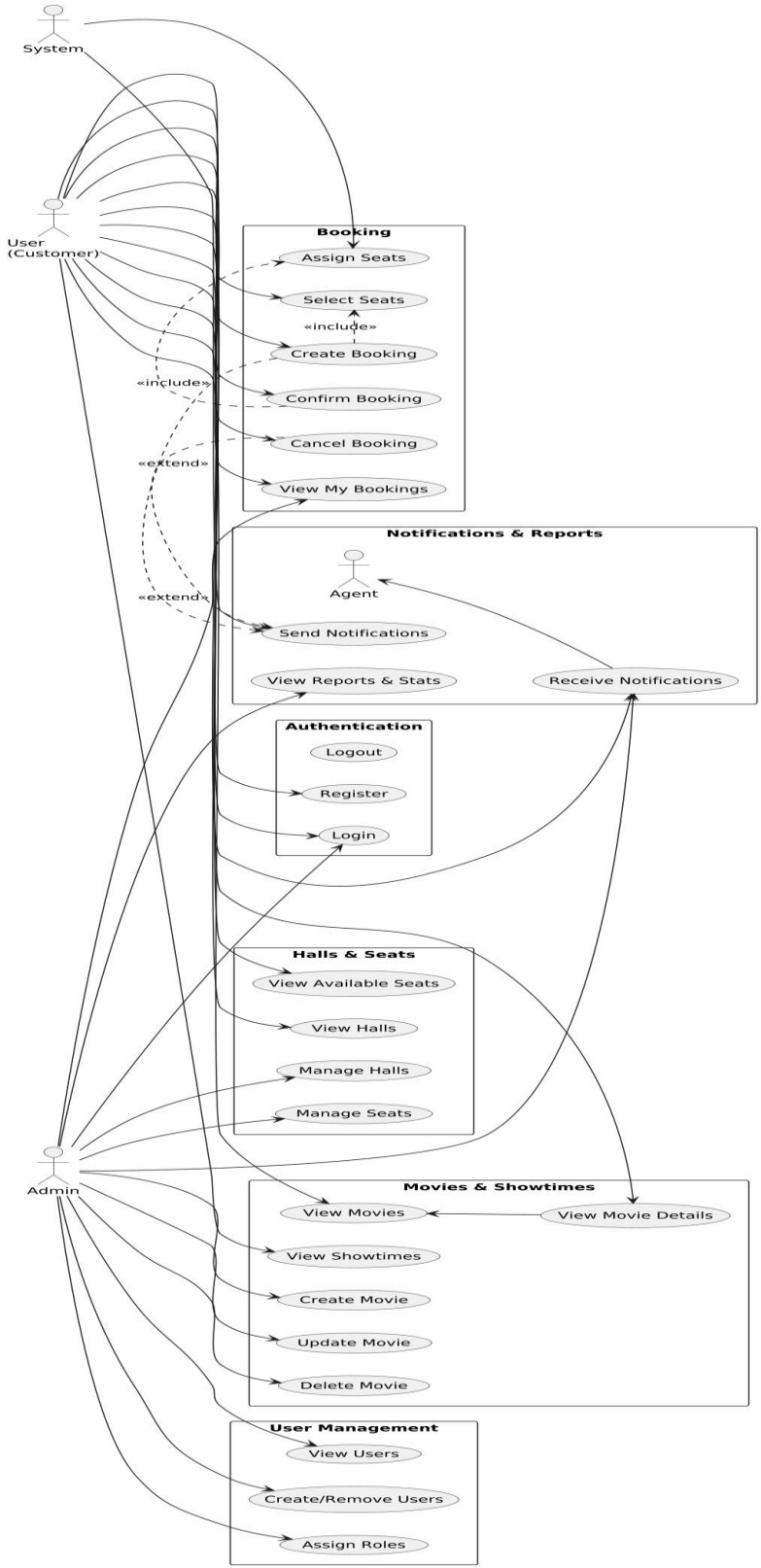
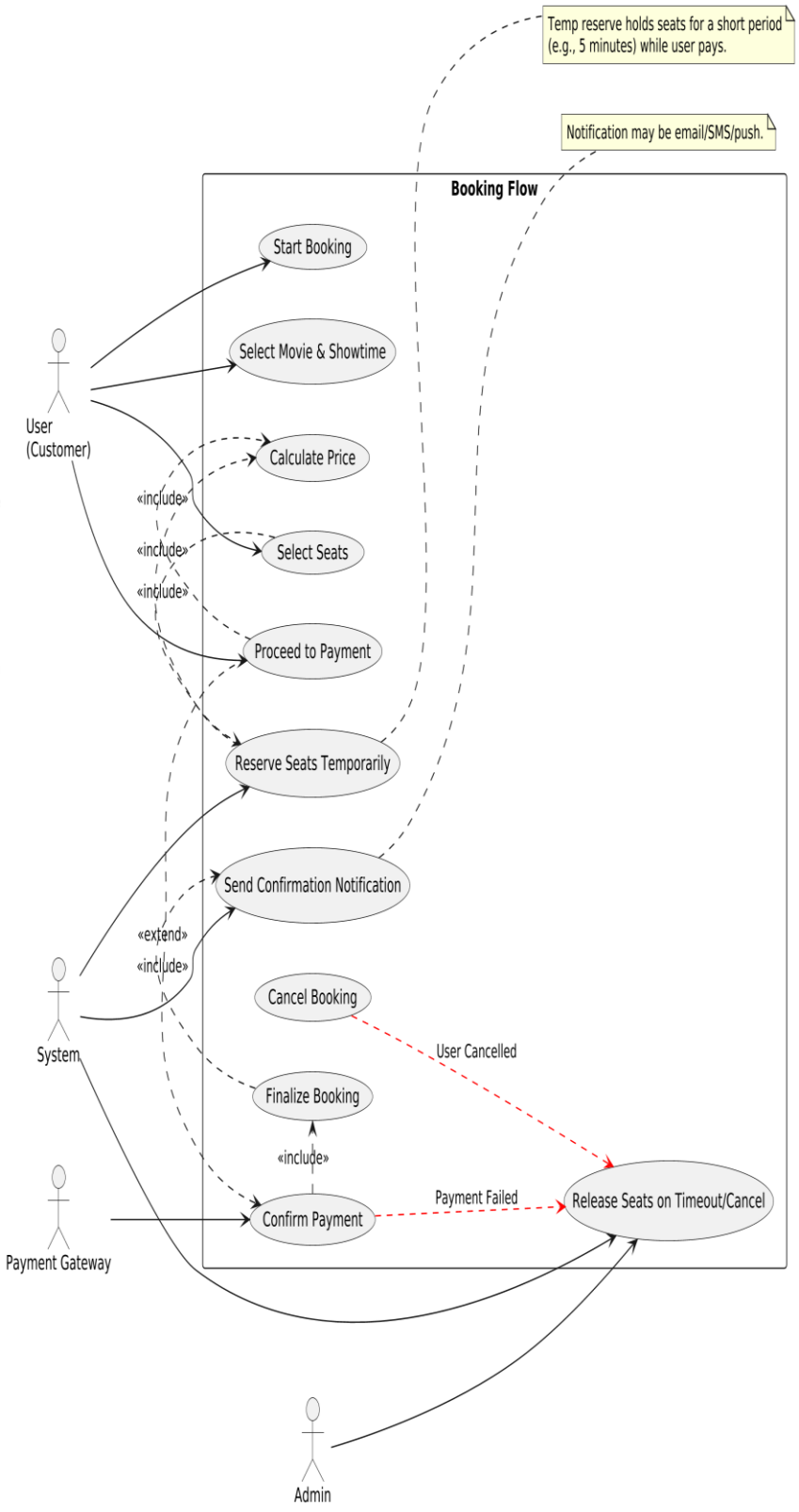
UML & SRS Documentation

