

1. registerClient()

Operation: registerClient(name: String, age: int, isUnderage: boolean) : Client

Description: Registers a new client with the system.

Preconditions:

The client must not already exist in the system (checked by name or unique identifier).

Postconditions:

A new Client record is created with the provided name, age, and isUnderage status.

The Client object is saved in the system with a unique clientID.

Exceptions:

If a client with the same identifier already exists, return an error message indicating that the client is already registered.

2. makeBooking(clientID: int, offeringID: int) : Booking

Operation: makeBooking(clientID: int, offeringID: int) : Booking

Description: Allows a client to make a booking for a specific offering.

Preconditions:

The Client must be registered in the system (exists with clientID).

The Offering must be available (checked by offeringID and isAvailable = true).

The Client must not have any other bookings for the same timeSlot as the selected Offering.

If the client is underage (isUnderage = true), they must have a designated Guardian.

Postconditions:

A new Booking record is created, linking the clientID and offeringID.

The status of the Booking is set to "Confirmed".

The isAvailable attribute of the Offering is updated to false, indicating it is no longer available.

Exceptions:

If the Offering is not available, return an error message indicating unavailability.

If the client already has a booking for the same timeSlot, return an error message.

If the client is underage and does not have a Guardian, return an error indicating a guardian is required.

3. cancelBooking(bookingID: int) : Boolean

Operation: cancelBooking(bookingID: int) : Boolean

Description: Cancels an existing booking, making the offering available again.

Preconditions:

The Booking must exist in the system with the given bookingID.

The Client must be the owner of the booking.

Postconditions:

The status of the Booking is updated to "Canceled".

The associated Offering is marked as available (isAvailable = true), making it open for future bookings.

Exceptions:

If the Booking does not exist, return an error message indicating that the booking could not be found.

If the Client is not the owner of the booking, return an error indicating lack of permission to cancel.