NORTH SOUTH UNIVERSITY

Department of Electrical and Computer Engineering (ECE)

CRC Card

Course: CSE327 (Software Engineering)

Section: 5

Group: 3

Project Topic: Fitness Center Management System

Submitted To:

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Class Name: GymOwner	
Sub Classes: PersonalTrainer, FitnessInstructor, GymManager	
Super Class: Business Owner	
Responsibilities	**Collaborates**
Add new gyms to the marketplace.	Interact with individual gym owners to gather gym-related information.
Update gym information (e.g., facilities, opening hours, pricing).	Communicate membership pricing and rules to gym owners.
Define pricing plans for gym memberships.	Interact with users who are interested in joining gyms.
Collect payments from gym members.	Handle inquiries, provide support, and assist with membership sign-ups.
Create marketing campaigns to attract gym-goers.	Connect with external payment processors to handle financial transactions securely.
Maintain their own account information (e.g., contact details, payment methods).	Coordinate marketing efforts to promote gyms within the marketplace.

Class Name: Trainer	
Sub Classes: PersonalTrainer, FitnessInstructor, StrengthCoach, Nutritionist	
Super Class: FitnessProfessional	
Responsibilities	**Collaborates**
Offer one-on-one or group fitness training sessions to gym members.	Coordinate training sessions within gym facilities.
Conduct fitness assessments and evaluations for members.	Ensure alignment with gym policies and schedules.
Offer guidance on exercise techniques, nutrition, and overall health.	Work with the gym marketplace management to maintain accurate trainer profiles and availability.
Maintain a schedule of training sessions with members.	Collaborate with payment processors for handling payments related to personal training services.
Market personal training services within the gym marketplace.	Assist in resolving any issues related to personal training services.
Attract new clients and maintain existing client relationships.	Collaborate with payment processors for handling payments related to personal training services.

Class Name: Time Schedule	
Sub Classes: DailySchedule, WeeklySchedule,MonthlySchedule, CustomSchedule.	
Super Class: Schedule	
Responsibilities	**Collaborates**
Create and manage time slots for various gym activities and classes.	Coordinate with gym owners to set up the gym's weekly schedule.
Allocate slots for personal training sessions, group classes, and open gym hours.	Ensure that available time slots match the gym's operational hours and class offerings.
Accept and record reservations made by gym members for specific time slots.	Interact with gym members to enable them to make reservations.
Ensure that the number of reservations does not exceed the capacity of the gym or class.	Handle inquiries related to available time slots and class schedules.
Keep track of available time slots for each day and week.	Integrate with payment processors to handle payments for reservations, if applicable.
Update availability in real-time as reservations are made or canceled.	Ensure payments are processed securely and bookings are confirmed upon successful payment.

Class Name: Member	
Sub Classes: BasicMember,PremiumMember,CorporateMember, StudentMember	
Super Class: User, Membership type	
Responsibilities	**Collaborates**
Create and manage time slots for various gym activities and classes.	Coordinate with gym owners to set up the gym's weekly schedule.
Allocate slots for personal training sessions, group classes, and open gym hours.	Ensure that available time slots match the gym's operational hours and class offerings.
Accept and record reservations made by gym members for specific time slots.	Interact with gym members to enable them to make reservations.
Ensure that the number of reservations does not exceed the capacity of the gym or class.	Handle inquiries related to available time slots and class schedules.
Keep track of available time slots for each day and week.	Communicate with instructors and trainers to assign them to specific time slots for classes and personal training sessions.
Update availability in real-time as reservations are made or canceled.	Notify them of any changes or cancellations in their schedules.

