

## Problem Statement: Hotel Room Booking API

### Models

#### RoleModel

Field Name	Datatype	Primary Key	Comments
id	Integer	Yes	Autoincrement
rolename	String	No	Values: "CUSTOMER", "ADMIN"

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#### UserModel

Field Name	Datatype	Primary Key	Foreign Key	Comments
id	Integer	Yes	No	Autoincrement
username	String	No	No	-
email	String	No	No	Unique
password	String	No	No	-
role	Integer	No	Yes	FK to RoleModel

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#### RoomModel

Field Name	Datatype	Primary Key	Comments
id	Integer	Yes	Autoincrement
roomType	String	No	Values: "Deluxe", "Suite", "Standard"
baseRate	Double	No	Price per night
available	Boolean	No	Default: True

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#### BookingModel

Field Name	Datatype	Primary Key	Foreign Key	Comments
id	Integer	Yes		Autoincrement
customerId	Integer	No		FK to UserModel
roomId	Integer	No		FK to RoomModel
nights	Integer	No	No	-
discountPct	Double	No	No	Default: 0
taxPct	Double	No	No	Default: 12
serviceFee	Double	No	No	Default: 200
totalCost	Double	No	No	Calculated: (nights * baseRate - discount) + tax + serviceFee
bookingDate	String	No	No	Default: Current date
status	String	No	No	Default: "booked"

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## JWT Authentication

- JWT token required in Authorization header:

Authorization: Bearer <JWT\_TOKEN>

- Roles (CUSTOMER / ADMIN) are identified from the token.
- All endpoints except /login require authentication.

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## Endpoints

### 1. POST /login

Input Request:

```
`json
{
  "email": "cust1@gmail.com",
  "password": "cust123$"
}
```

Expected Output (200 OK):

```
`json
{
  "email": "cust1@gmail.com",
  "access": "<access_token>",
  "refresh": "<refresh_token>",
  "status": 200
}
```

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### 2. POST /booking/create (CUSTOMER only)

Input Request:

```
`json
{
  "roomId": 101,
  "nights": 3,
  "discountPct": 10
}
```

Manipulations:

- discount = (nights baseRate) (discountPct/100)

- $\text{tax} = (\text{nights} \times \text{baseRate} - \text{discount}) \times (\text{taxPct}/100)$
- $\text{totalCost} = (\text{nights} \times \text{baseRate} - \text{discount}) + \text{tax} + \text{serviceFee}$

Expected Output (201 CREATED):

```
`json
{
  "id": 8001,
  "customerId": 1,
  "roomId": 101,
  "nights": 3,
  "discountPct": 10,
  "taxPct": 12,
  "serviceFee": 200,
  "totalCost": 10120,
  "bookingDate": "11/12/2025",
  "status": "booked"
}
```

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3. GET /booking/list?roomType=Suite&minCost=5000&maxCost=15000&status=booked  
(Both roles)

Expected Output (200 OK):

```
`json
[
  {
    "id": 8001,
    "customerId": 1,
    "roomType": "Suite",
    "nights": 3,
    "totalCost": 10120,
    "status": "booked"
  }
]
```

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4. PATCH /booking/update/{id} (ADMIN only)

Input Request:

```
`json
{ "status": "checked_in" }
```

Expected Output (200 OK):

```
`json
{
```

```
"id": 8001,  
"customerId": 1,  
"roomId": 101,  
"totalCost": 10120,  
"status": "checked_in"  
}  
,
```

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5. DELETE /booking/delete/{id} (Conditional access)

Expected Output (204 No Content):

```
`json  
{ "message": "deleted successfully" }  
,
```

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#### Response Codes

- 200 OK – Success
- 201 CREATED – Resource created
- 204 No Content – Deleted successfully
- 400 Bad Request – Invalid input / Not found
- 403 Forbidden – Permission denied

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