

 Problem Statement: Movie Ticket Reservation 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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## MovieModel

Field Name	Datatype	Primary Key	Comments
id	Integer	Yes	Autoincrement
title	String	No	-
category	String	No	Example: "Action", "Comedy", "Drama"
basePrice	Double	No	Price per ticket
available	Boolean	No	Default: True

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## ReservationModel

Field Name	Datatype	Primary Key	Foreign Key	Comments
id	Integer	Yes	Autoincrement	
customerId	Integer	No	FK to UserModel	
moviedId	Integer	No	FK to MovieModel	
quantity	Integer	No	-	
discountPct	Double	No	No	Default: 0
gstPct	Double	No	No	Default: 18
serviceFee	Double	No	No	Default: 50
totalAmount	Double	No	No	Calculated: (quantity * basePrice - discount) + gst + serviceFee

```
| reservationDate | String | No      | Default: Current date |
| status         | String  | No       | Default: "reserved" |
```

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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 /reservation/create (CUSTOMER only)

Input Request:

```
`json
{
  "movield": 201,
  "quantity": 3,
  "discountPct": 10
}
```

`

Manipulations:

- discount = (quantity \* basePrice) \* (discountPct/100)
- gst = (quantity \* basePrice - discount) \* (gstPct/100)
- totalAmount = (quantity \* basePrice - discount) + gst + serviceFee

Expected Output (201 CREATED):

```
'json
{
  "id": 9001,
  "customerId": 1,
  "movield": 201,
  "quantity": 3,
  "discountPct": 10,
  "gstPct": 18,
  "serviceFee": 50,
  "totalAmount": 13286,
  "reservationDate": "11/12/2025",
  "status": "reserved"
}'
```

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### 3. GET

/reservation/list?category=Action&minAmount=5000&maxAmount=15000&status=reserved  
(Both roles)

Expected Output (200 OK):

```
'json
[
  {
    "id": 9001,
    "customerId": 1,
    "movield": 201,
    "category": "Action",
    "quantity": 3,
    "totalAmount": 13286,
    "status": "reserved"
  }
]'
```

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

Input Request:

```
'json
{ "status": "confirmed" }'
```

Expected Output (200 OK):

```
'json
{
  "id": 9001,
  "customerId": 1,
  "movieId": 201,
  "totalAmount": 13286,
  "status": "confirmed"
}'
```

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5. DELETE /reservation/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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 This new problem statement adds extra manipulations:

- Discount + GST + service fee combined.
- Query params with four filters: category, minAmount, maxAmount, status.