Class Name: Product	
Sub Classes: Cardio Equipment Product, Strength Training Product, Accessories Product	
Super Class: Item	
Responsibilities	**Collaborates**
Store and manage the name of the product	Interacts with the product by viewing details, adding it to the cart, and making purchases.
Store and manage a detailed description of the product.	The product can be added to the user's shopping cart for purchase.
Store and manage the price of the product	The product is part of an order when a user makes a purchase.
Keep track of the product's availability in the marketplace.	Relates to a specific category to help with filtering and searching
Categorize the product into relevant gym-related categories	Receives and displays user reviews and ratings.
Store and manage an image or reference to the product's visual representation.	Partner with shipping companies to facilitate the smooth delivery of products to customers.
Maintain a record of user ratings and reviews for the product.	Provide shipping providers with necessary order and address information.
Handle any promotions or discounts associated with the product.	Interact with gym members to facilitate product purchases.
Provide information about related or recommended products.	Address member inquiries and provide support related to products.
Keep track of the product's inventory, including stock levels.	Work with payment processors to securely handle payment transactions for product orders

Class Name: Order	
Sub Classes: Product Order, Membership Order, Class Reservation Order	
Super Class: MarketplaceTransaction	
Responsibilities	**Collaborates**
Maintain details about the order, such as order number, date, and status.	Receive and process orders placed by customers.
Manage payment information and processing for the order.	Collaborate to update inventory levels when orders are placed.
Keep track of the items included in the order and their quantities.	Collaborate to process payments securely.
Calculate the total price of the order based on the items and their quantities.	Collaborate to arrange for the shipment and delivery of orders.
Change the status of the order (e.g., pending, shipped, delivered) as it progresses.	Collaborate to address customer inquiries and issues related to orders.

Class Name: Payment	
Sub Classes: FitnessEquipment, ApparelItem, Supplement, TrainingProgram	
Super Class: MarketplaceItem	
Responsibilities	**Collaborates**
Handle the payment transaction securely, including authorization, capturing funds, and processing refunds if necessary.	Receive payment information from customers initiating orders.
Validate payment information such as credit card number, expiration date, and CVV code.	Collaborate with the order management system to associate payments with specific orders.
Create a receipt for the payment and send it to the customer.	Utilizes external payment processing services to securely handle financial transactions.
Keep track of the payment status (e.g., pending, successful, failed) for reporting and order fulfillment purposes.	Works with this module to create and send payment receipts to users.
Implement error handling for failed payment transactions and provide appropriate feedback to the customer.	Collaborates when there are payment disputes that need to be resolved.
Notify users of successful payments and provide them with payment confirmation details.	Sends payment confirmation and error notifications to users as needed.

Class Name: User	
Sub Classes: Customer, Vendor, Administrator	
Super Class: MarketplaceMember	
Responsibilities	**Collaborates**
Allow users to create, update, and view their profiles.	Interact with the marketplace to browse, select, and purchase gym-related products and services
Verify user identity through login and registration processes.	Collaborate with the Payment class to process transactions securely.
Enable users to add, remove, and manage items in their shopping carts.	Work with the Cart class to manage items in the shopping cart during the shopping process
Facilitate the process of users making purchases in the marketplace.	Collaborate with the Order class to place and track orders.
Maintain a history of user orders for reference	Receive notifications and updates related to orders, promotions, and account activities.
Receive and manage notifications related to orders, promotions, and account activities.	Authenticate users during login and registration processes.

Class Name: MembershipType	
Sub Classes: BasicMembership, PremiumMembership, StudentMembership	
Super Class: MarketplaceProduct	
Responsibilities	**Collaborates**
Specify the features and benefits associated with each membership type	Collaborate with the User class to help users choose and purchase the right membership type.
Determine the cost and payment terms for each membership option.	Provide membership options to the gym marketplace for users to browse and select.
Specify the duration or validity period for each membership type	Interface with the Payment class to process membership payments.
Check if a user qualifies for a specific membership type based on criteria like age, fitness level, or other prerequisites.	Share data on membership usage and statistics for reporting and analysis.
Offer information about each membership type, including its description and included services.	Collaborate with this component to apply discounts to memberships if applicable.
Calculate any discounts or promotions associated with a membership type.	Check user eligibility based on predefined criteria.