

Problem Statement: Gym Membership Management API

Models

RoleModel

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

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

MembershipModel

Field Name	Datatype	Primary Key	Foreign Key	Comments
id	Integer	Yes	Autoincrement	
memberId	Integer	No	FK to UserModel	
planType	String	No	No	Values: "Monthly", "Quarterly", "Yearly"
baseFee	Double	No	No	Fee based on planType
discountPct	Double	No	No	Default: 0
taxPct	Double	No	No	Default: 18
totalFee	Double	No	No	Calculated: (baseFee - discount) + tax
startDate	String	No	No	Default: Current date
endDate	String	No	No	Auto-calculated based on planType
status	String	No	No	Default: "active"

JWT Authentication

- JWT token required in Authorization header:

`

 Authorization: Bearer <JWT_TOKEN>

`

- Roles (MEMBER / ADMIN) are identified from the token.

- All endpoints except /login require authentication.

Endpoints

1. POST /login

Input Request:

```
json
{
  "email": "member1@gmail.com",
  "password": "mem123$"
}
```

Expected Output (200 OK):

```
json
{
  "email": "member1@gmail.com",
  "access": "<access_token>",
  "refresh": "<refresh_token>",
  "status": 200
}
```

2. POST /membership/create (MEMBER only)

Input Request:

```
json
{
  "planType": "Quarterly",
  "discountPct": 10
}
```

Manipulations:

- baseFee auto-set by planType:
 - Monthly → 1000
 - Quarterly → 2500
 - Yearly → 9000
- discount = baseFee * (discountPct/100)
- tax = (baseFee - discount) * (taxPct/100)
- totalFee = (baseFee - discount) + tax
- endDate auto-calculated:
 - Monthly → +30 days
 - Quarterly → +90 days
 - Yearly → +365 days

Expected Output (201 CREATED):

```
`json
{
  "id": 6001,
  "memberId": 1,
  "planType": "Quarterly",
  "baseFee": 2500,
  "discountPct": 10,
  "taxPct": 18,
  "totalFee": 2655,
  "startDate": "08/12/2025",
  "endDate": "08/03/2026",
  "status": "active"
}
```

3. GET /membership/list?planType=Yearly&minFee=5000&status=active (Both roles)
Expected Output (200 OK):

```
`json
[
  {
    "id": 6002,
    "memberId": 2,
    "planType": "Yearly",
    "totalFee": 10620,
    "status": "active"
  }
]
```

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

Input Request:

```
`json
{ "status": "expired" }
```

Expected Output (200 OK):

```
`json
{
  "id": 6001,
  "memberId": 1,
  "planType": "Quarterly",
  "totalFee": 2655,
  "status": "expired"
}
```

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

Expected Output (204 No Content):

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

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:

- Auto-set baseFee by planType.
- Discount + tax calculation.
- Auto-calculate endDate based on planType.
- Query params with planType, minFee, status.