Communication Diagrams:
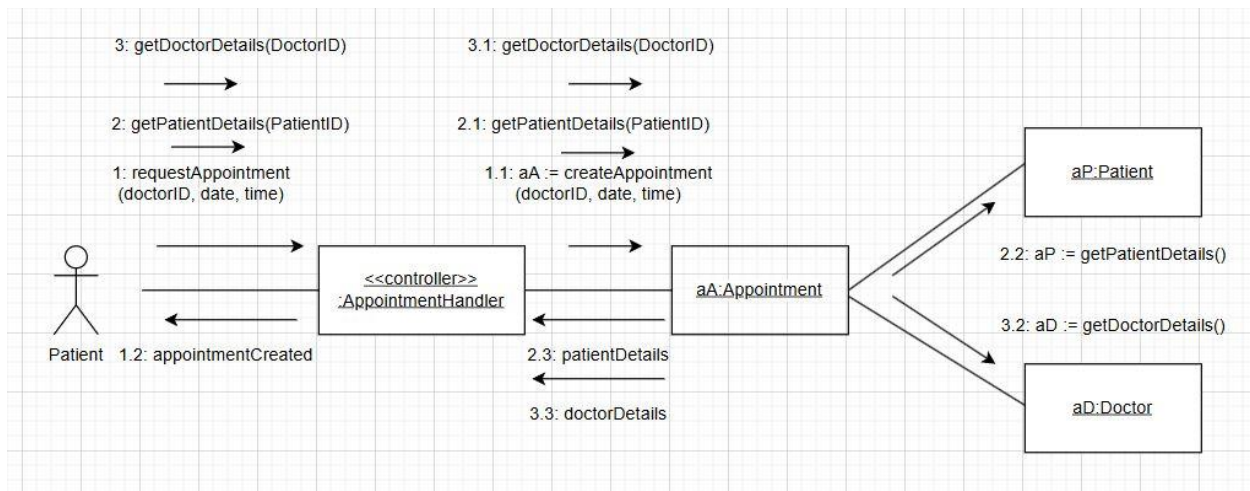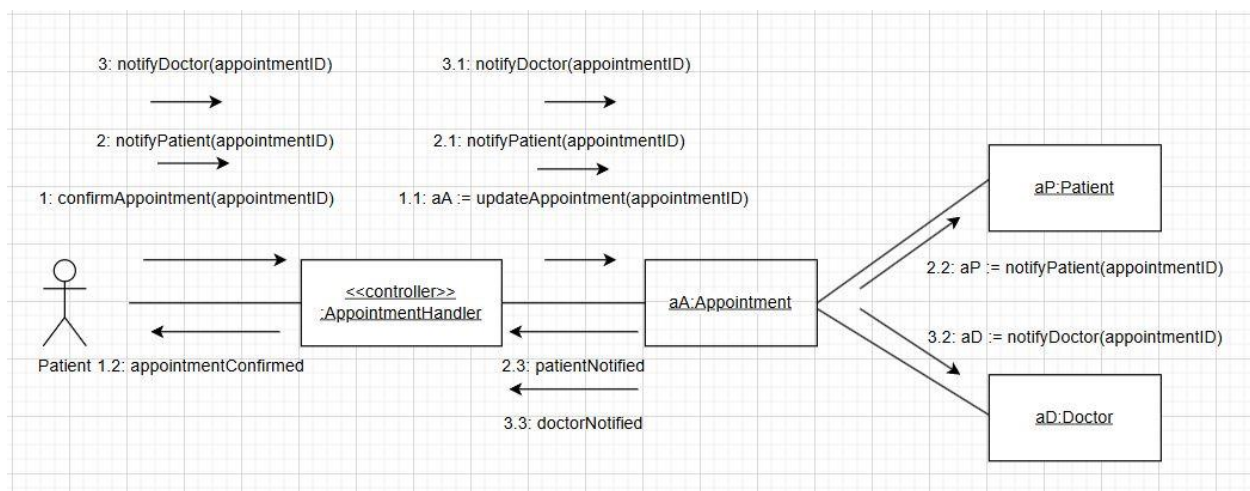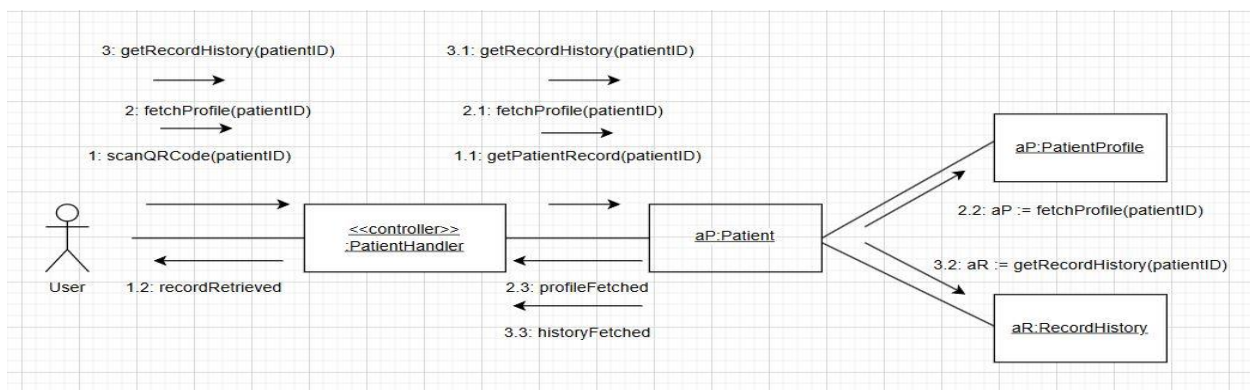
