

FACULTAD DE INGENIERÍA

GRUPO 5

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Exercise 4 ADT

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**ADT: Room**

**Description**: a place where a client can stay in the hotel by paying for it.

Constructor

**Room**: roomNumber X roomType → Room

**Comment**: creates a room with the specified information and no client in it.

**Precondition**: a room type and an int > 0.

**Postcondition**: an empty room with the specified information.

Modifier

**accommodateClient**: Room X clientNumber → Room

**Comment**: accommodates the client with the specified client number in the room and it becomes occupied.

**Precondition**: a client number.

**Postcondition**: the room occupied.

**reserveRoom**: Room → Room

**Comment**: changes the room status to reserved so it can’t be booked by another client.

**Precondition**: a room.

**Postcondition**: the room but reserved.

**emptyRoom**: Room → Room

**Comment**: clears the room and becomes empty.

**Precondition**: a room.

**Postcondition**: the empty room.

Analyzer

**isOccupied**: Room → boolean

**Comment**: returns whether the room is occupied or not.

**Precondition**: a room.

**Postcondition**: true if the room is occupied, false if not.

**isReserved**: Room → boolean

**Comment**: returns whether the room is reserved or not.

**Precondition**: a room.

**Postcondition**: true if the room is reserved, false if not.

**ADT: Reservation**

**Description**: contains a room to be occupied and the client’s information.

Constructor

**Reservation**: clientNumber X clientLastName X clientId X roomNumber → Reservation

**Comment**: creates a reservation with the specified information.

**Precondition**: a client number as text, a client’s last name and two integers > 0.

**Postcondition**: the reservation with the specified information.

**ADT: Client**

**Description**: a person capable of making a reservation and occupying a room.

Constructor

**Client**: name X lastName X id → Client

**Comment**: a client with the specified information and no reservation.

**Precondition**: a name and last name and an integer > 0 for the id.

**Postcondition**: the client with the specified information and no reservation.

Modifier

**makeReservation**: Client X Receptionist X roomType → Client

**Comment**: communicates with the receptionist to make a reservation of a certain room type.

**Precondition**: a receptionist and a room type.

**Postcondition**: the client with the reservation.

**askForBill**: Client X Recepcionist → Bill

**Comment**: given his reservation, ask the receptionist for the bill.

**Precondition**: a receptionist.

**Postcondition**: a bill.

**payRoom**: Client X Receptionist X Bill → Client

**Comment**: given his information and the bill, tells the receptionist he wants to pay for his room.

**Precondition**: a receptionist and a bill.

**Postcondition**: the client not occupying a room and without a reservation.

Analyzer

**askForInformation**: Client X Receptionist → information

**Comment**: asks a receptionist for information.

**Precondition**: a receptionist.

**Postcondition**: a text with the information.

**ADT: Receptionist**

**Description**: someone who is in charge of making reservations and knows every reservation and room.

Constructor

**Receptionist**: name X lastName X id X Rooms → Receptionist

**Comment**: creates a receptionist with the specified information, an empty clients and reservations list and a list of rooms known by it.

**Precondition**: a name, last name, id and a list of rooms.

**Postcondition**: the receptionist with the specified information, no reservations and a list of rooms.

Modifier

**makeReservation**: clientLastName X clientId X roomType → Reservation

**Comment**: makes a reservation with the information from the client asking for one and creates a client number for it. Given a room type, it searches for an empty room with the same type and makes a reservation with it.

**Precondition**: the asking client’s last name, his id and the room type wanted.

**Postcondition**: a reservation with the client’s information and a room number.

Analyzer

**makeBill**: Receptionist X Reservation → Bill

**Comment**: creates a bill with the reservation’s information and a created bill number.

**Precondition**: a reservation.

**Postcondition**: a bill.

**giveInformation**: Receptionist → information

**Comment**: gets the room types available.

**Precondition**: a receptionist.

**Postcondition**: a text with the room types available.

**ADT: Bill**

**Description**: contains the service information and the total value of it.

Constructor

**Bill**: billCode X hotelNit X hotelName X clientName X clientID X value → Bill

**Comment**: creates a bill with the specified information.

**Precondition**: a hotel name, client name, client id, an integer > 0 for the bill code and hotel nit and a real number > 0 for the value.

**Postcondition**: the bill with the specified information.