Hotel Reservation System - Microservices Architecture

Core Infrastructure Services (Mandatory):

1. Service Registry (Eureka) - Service discovery
2. Config Server - Centralized configuration
3. API Gateway - Single entry point

Business Microservices:

1. Auth Service (8081) - Users & Authentication
2. Hotel Service (8082) - Hotels, Rooms, Inventory
3. Booking Service (8083) - Reservations + Check-in/Check-out
4. Billing Service (8084) - Invoices + Payments + Extra Charges
5. Notification Service (8085) - Communications
6. Analytics Service (8086) - Reports & Dashboards

1. Auth Service (Port 8081) - 6 Endpoints

HTTP Method	Endpoint	Description
POST	`/api/auth/register`	Register new guest user
POST	`/api/auth/login`	Authenticate user and return JWT token
GET	`/api/auth/validate`	Validate JWT token (API Gateway use)
GET	`/api/auth/profile`	Get authenticated user's profile
POST	`/api/users`	Create user with specific role (Admin only)
GET	`/api/users`	List all users with pagination (Admin only)

2. Hotel Service (Port 8082) - 11 Endpoints

Hotel Management

HTTP Method	Endpoint	Description
POST	`/api/hotels`	Create new hotel property
GET	`/api/hotels`	List all hotels

Room Categories

HTTP Method	Endpoint	Description
POST	`/api/hotels/{hotelId}/categories`	Create room category for hotel
GET	`/api/hotels/{hotelId}/categories`	List room categories for hotel

Room Inventory

HTTP Method	Endpoint	Description
POST	`/api/hotels/{hotelId}/rooms`	Add rooms to inventory
GET	`/api/hotels/{hotelId}/rooms`	List all rooms with filters

Pricing

HTTP Method	Endpoint	Description
POST	`/api/categories/{categoryId}/pricing`	Set base price for room category

| POST | /api/categories/{categoryId}/seasonal-pricing | Add seasonal pricing rule |
| GET | /api/categories/{categoryId}/pricing | Get pricing with seasonal rules |

Search & Status

HTTP Method	Endpoint	Description
POST	/api/rooms/search	Search available rooms by criteria
PUT	/api/rooms/{id}/status	Update room status

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3. Booking Service (Port 8083) - 9 Endpoints

Reservation Management

HTTP Method	Endpoint	Description
POST	/api/reservations	Create new reservation (status: BOOKED)
GET	/api/reservations	List reservations with filters
GET	/api/reservations/{id}	Get reservation details
PUT	/api/reservations/{id}	Modify reservation
DELETE	/api/reservations/{id}	Cancel reservation (status: CANCELLED)

Lifecycle Management

HTTP Method	Endpoint	Description
PUT	/api/reservations/{id}/confirm	Confirm reservation (BOOKED → CONFIRMED)
PUT	/api/reservations/{id}/check-in	Check-in guest (CONFIRMED → CHECKED_IN)
PUT	/api/reservations/{id}/check-out	Check-out guest (CHECKED_IN → CHECKED_OUT)

Guest View

HTTP Method	Endpoint	Description
GET	/api/reservations/my-bookings	Get authenticated guest's reservations

Status Flow:

- **Happy Path: BOOKED → CONFIRMED → CHECKED_IN → CHECKED_OUT**
- **Cancellation: BOOKED/CONFIRMED → CANCELLED**

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4. Billing Service (Port 8084) - 6 Endpoints

Invoices

HTTP Method	Endpoint	Description
POST	/api/invoices	Generate invoice (triggered at check-out)
GET	/api/invoices/reservation/{reservationId}	Get invoice for reservation

| GET | /api/invoices/{id} | Get detailed invoice |

Payments

HTTP Method	Endpoint	Description
POST	/api/payments	Record payment for invoice
GET	/api/payments/invoice/{invoiceId}	Get payment details

Additional Charges

HTTP Method	Endpoint	Description
POST	/api/invoices/{invoiceId}/charges	Add extra charges

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5. Notification Service (Port 8085) - 3 Endpoints

HTTP Method	Endpoint	Description
POST	/api/notifications/send	Send notification (internal service call)
GET	/api/notifications/user/{userId}	Get notification history for user
GET	/api/notifications/{id}	Get notification details

Notification Types:

- **BOOKING_CONFIRMATION (on confirm)**

- **BOOKING_CANCELLED (on cancel)**
- **CHECK_IN_REMINDER**
- **CHECK_OUT_REMINDER**
- **PAYMENT_RECEIVED**

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6. Analytics Service (Port 8086) - 6 Endpoints

HTTP Method	Endpoint	Description
GET	`/api/analytics/dashboard`	Get overview dashboard with KPIs
GET	`/api/analytics/occupancy/hotel/{hotelId}`	Get occupancy report by date range
GET	`/api/analytics/revenue/summary`	Get revenue summary
GET	`/api/analytics/bookings/summary`	Get booking statistics
GET	`/api/analytics/guests/stay-duration`	Get average stay duration by category
GET	`/api/analytics/revenue/revpar`	Calculate RevPAR (Revenue Per Available Room)

AUTH SERVICE API (PAYLOADS)

1. http://localhost:8080/api/auth/register

{

  "username": "johndoe",

  "email": "john.doe@email.com",

  "password": "password123",

  "firstName": "John",

  "lastName": "Doe",

  "phone": "+1234567890"

}

2.http://localhost:8080/api/auth/login

{ "username": "johndoe",

 "password": "password123" }

3.http://localhost:8080/api/auth/users

{

  "username": "manager_mumbai",

  "email": "manager.mumbai@hotel.com",

  "password": "manager123",

  "firstName": "Rajesh",

  "lastName": "Kumar",

  "phone": "+919876543210",

  "roles": ["ROLE_MANAGER"],   //roles can be different

  "hotelIds": [1, 2]

}