1. Enable Patients to Make Appointments with the Chosen Doctor
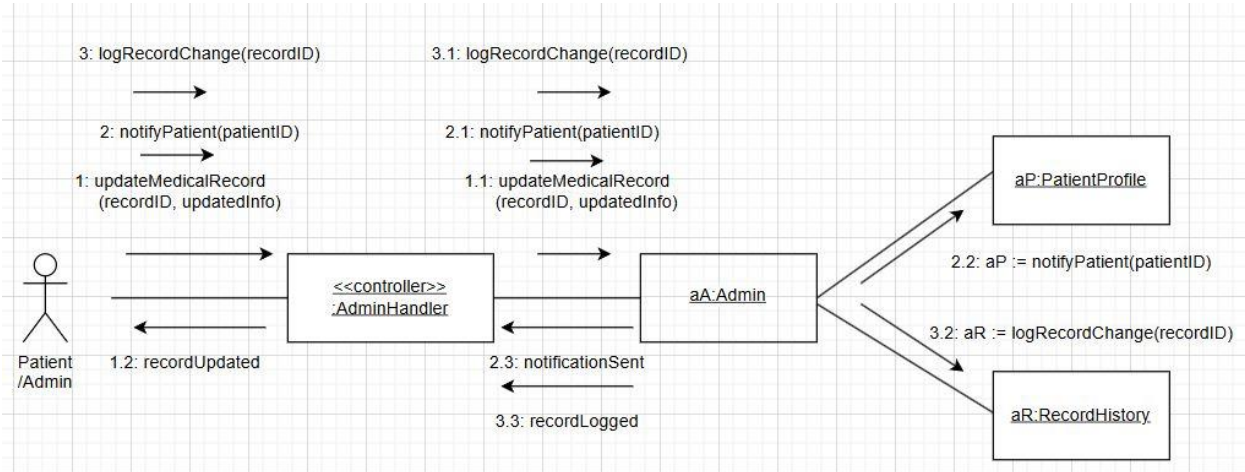