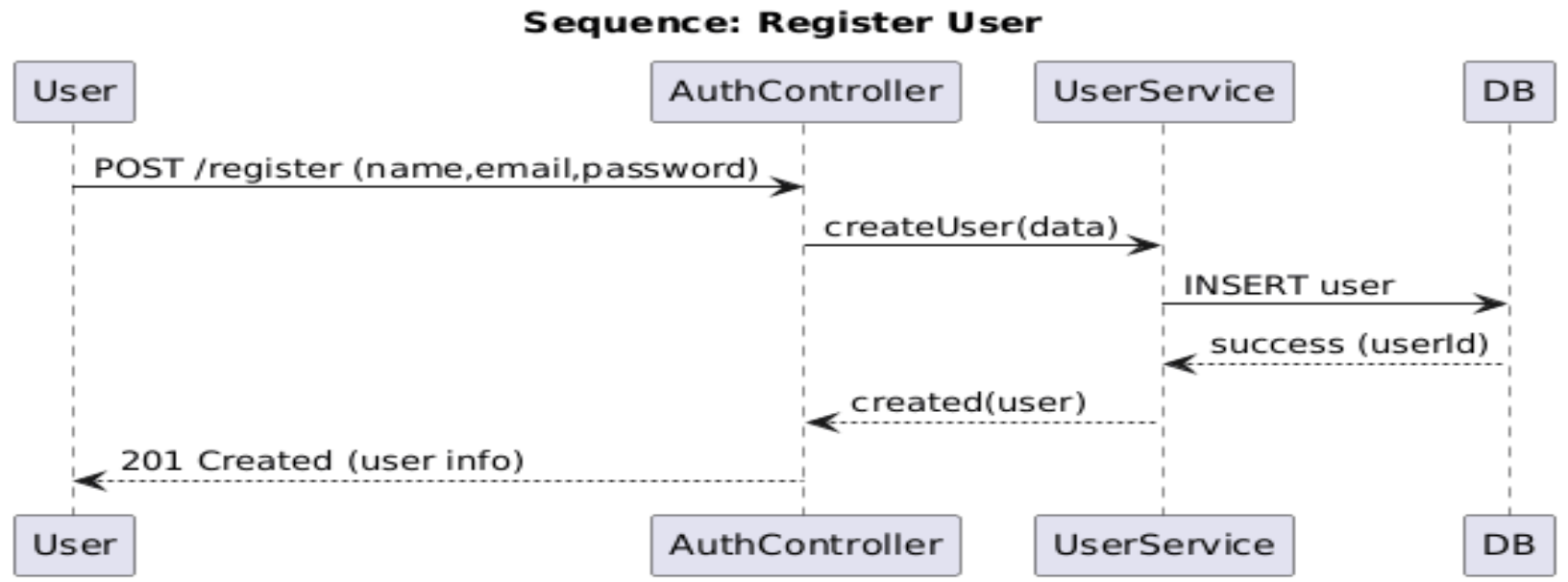
Software Requirements Specification (SRS)

