

# Cinema Ticketing, Screening & Seat Control System

## Summary

This project is a cinema ticketing and screening management system developed using Java Spring Boot and React. It supports creating movie screenings, managing cinema halls and seat layouts, selling tickets with real-time seat availability, and validating QR-coded tickets at entry. The system enforces business rules such as seat locking, duplicate scan prevention, and automatic ticket expiration after the screening ends, reflecting real-world cinema workflows.

## User Stories

### Create screening (Cinema Manager)

As a cinema manager, I want to create a movie screening with hall, time and seat pricing so that tickets can be sold.

#### Acceptance criteria

- Manager sets movie, hall, start & end time
- Seat categories with prices
- System generates seat map snapshot
- Screening becomes bookable

### Purchase movie ticket (Customer)

As a moviegoer, I want to select seats and buy tickets so that I can attend the screening.

#### Acceptance criteria

- Browse movies & screenings
- View real-time seat availability
- Select seats

- Complete purchase
- Receive QR-coded ticket

### **Manage ticket sales (Manager)**

As a manager, I want to track ticket sales and seat occupancy, so that I can monitor revenue and attendance.

#### **Acceptance criteria**

- Dashboard: sold %, revenue, free seats
- Cannot oversell seats
- Sales automatically stop at screening start
- Refund rules configurable (optional)

### **Validate tickets (Cinema Staff)**

As cinema staff, I want to scan QR codes to validate tickets at entry.

#### **Acceptance criteria**

- Scan QR via mobile
- Show ticket status instantly:
  - VALID
  - ALREADY USED
  - EXPIRED
- Block duplicate scans
- Manual ticket ID input fallback

### **Ticket expiry**

**Business rule**

- Ticket valid only until screening end
- After end time → status = EXPIRED
- Re-entry forbidden once marked USED