Gym Management System

Complete Documentation

the fresca Fellowship

Java Program to manage a Gym

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# Gym Management System Overview

The Gym Management System is a comprehensive console-based application designed to manage all aspects of a gym's operations. This system handles user registration and authentication, membership management, workout class scheduling, merchandise inventory, and provides role-based access control for different types of users.

## Complete System Features:

1. User Authentication & Registration

* Secure user registration with BCrypt password hashing
* Role-based login system (Admin, Trainer, Member)
* User profile management with contact information

1. Membership Management

* Gym membership purchase and tracking
* Revenue reporting for administrators

1. Workout Class Management

* Class creation and scheduling by trainers
* Class browsing and enrollment for members
* Trainer-specific class management

1. Merchandise Management

* Product inventory management
* Price setting and stock reporting
* Member product browsing

1. Logging & Reporting

* System activity logging to text files
* Revenue and inventory reports
* User activity tracking

# Explanation of Classes

1. User Management
   1. User registration with secure password hashing (BCrypt)
   2. User authentication and login
   3. Role assignment (Admin, Trainer, Member)
   4. User profile management

Key Classes:

* User
* Admin, Trainer, Member (inherit from User)
* UserDAO, UserService

1. Membership Management
   1. Gym membership creation
   2. Member type management

Key Classes:

* Membership
* MembershipDAO, MembershipService

1. Workout Classe Management
   1. Workout class creation by trainers
   2. Class scheduling and management
   3. Member browsing and enrolling for classes
   4. Trainers assignment tracking

Key Classes:

* WorkoutClass
* WorkoutClassDAO, WorkoutClassService

1. Gym Products Management
   1. Product Inventory management
   2. Price setting and updating
   3. Stock level tracking

Key Classes:

* GymProduct
* GymProductDAO, GymProductService

1. Authentication & Security
   1. Password encryption using BCrypt
   2. Role-based access
   3. Security validation
2. System Logging
   1. System activity logging
   2. Error logging
   3. File-based log storage

# UML Class Diagram

A diagram of a gym management system

AI-generated content may be incorrect.

A diagram of a company

AI-generated content may be incorrect.

# Instructions

Prerequisites

1. Java Development Environment

* Java 11 or higher
* IntelliJ IDEA, Eclipse, or VS Code (see next attachment for installation instructions) <https://www.youtube.com/watch?v=tmEETJUz8uA>

1. Database Setup

* PostgreSQL Server installed and running (see next attachment for installation instructions) <https://www.youtube.com/watch?v=IYHx0ovvxPs>

Step by Step Setup

1. Step 1: Database Initialization
   1. Create database: CREATE DATABASE gym\_management;
   2. Run the SQL scripts to create all the tables from the resources folder
2. Project Structure