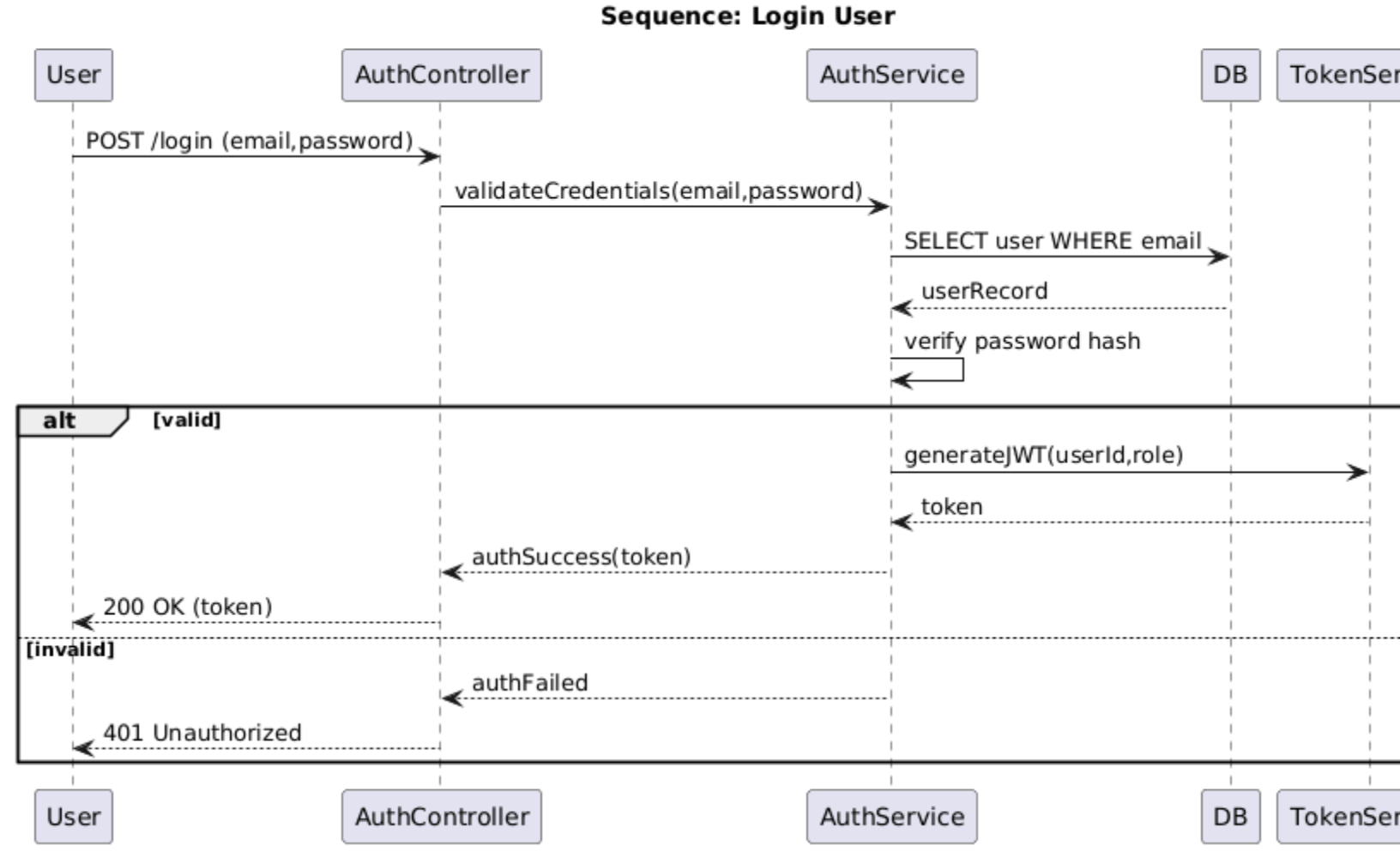
1. Use Case Diagram

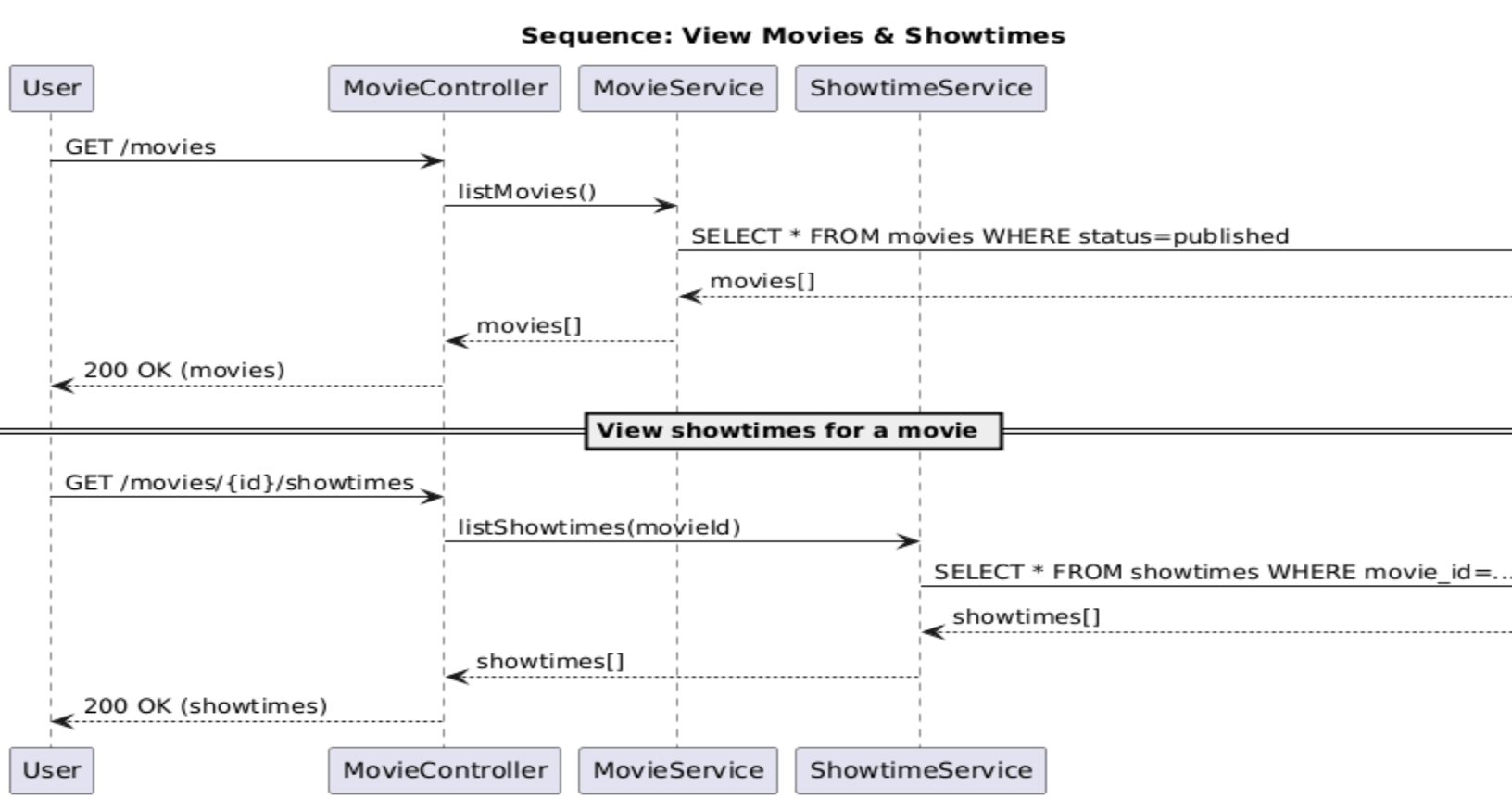


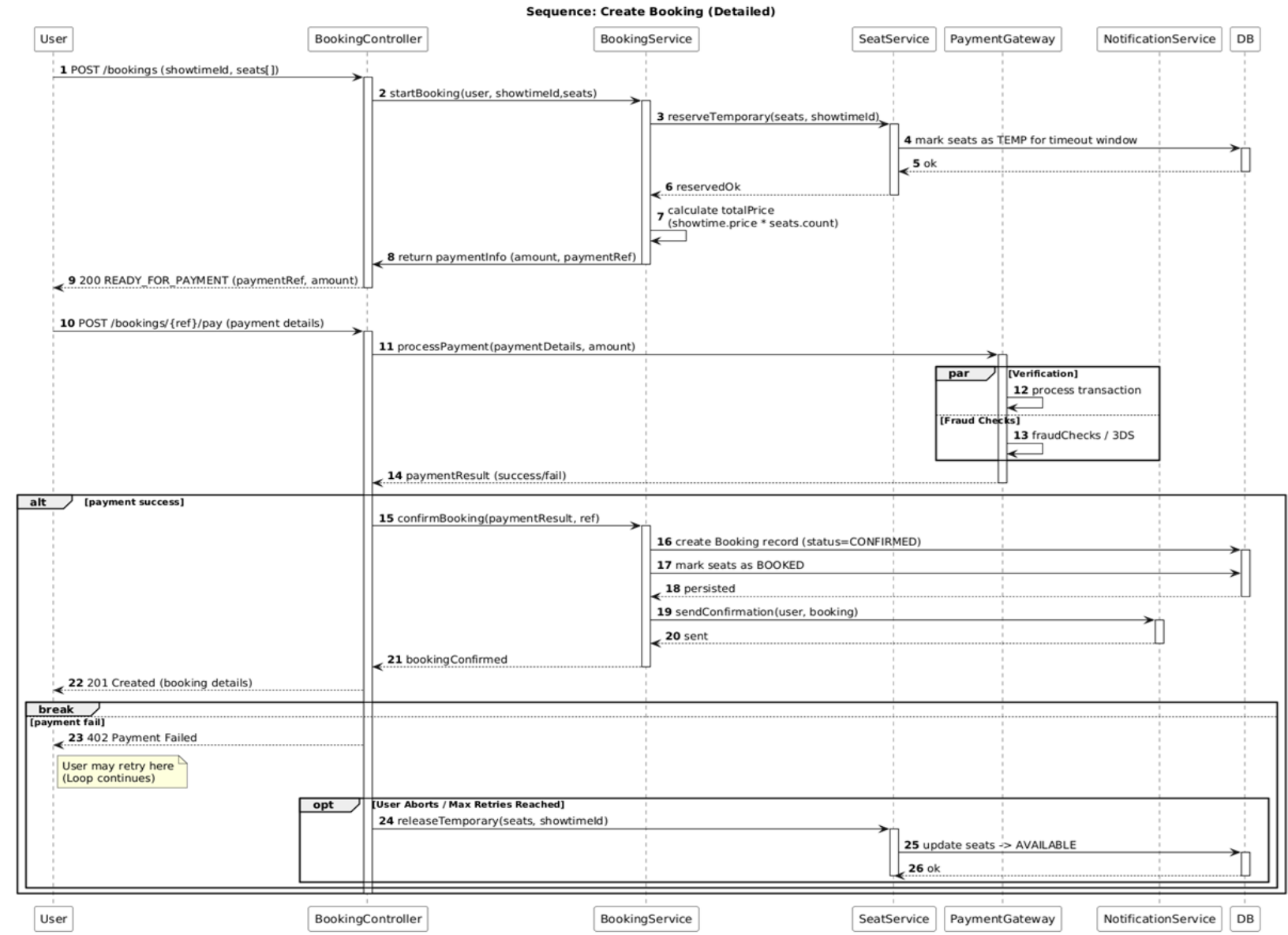


2. Sequence Diagrams

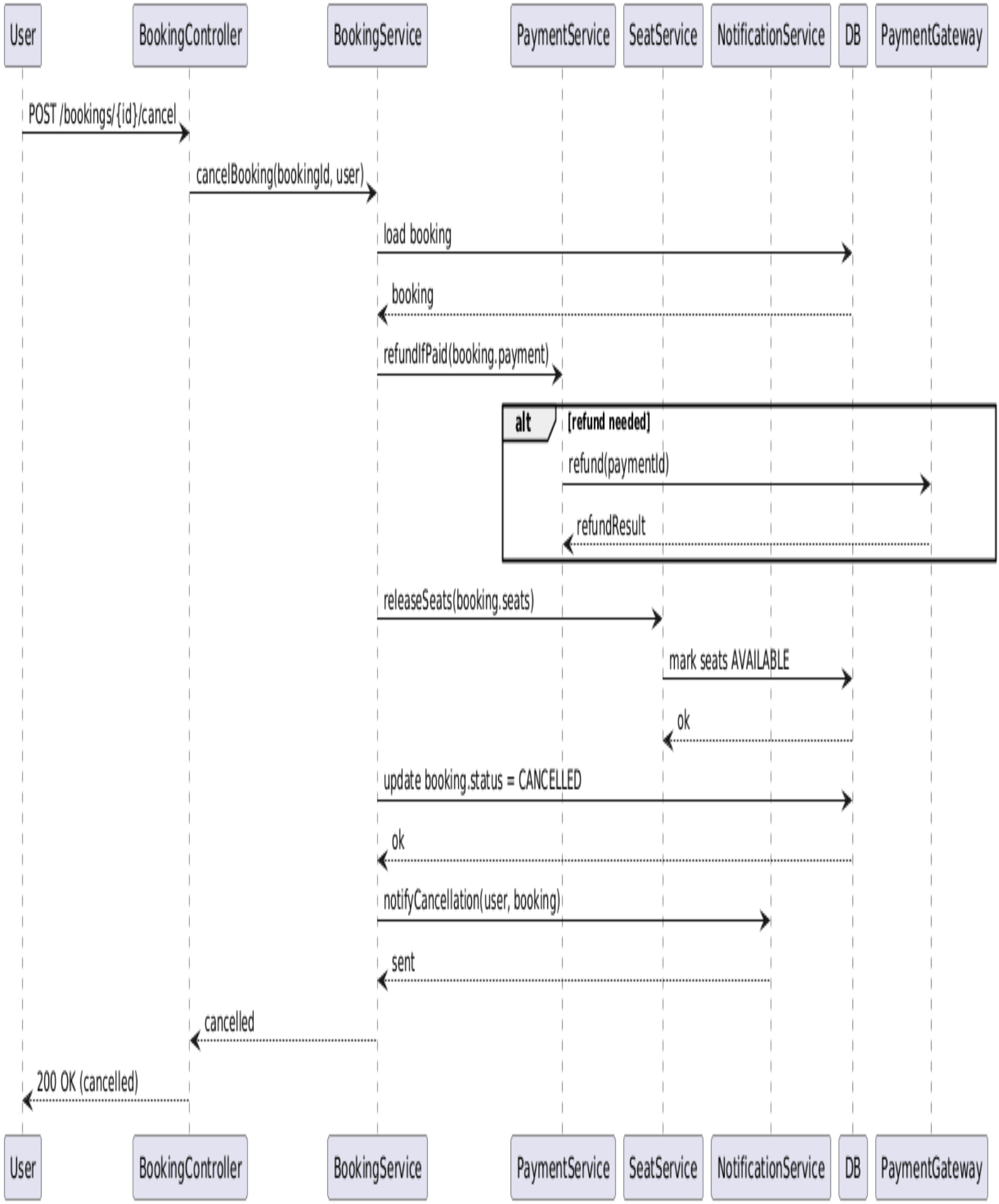


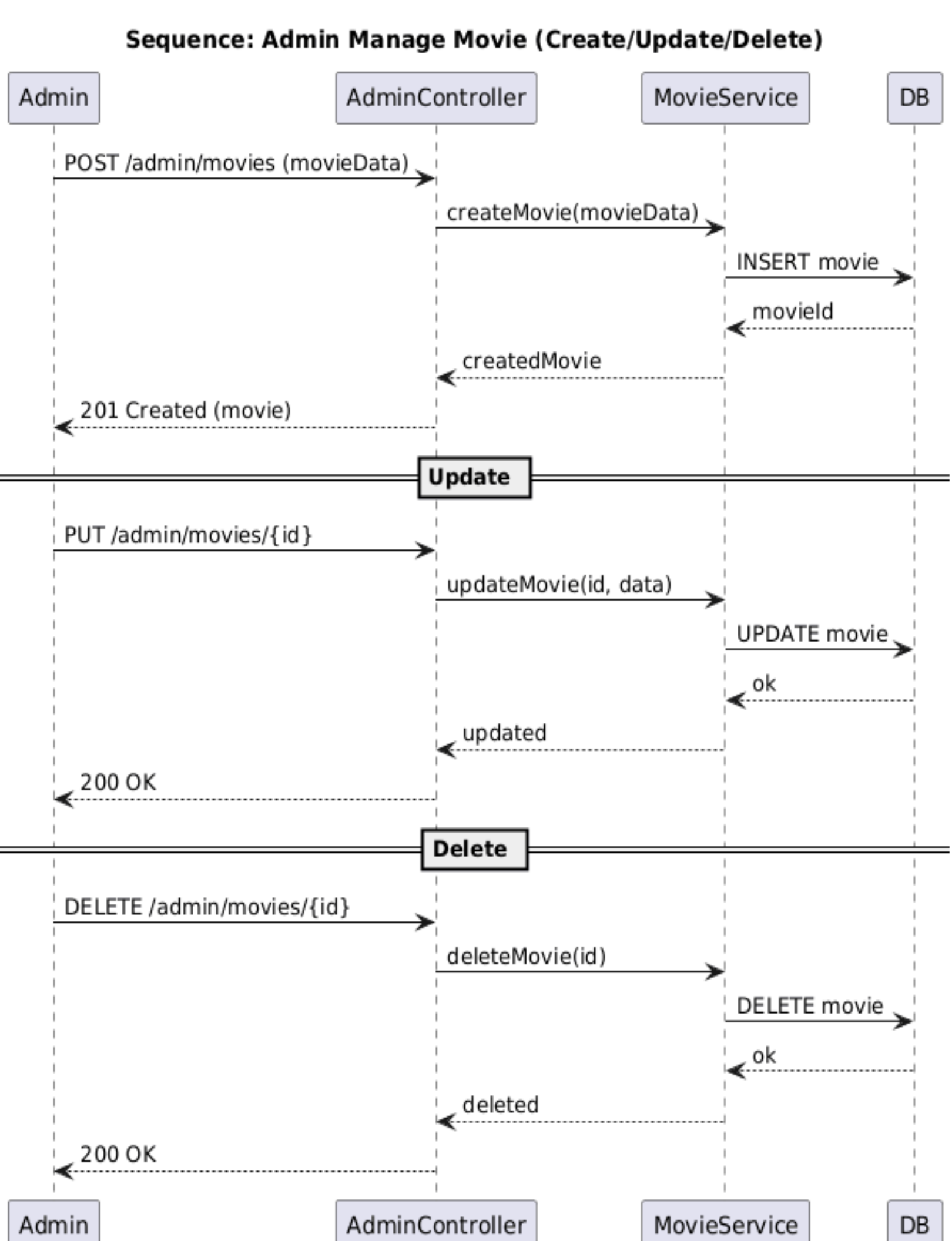


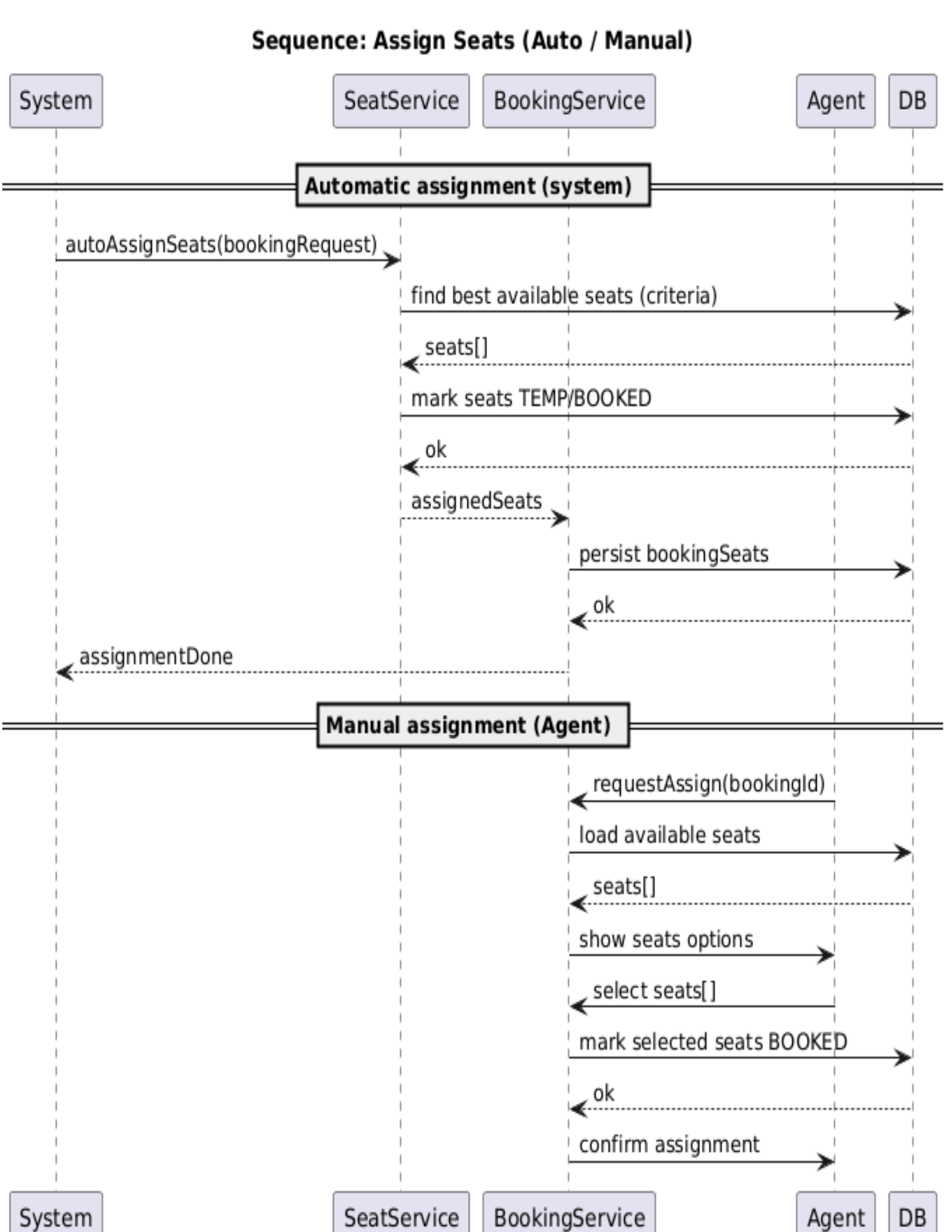

Sequence: View Movies & Showtimes
User
MovieController
MovieService
ShowtimeService
GET /movies
listMovies()
SELECT * FROM movies WHERE status=published
movies[]
