Class Diagram

AppointmentStatus
PENDING
CONFIRMED
ARRIVED
COMPLETED
CANCELLED

context User
inv validEmail:
self.email.includes('@')

inv validPhone:
self.phone.size() >= 10

inv roleNotNull:
not
self.role.oclIsUndefined()

EmailService
+sendConfirmationEmail(patient, appointment)
+sendCancellationEmail(patient, appointment)
+sendNotificationEmail(user,

Patient
+patientId:Long
+insuranceId:String

+viewAppointments()
+cancelAppointment(Id)

Appointment
+appointmentId:Long
+dateTime:DateTime
+status:AppointmentStatus

+confirm()
+markArrived()
+complete()
+cancel()

MidicalNote
+noteId:Long
+diagnosisText:String

+ addNote()
+updateNote()

Clinic
+clinicId:Long
+name:String
+address:String
+phone:String

+addDoctor()
+addReceptionist()
+removeDoctor()
+removeReceptionist()

Receptionist
+receptionistid:Long

+bookForPatient()
+markArrived()

User
abstract
+userid:Long
+name:String
+email:String
+phone:String
+passwordHash:String
+role:Role

+login()
+updateprofile()

AuthService
+login(email,password)
+logout()

Doctor
+doctorid:long
+specialization:string

+setworkinghour()
+viewappointments()
+writeMedicalnote()

Department
+ depid:Long
+ name:String

+ addDoctor()
- removeDoctor()

Role
ADMIN
DOCTOR
RECEPTIONIST
PATIENT

Admin
+admin:long

OCL CONSTRAINTS:

context Doctor
inv specializationRequired:
not self.specialization.oclIsUndefined()

inv appointmentsHaveSameDoctor:
self.appointment->forAll(a | a.doctor = self)

context User
inv validEmail:
self.email.includes('@')

inv validPhone:
self.phone.size() >= 10

inv roleNotNull:
not self.role.oclIsUndefined()

context Patient
inv insuranceIdRequired:
not self.insuranceId.oclIsUndefined()

inv atLeastOneAppointment:
self.appointment->size() >= 0

context Receptionist
inv validReceptionistId:
self.receptionistId > 0

context EmailService
inv validNotification:
true

context MedicalNote
inv diagnosisNotEmpty:
self.diagnosisText.size() > 0

context Admin
inv validAdminId:
self.adminId > 0

context Appointment
inv validDate:
self.dateTime > DateTime::now()

inv validStatus:
self.status <> AppointmentStatus::CANCELLED or
self.status <> AppointmentStatus::COMPLETED

context Appointment
pre confirm:
self.status = AppointmentStatus::PENDING

post confirm:
self.status = AppointmentStatus::CONFIRMED

pre markArrived:
self.status = AppointmentStatus::CONFIRMED

post markArrived:
self.status = AppointmentStatus::ARRIVED

pre complete:
self.status = AppointmentStatus::ARRIVED

post complete:
self.status = AppointmentStatus::COMPLETED

context Clinic
inv clinicNameRequired:
self.name.size() > 0

inv hasAtLeastOneDoctor:
self.doctor->size() >= 1

context Department
inv departmentNameRequired:
self.name.size() > 0

inv hasDoctors:
self.doctor->size() >= 1

context AuthService
pre login:
email.size() > 0 and password.size() > 0