2. Generate Appointment Date and Timing Confirmation by Admin
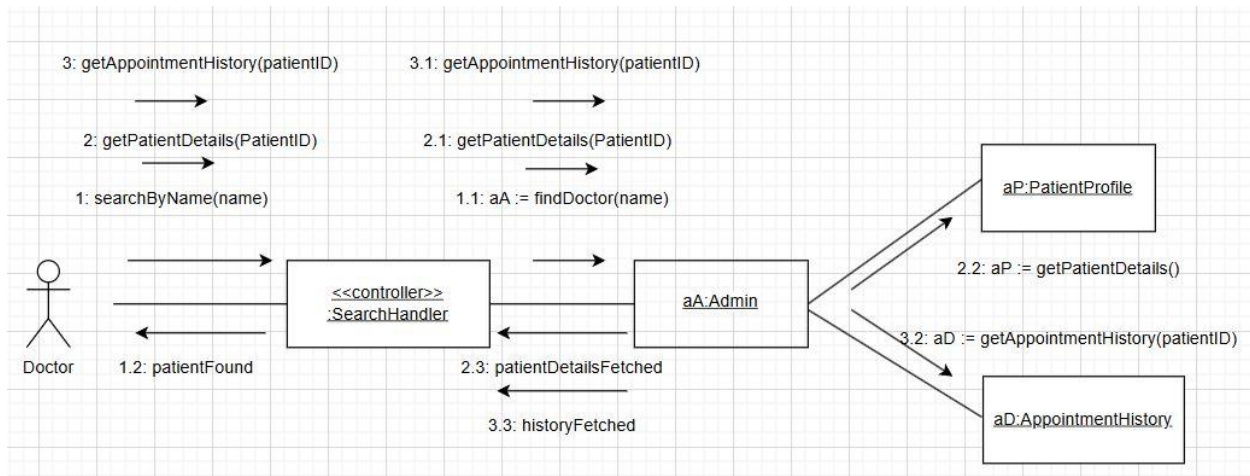

3. Anyone Accesses a Patient's Record by QR Code

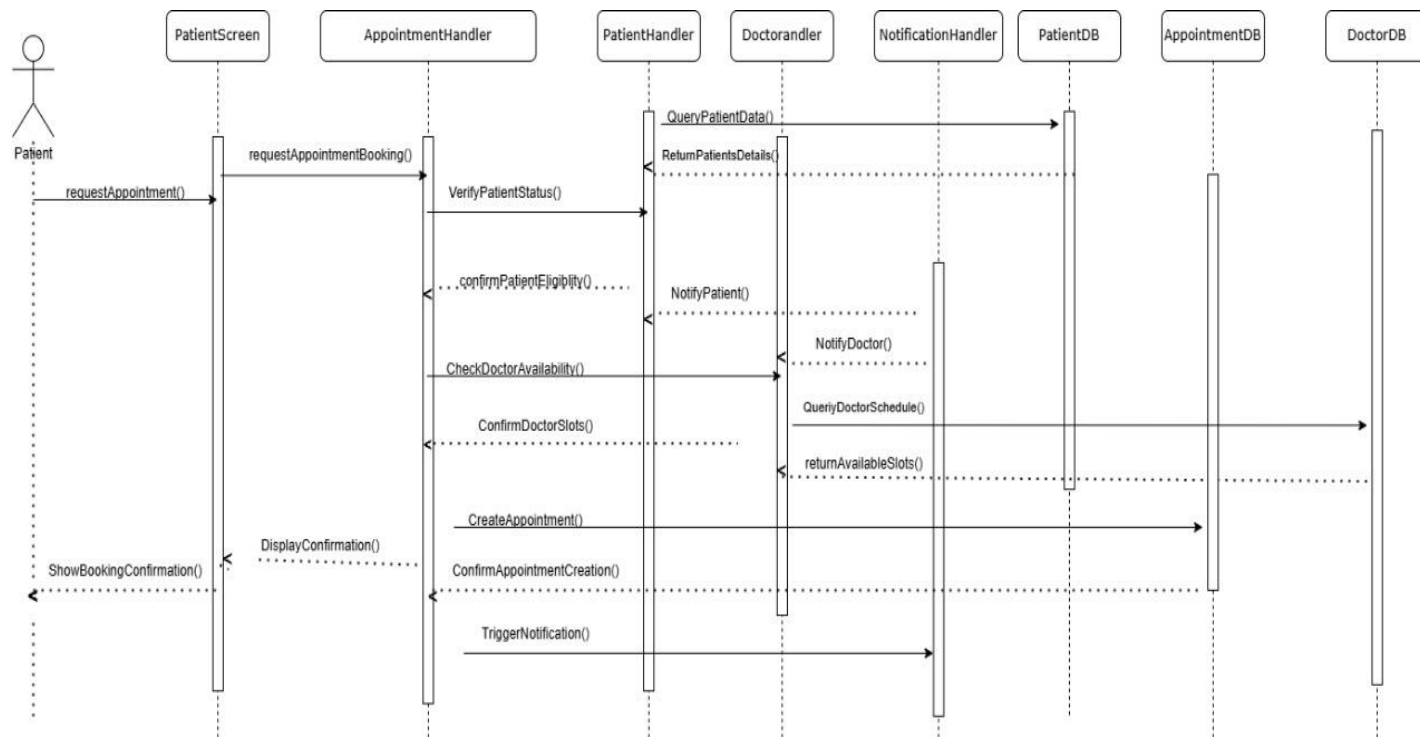## 4. Enable Patients and Admins to Update/Delete Medical Records

3: logRecordChange(recordID)   3.1: logRecordChange(recordID)