movies[]
200 OK (movies)
View showtimes for a movie
GET /movies/{id}/showtimes
listShowtimes(movieId)
SELECT * FROM showtimes WHERE movie_id=...
showtimes[]
showtimes[]
200 OK (showtimes)
User
MovieController
MovieService
ShowtimeService


Sequence: Create Booking (Detailed)
User
BookingController
BookingService
SeatService
PaymentGateway
NotificationService
DB
1 POST /bookings (showtimeId, seats[])
2 startBooking(user, showtimeId,seats)
3 reserveTemporary(seats, showtimeId)
4 mark seats as TEMP for timeout window
5 ok
6 reservedOk
7 calculate totalPrice
(showtime.price * seats.count)
8 return paymentInfo (amount, paymentRef)
9 200 READY_FOR_PAYMENT (paymentRef, amount)
10 POST /bookings/{ref}/pay (payment details)
11 processPayment(paymentDetails, amount)
par
[Verification]
12 process transaction
[Fraud Checks]
13 fraudChecks / 3DS
14 paymentResult (success/fail)
alt
[payment success]
15 confirmBooking(paymentResult, ref)
16 create Booking record (status=CONFIRMED)
17 mark seats as BOOKED
18 persisted
19 sendConfirmation(user, booking)
20 sent
21 bookingConfirmed
22 201 Created (booking details)
break
[payment fail]
23 402 Payment Failed
User may retry here
(Loop continues)
opt
[User Aborts / Max Retries Reached]
24 releaseTemporary(seats, showtimeId)
25 update seats -> AVAILABLE
26 ok
User
BookingController
BookingService
SeatService
PaymentGateway
NotificationService
DB

