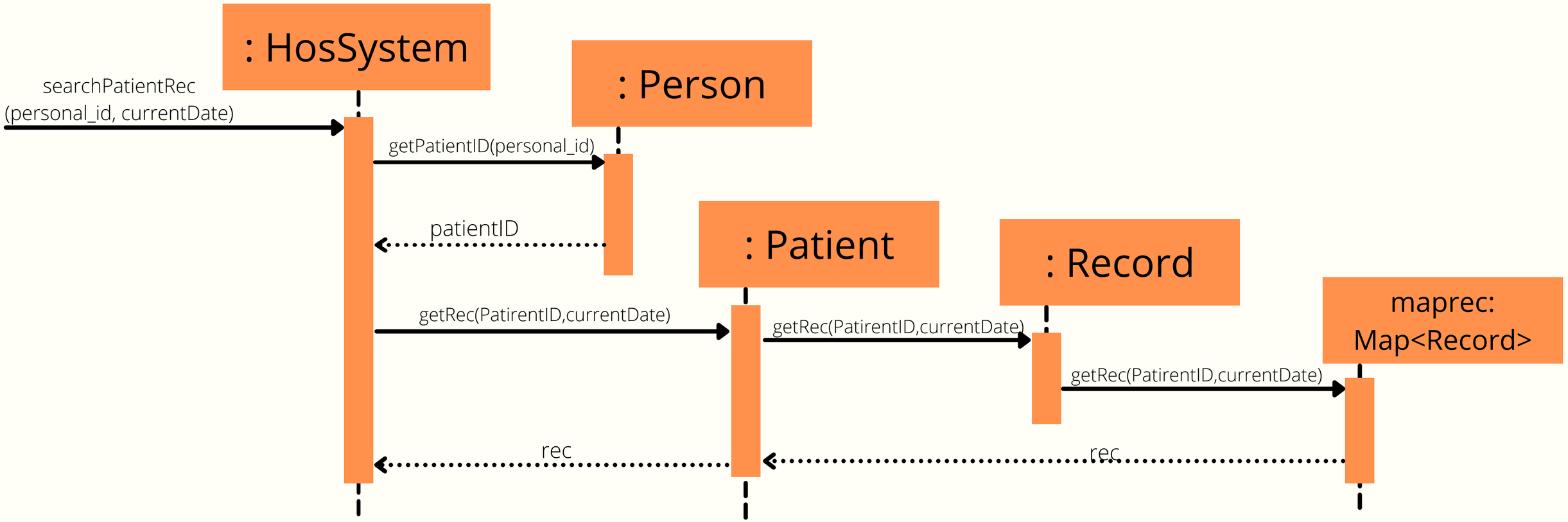
- There is a request for a PIN number from the system.
- There is an instance of Staff, st underway.

Postconditions:

- st.2FAIsVerified became true (attribute modification)

OBJECT-INTERACTION DESIGN

CO5 - searchPatientRec(personnal_id: int, currentDate: date)



CONTRACT CO5:

Operation: searchPatientRec(personnal_id: int, currentDate: date)

Cross References: Use Cases: Update Patient Record

Preconditions:

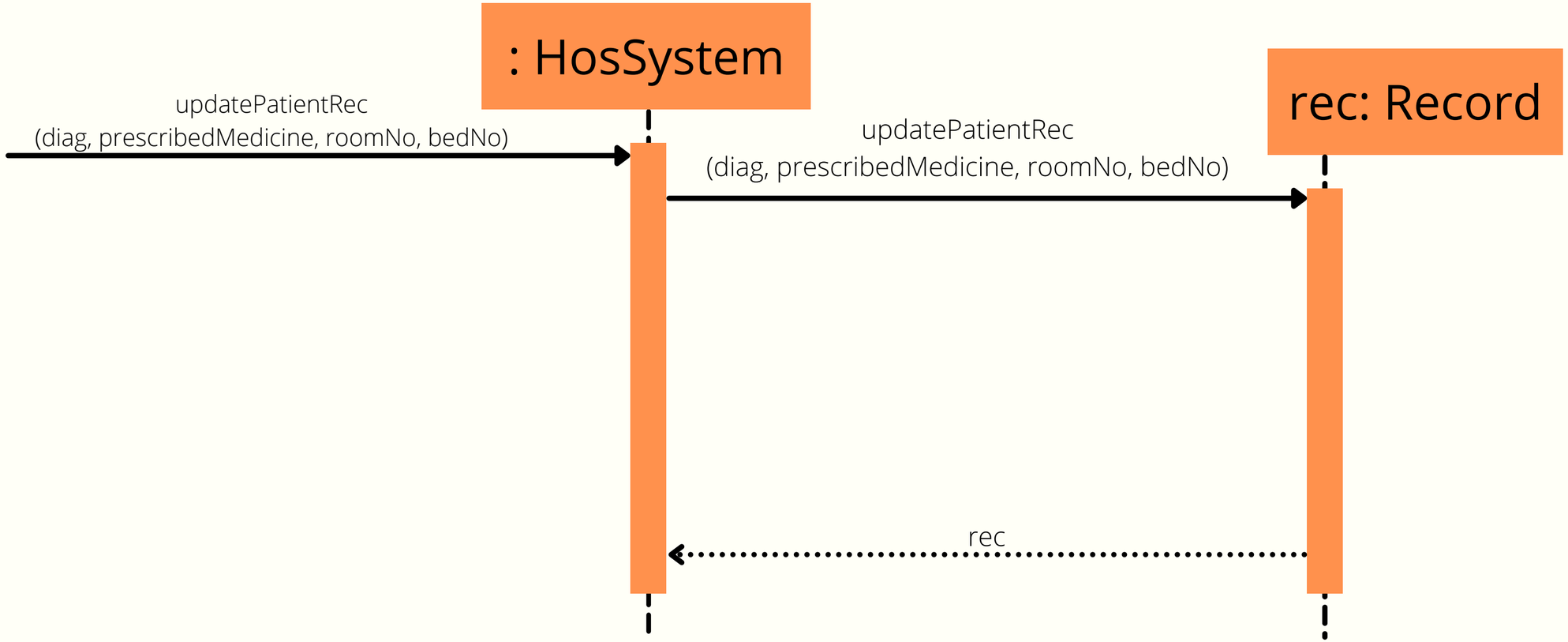
- There is an ‘search patient record’ request underway.

Postconditions:

- A Record instance, rec, was associated with Patient (association formed)

OBJECT-INTERACTION DESIGN

CO6 - updatePatientRec(diag: string, prescribedMedicine: string, roomNo: string, bedNo: string)



CONTRACT CO6:

Operation: updatePatientRec(diag: string, prescribedMedicine: string, roomNo: string, bedNo: string)

Cross References: Use Cases: Update Patient Record

Preconditions:

- There is an instance of Record, rec underway

Postconditions:

- rec attributes were modified based on the input arguments (attribute modification)

CONSTRAINTS

Pharmacist::dispenseMedicine()
pre : prescibeMedicine(patient_id)
post : result = (Record.prescribedMedicine = medicine.name)

Pharmacist
dispenseMedicine() = Record.prescribedMedicine()

Administrative Staff::registerPatient(patient: Patient)
pre : not Patient->includes(patient)
post : Patient = Patient@pre->including(patient)

Doctor
diagnosePatient() = Record.diagnosis

Nurse::updateMedicalFiles()
pre : diagnosePatient(personal_ID)
post : result = (Receptionist.updateRegisteredPatientRecord(personal_ID currentDate))

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