

Gym Management System

System Description

This is a comprehensive **Gym Management System** designed to handle the core operations of a fitness center. The system manages five key entities:

- **Trainers:** Certified fitness professionals who conduct classes and provide training services
- **Members:** Gym customers who subscribe to memberships and enroll in fitness classes
- **Memberships:** Subscription plans that define member access duration and pricing
- **Classes:** Scheduled fitness sessions led by trainers with limited capacity
- **Equipment:** Gym machinery and tools with warranty and maintenance tracking

The system supports member enrollment in classes, trainer assignment to sessions, membership management with various duration options, and equipment lifecycle tracking.

Trainer

Integer id

@NotBlank(message = "Name is required")

@Size(min = 2, max = 10, message = "Name must be between 2 and 10 characters")

@Pattern(regexp = "[A-Za-z\\s]+\$", message = "Name must contain only letters and spaces")

String name

@NotBlank(message = "Email is required")

@Email(message = "Please provide a valid email address")

@Size(max = 50, message = "Email must not exceed 50 characters")

String email

@Pattern(regexp = "^05\\d*\$", message = "Phone number must start with 05")

@Size(min = 10, max = 10, message = "Phone number must be 10 digits")

String phoneNumber

@NotNull(message = "Experience years is required")

@PositiveOrZero(message = "Experience years cannot be negative")

Integer experienceYears

@NotNull(message = "Salary is required")

@PositiveOrZero(message = "Salary cannot be negative")

Double salary

@NotBlank(message = "Employment type is required")

@Pattern(regexp = "^(FULL_TIME|PART_TIME|CONTRACT)\$",

message = "Employment type must be FULL_TIME, PART_TIME, or CONTRACT")

String employmentType

Member

Integer id

@NotBlank(message = "Name is required")

@Size(min = 2, max = 10, message = "Name must be between 2 and 10 characters")

@Pattern(regexp = "[A-Za-z\\s]+\$", message = "Name must contain only letters and spaces")

String name

@NotNull(message = "Date of birth is required")

@Past(message = "Date of birth must be in the past")

@JsonFormat(pattern="yyyy-MM-dd")

LocalDate dateOfBirth

@Pattern(regexp = "^05\\d*\$", message = "Phone number must start with 05")

@Size(min = 10, max = 10, message = "Phone number must be 10 digits")

String phoneNumber

@NotNull(message = "Join date is required")

@JsonFormat(pattern="yyyy-MM-dd")

LocalDate joinDate

Membership membership

Membership

Integer id

@NotNull(message = "Member is required")

Member member

@NotNull(message = "Duration months is required")

@Min(value = 1, message = "Duration must be at least 1 month")

Integer durationMonths

@NotNull(message = "Price is required")

@PositiveOrZero(message = "Price cannot be negative")

Double price

@NotNull(message = "Start date is required")

@JsonFormat(pattern="yyyy-MM-dd")

LocalDate startDate;

@NotNull(message = "End date is required")

@JsonFormat(pattern="yyyy-MM-dd")

LocalDate endDate;

@NotBlank(message = "Membership status is required")

@Pattern(regexp = "^(ACTIVE|INACTIVE|SUSPENDED|EXPIRED)\$",

message = "Membership status must be ACTIVE, INACTIVE, SUSPENDED, (

Class

Integer id

@NotBlank(message = "Class name is required")

@Size(min = 2, max = 100, message = "Class name must be between 2 and 100")

String name

@NotNull(message = "Class time is required")

@Future(message = "Class time must be in the future")

@JsonFormat(pattern="yyyy-MM-dd HH:mm:ss")

LocalDateTime time

@NotNull(message = "Duration is required")

@Min(value = 15, message = "Class duration must be at least 15 minutes")

@Max(value = 300, message = "Class duration cannot exceed 300 minutes (5 h")

Integer durationMinutes

@NotNull(message = "Trainer is required")

Trainer trainer

@NotNull(message = "Capacity is required")

@Min(value = 1, message = "Class capacity must be at least 1")

@Max(value = 100, message = "Class capacity cannot exceed 100")

Integer capacity

ArrayList<Member> enrolledMembers;

Equipment

Integer id

@NotBlank(message = "Equipment name is required")

@Size(min = 2, max = 100, message = "Equipment name must be between 2 and 100 characters")
String name

@NotNull(message = "Price is required")

@PositiveOrZero(message = "Price cannot be negative")

Double price

@NotNull(message = "Warranty months is required")

@PositiveOrZero(message = "Warranty months cannot be negative")

Integer warrantyMonths

@NotBlank(message = "Status is required")

@Pattern(regexp = "^(OPERATIONAL|MAINTENANCE|RETIRED)\$",
message = "Status must be OPERATIONAL, MAINTENANCE, or RETIRED")

String status

@NotNull(message = "Purchase date is required")

@PastOrPresent(message = "Purchase date cannot be in the future")

@JsonFormat(pattern="yyyy-MM-dd")

LocalDate purchaseDate;