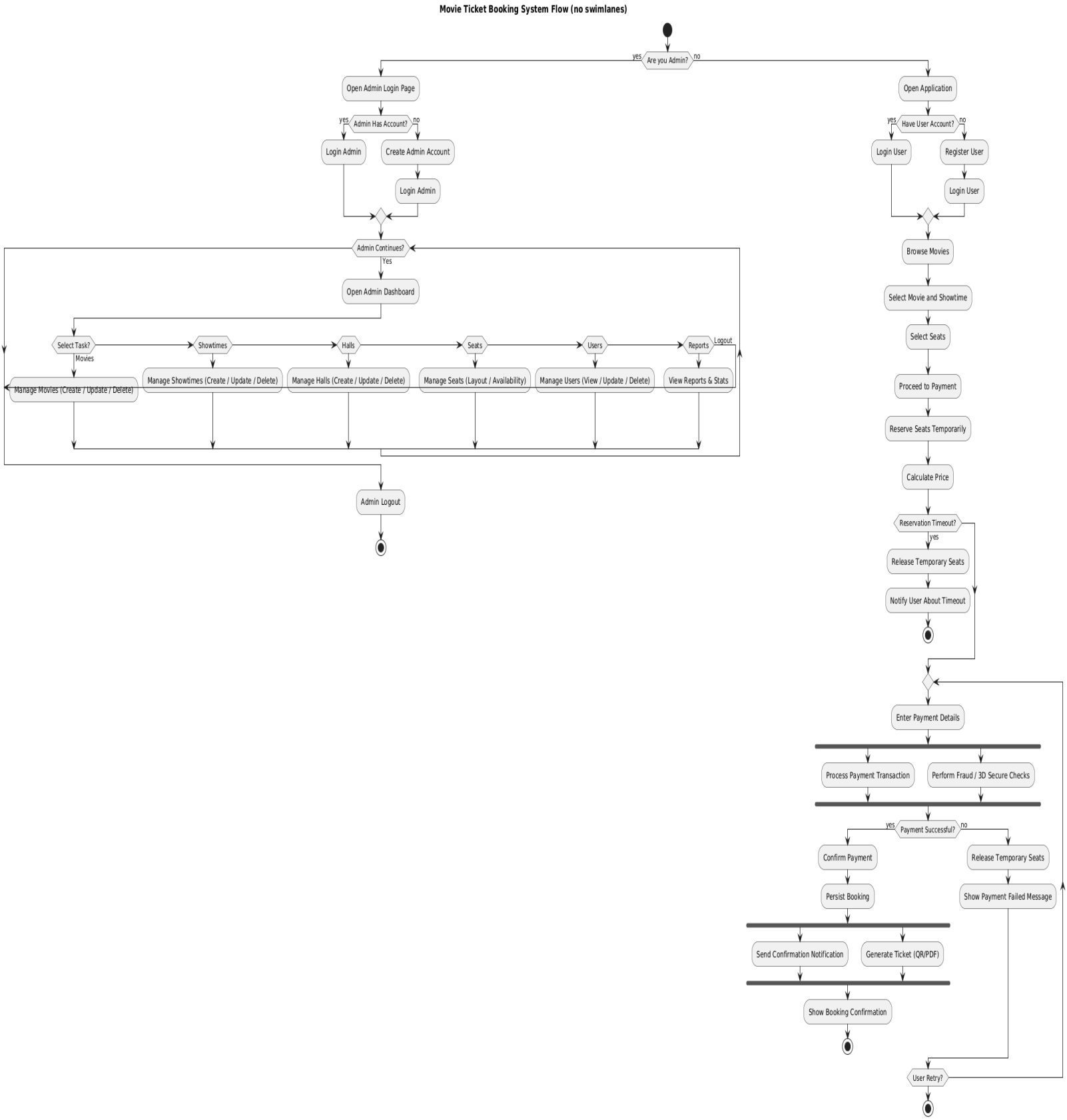
Sequence: Cancel Booking



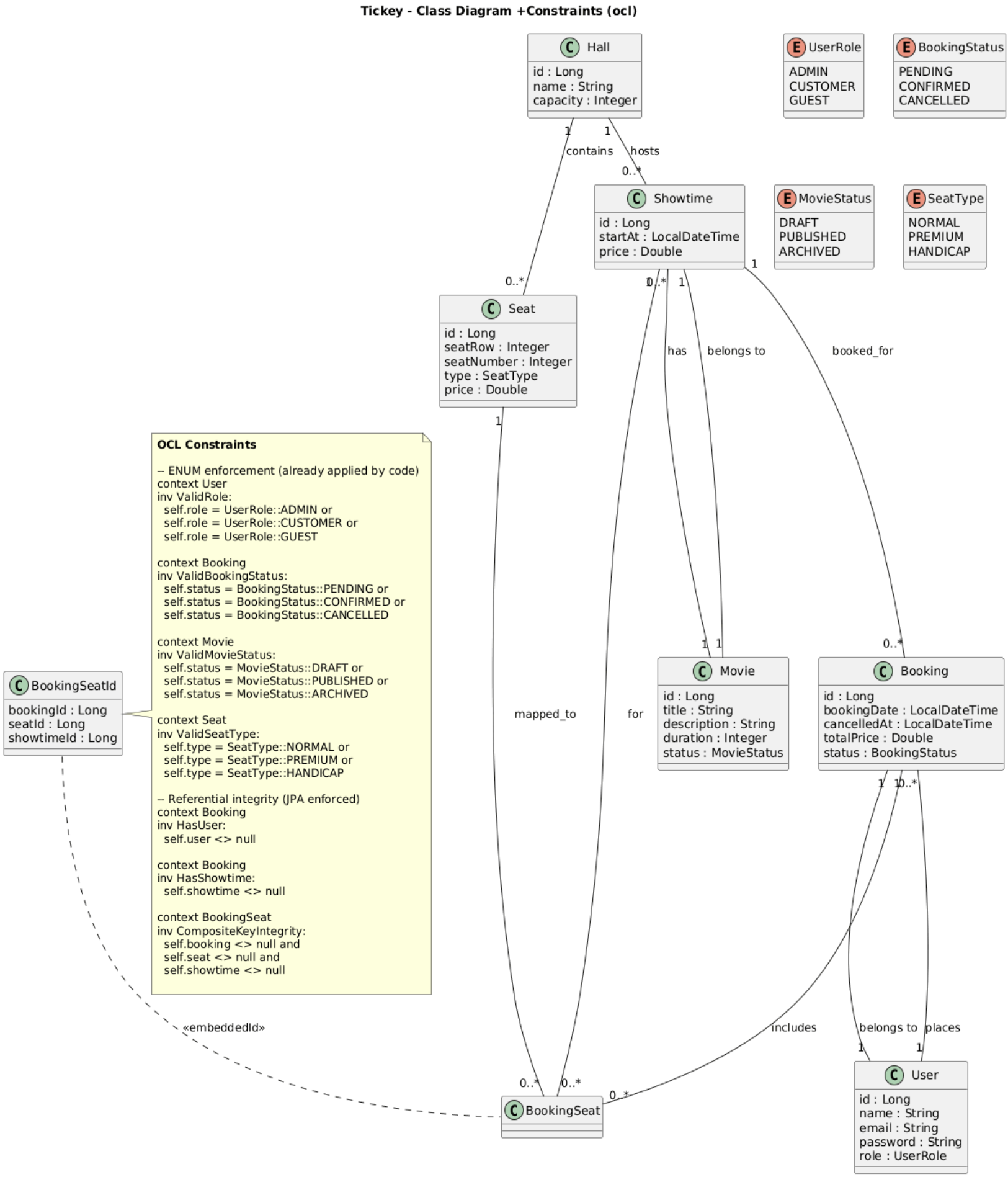
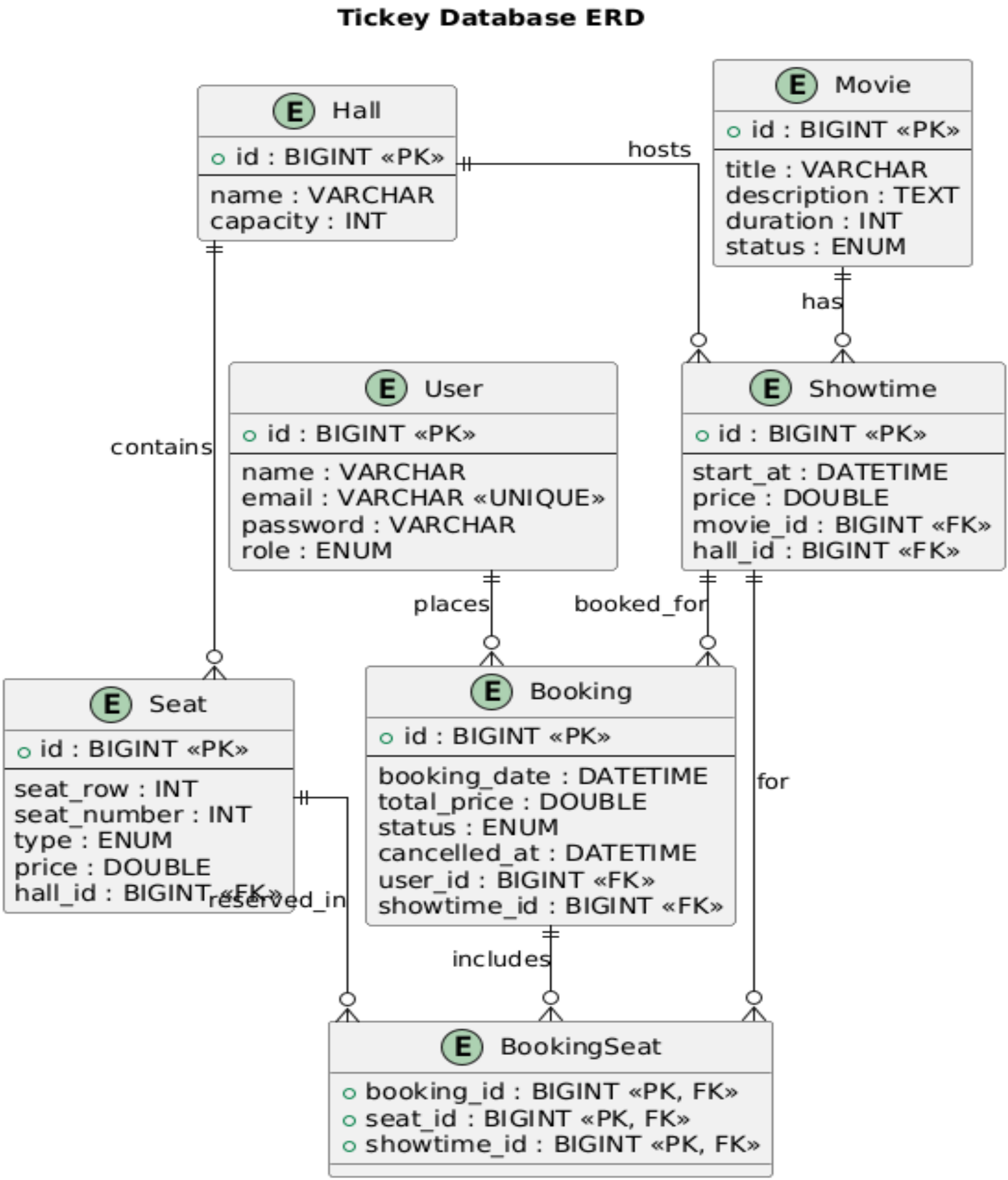

Sequence: Admin Manage Movie (Create/Update/Delete)
Admin
AdminController
MovieService
DB
POST /admin/movies (movieData)
createMovie(movieData)
INSERT movie
movieId
createdMovie
201 Created (movie)
Update
PUT /admin/movies/{id}
updateMovie(id, data)
UPDATE movie
ok
updated
200 OK
Delete
DELETE /admin/movies/{id}
deleteMovie(id)
DELETE movie
ok
deleted
200 OK
Admin
AdminController
MovieService
DB


Sequence: Assign Seats (Auto / Manual)
System
SeatService
BookingService
Agent
DB
Automatic assignment (system)
autoAssignSeats(bookingRequest)
find best available seats (criteria)
seats[]
mark seats TEMP/BOOKED
ok
assignedSeats
persist bookingSeats
ok
assignmentDone
Manual assignment (Agent)
requestAssign(bookingId)
load available seats
seats[]
show seats options
select seats[ ]
mark selected seats BOOKED
ok
confirm assignment
System
SeatService
BookingService
Agent
DB

3. Activity Diagrams



4. Class Diagram + OCL Constraints



5. Entity Relationship Diagram (ERD)