2: notifyPatient(patientID)   2.1: notifyPatient(patientID)

1: updateMedicalRecord   1.1: updateMedicalRecord
(recordID, updatedInfo)   (recordID, updatedInfo)

aP:PatientProfile

| <<controller>> :AdminHandler | aA:Admin |

2.2: aP := notifyPatient(patientID)

3.2: aR := logRecordChange(recordID)

Patient /Admin

1.2: recordUpdated   2.3: notificationSent

3.3: recordLogged

aR:RecordHistory

5. Enable Doctors to Search for Their Patients

3: getAppointmentHistory(patientID)   3.1: getAppointmentHistory(patientID)

2: getPatientDetails(PatientID)   2.1: getPatientDetails(PatientID)

1: searchByName(name)   1.1: aA := findDoctor(name)

aP:PatientProfile

| <<controller>> :SearchHandler | aA:Admin |

2.2: aP := getPatientDetails()

3.2: aD := getAppointmentHistory(patientID)

Doctor

1.2: patientFound   2.3: patientDetailsFetched
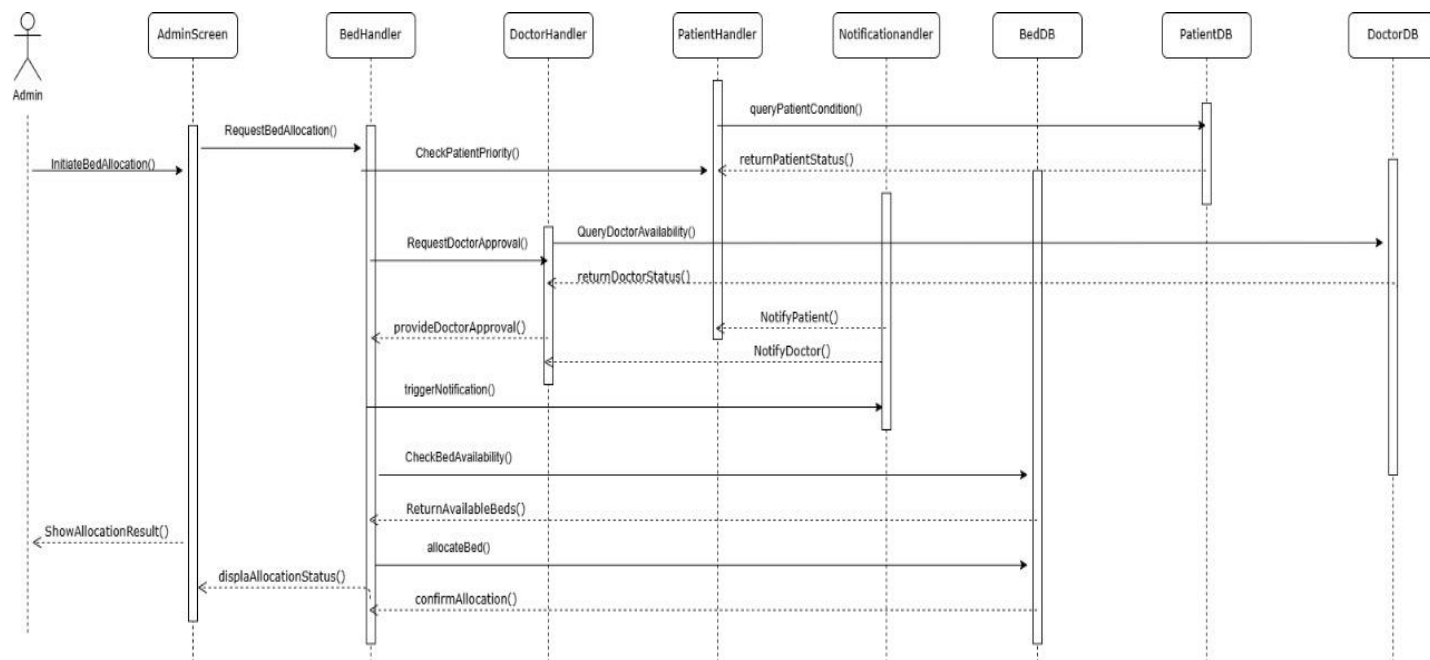
3.3: historyFetched

aD:AppointmentHistory

Multi-Layer sequence Diagram:

1. Admin handling patients' appointments with available doctors

2. Allocating beds to patients on a priority basis by confirming and tracking available beds

Design Class Diagram:

