

# System Operations and Contracts

## Booking Management Package

### Operation: login(credentials)

- **Preconditions:**
  - The user (Client) must have a registered account in the system.
- **Postconditions:**
  - The client's session is initiated if the credentials are correct.
  - The system provides authentication success or failure feedback.

### Operation: viewOfferings()

- **Preconditions:**
  - The client must be logged in.
- **Postconditions:**
  - The system retrieves and displays a list of available offerings to the client.

### Operation: selectOffering(offeringID)

- **Preconditions:**
  - The client must have successfully viewed the offerings list.
- **Postconditions:**
  - The selected offering is marked as the chosen item by the client and ready for further processing.

### Operation: isAvailable(offeringID)

- **Preconditions:**
  - The offeringID must refer to a valid offering in the system.
- **Postconditions:**
  - The system confirms if the offering is available or not.
  - If not available, an error message is shown to the client.

### Operation: checkForConflicts(clientID, schedule)

- **Preconditions:**
  - The offering must be available.
  - The client must be logged in.
- **Postconditions:**
  - The system checks if there are any scheduling conflicts with the client's current bookings.

- Returns "no conflicts" if booking is possible, or "conflicts" if the selected time slot is occupied.

**Operation: verifyGuardian()**

- **Preconditions:**
  - The client's age is below 18.
- **Postconditions:**
  - Guardian verification is requested and confirmed by the system before proceeding with the booking.

**Operation: markAsBooked(offeringID)**

- **Preconditions:**
  - The offering must be available and conflict-free.
- **Postconditions:**
  - The offering is marked as booked and no longer available to others during the selected schedule.

**Operation: createBooking(clientID, offeringID)**

- **Preconditions:**
  - The client must have selected a conflict-free, available offering.
  - Guardian must be verified if the client is under 18.
- **Postconditions:**
  - A new booking entry is created, associating the client with the offering.
  - Booking details become accessible only to the client, instructor, and administrator.

**Operation: cancelBooking(bookingID)**

- **Preconditions:**
  - The booking must exist and belong to the client or their legal guardian.
  - The booking is not within a restricted cancellation period (e.g., 24 hours before the session).
- **Postconditions:**
  - The booking is canceled and removed from the system.
  - The offering's availability is restored.

## Detailed System Operations Contracts

### 1. Operation: viewOfferings()

- **Preconditions:**
  - The client must be logged in.
- **Postconditions:**
  - A list of available offerings is displayed to the client, showing relevant details.
  - Only offerings that are not marked as booked or unavailable are shown.

### 2. Operation: createBooking(clientID, offeringID)

- **Preconditions:**
  - The client must be logged in and have selected an offering.
  - The selected offering must be available and conflict-free.
  - If the client is under 18, guardian verification must be completed.
- **Postconditions:**
  - The booking is added to the system, linking the client to the offering.
  - The offering is marked as booked, becoming unavailable to other clients.
  - Booking details are accessible to the administrator, the client, and the assigned instructor only.

### 3. Operation: cancelBooking(bookingID)

- **Preconditions:**
  - The booking must exist in the system.
  - The booking should be associated with the client or the client's legal guardian.
  - The booking is not within a restricted cancellation period (e.g., 24 hours before the scheduled time).
- **Postconditions:**
  - The booking is deleted from the system.
  - The offering's availability status is updated to allow other clients to book it, primarily for private offerings.
  - A cancellation confirmation is shown to the client.