Image
+byte * data

+Image(byte[])
+byte * getData()
+void setData(byte[])

User
+string name
+string password

Forum
+Doctor doctor[]
+Questions Question[]

+Forum()
+Doctor * getDoctors()
+void addDoctor(Doctor)
+void removeDoctor(Doctor)
+Questions * getQuestions()
+void addQuestions(Questions)
+void removeQuestion(Questions)
+void answerQuestion(Questions, Doctor, string)

Patient
+String Pname
+Int P_age
+String Pgender
+Image medicalRecord
+Doctor DoctorID
+String PID
+string phoneNO
+string address
+string email

+Patient(string, int, string , string, string , string, string)
+String getPname()
+Void setPname(string)
+Int getP_age()
+Void setP_age(int)
+String getGender(;
+Void setGenJer(string)
+Image * getMedicalR()
+Image*addMedicalR(Image)
+Void remoc.eMedicalR(Image)
+Doctor getDoctor()
+Doctor setDoctor(Doctor)
+void setPID(string)
+string getPID()
+void setPhoneNO(string)
+string getPhone_NO()
+void setemail*(string)
+string getemail*()
+void loginP()
+void logoutP()
+void sign_nP()
+Image * getmedical()
+void addmedical(Image)
+void removemedical(Image)

Admin
+string Name
+String address
+Department dept[]
+Doctor doctor[]
+Patient patient[]
+Appointments appointment[]
+Forum forum
+Beds Bed[]
+string email

+Admin(string, string)
+string getName()
+void setName(string)
+string getAddress()
+void setAddress(string)
+Depatment * getDepartments()
+void addDepartment(Departmant)
+void removeDepartment(Department)
+Doctor * getDoctor()
+void addDoctor(Doctor)
+void removeDoctor(Doctor)
+Patient * getpatients()
+void addPatient(Patient)
+void removePatient(Patient)
+Appointments * getApp()
+void editApp(Appointments, Appointments, Appointments)
+void removeApp(Appointment)
+Forum getForum()
+Beds * getBed()
+void updateBed(Beds , Patient)
+void removeBed(Beds)
+Image createMedicalrec(Patient)
+string createDocEmail(Doctor)
+Patient * searchP(string)
+Doctor * searcnD(string)
+Image * getmedical()

Questions
+Patient patient
+Doctor doctor
+string questionText
+string answer

+Question(Patient, Doctor, String)
+Patient getPatient()
+void setPatient(Patient)
+Doctor getDoctor()
+void sotDoctor(Doctor)
+string getQoustionText()
+void setQuestionText(string)
+string getAnswer()
+void setAnswer(string)

Appointments
+Patient PatientID
+Doctor DoctorID
+String Time
+Bool Notified
+String Date

+Appointments(String, String, string)
+Patient getPatient()
+Void setPatient(Patient)
+Doctor getDoctor()
+Void setDoctor(Doctor)
+String getAppointmentTime()
+Void setAppointmentTime(String, String)
+Bool isNotified()
+void setNotified(Bool)

Doctor
+string Dfname
+string specialization
+Department dept
+Patients patient[]
+string phoneNO
+string address
+string email
+string description

+Doctor(string, string specialization)
+string getDname()
+void setDName(string)
+string getSpecialization()
+void setSpecialization(string)
+Department getdept()
+void setdept(Department)
+Patient* getPatients()
+void setPhoneNo(string)
+string getPhoneNO()
+void LoginD()
+void logoutD()
+string getemailD()
+void uedConfirm(Patient)
+void setAddress(string)
+string getAddress()
+Image * getmedical()

Department
+String name_dep
+Doctor doctor[]

+Department(string)
+string getName()
+void setName(string)
+Doctor * getDoctors()
+void addDoctor(Doctor)
+void removeDoctor(Doctor)

Beds
+string bedNum
+Patient patient
+bool isOccupied

+Beds(string)
+string getbedNum()
+void setbedNum(string)
+bool isOccupied()
+void setOccupied(bool)
+Patient getPatient()
+void setPatient(Patient)

Package Diagram:

View Layer

AppointmentWindow

AdminWindow

DoctorWindow

PatientWindow

LoginWindow

Domain Layer

AppointmentHandler

BedAllocationHandler

ForumHandler

MedicalRecordHandler

UserHandler

Data Access Layer

MedicalRecordDA

DoctorDA

AdminDA

QuestionDA

AppointmentDA

BedDA

PatientDA