

Hotel-project

Final report

Model-Driven Software Development

Group 8

Anders Hallgren	930512-4431	TDA593
Sebastian Bellevik	860213-3939	TDA593
Tobias Tikka	911015-0092	TDA593
Daniel Bäckström	911104-0078	TDA593
Philip Ekman	910221-2173	TDA593
Tomas Hasselquist	920811-1097	TDA593
Adam Jilsén	910323-1016	TDA593
Marcus Olsson	920514-4596	TDA593
Marcus Lagerstedt	930723-2075	TDA593

Analysis

Definition of a good team member

The following are points that we all agree to follow in order to be a good team member:

- Be on time. If something occurs along the way, be sure to tell your friends
- Have a general positive attitude
- Do your best at all times
- Try to help out where help is needed
- Be sure to communicate
- Don't be afraid to ask questions
- Delegate work appropriately according to skill and time

The following are points that you should not follow in order to be a good team member:

- Not following the rules above

Goal and objectives of the team

In our group we are aiming for a high grade and should therefore put in efforts according to this. We also aim to achieve a great understanding in what it means to work agile as a functional team, increase our modeling skills and understand how the different analysis and design methods make up a development process.

All group members should have a good understanding of the project as a whole. To achieve this we have weekly meetings where we discuss each team member's work and the motivations behind it. We will also divide our group of 9 people into 2 teams, since we think that 4-5 people makes more efficient teams.

System description

Our objective is to model, design and implement a Hotel Booking System and therefore the system should be able to handle bookings, check in/out, guest and customer information etc. We will however extend this basic system with other subsystems to enable easy management of the hotel and allow guests to access some guest-related system functions.

The manager should be able to access a management subsystem where it is possible to manage prices of rooms, items and services, and also manage staff and get access to occupancy and revenue statistics. These statistics can then help the manager to schedule staff based on predicted occupancy for certain dates.

A checked in guest should be able to access a small guest subsystem where easy room service and restaurant reservation is available. It should also be possible for the checked in guest to get access to paid/unpaid bills of the room that the guest is staying in.

All staff should also be able to access a small inventory subsystem where they can update stock of certain inventory items. When the stock runs low the manager will be notified of this so action can be taken.

Initial suggestions of requirements

Functional (suggestions)

1. Startup

- 1.1. The system shall show a login prompt on startup.

Basic functionality for a system, must be included.

2. Authentication and authorization

- 2.1. The system shall allow Managers to login with full permissions.
- 2.2. The system shall allow Customer Service Representatives to login with permissions to access all system functions except account management, room management and staff management.
- 2.3. The system shall allow Cleaning Personnel to login with permissions to access all cleaning related functions (cleaning subsystem)
- 2.4. The system shall allow all Staff to login with permissions to update inventory stock on items, food and drinks (inventory subsystem)
- 2.5. The system shall allow Checked In Guests to login with permissions to access the guest subsystem.

3. Search

- 3.1. The system shall let the Manager and Customer Service Representatives search for a room (or hostel bed) and the system shall visually respond with the rooms ordered after how well the room match the search criterias.
- 3.2. The system shall let the Manager and Customer Service Representatives search for an available room (or hostel bed) at specified dates and the system shall visually respond with the available rooms for that date ordered after how well the room match the search criterias.
- 3.3. The system shall let the Manager and Customer Service Representatives search for available rooms next to each other at specified dates and the system shall visually respond with the available suggestions for that date ordered after how well the rooms in the suggestion match the search criterias.
- 3.4. The system shall let the Manager and Customer Service Representatives search for a current customer and the system shall visually respond with the current customers ordered after how well the customers match the search criterias.
- 3.5. The system shall let the Manager and Customer Service Representatives search for a customer and the system shall visually respond with the customers ordered after how well the customers match the search criterias.
- 3.6. The system shall let the Manager and Customer Service Representatives search for a guest and the system shall visually respond with the guests ordered after how well the guests match the search criterias.

- 3.7. The system shall let the Manager and Customer Service Representatives search for a booking and the system shall visually respond with the bookings ordered after how well the bookings match the search criterias.
 - 3.8. The system shall let the Manager and Customer Service Representatives and Staff search the inventory and the system shall visually respond with the items ordered after how well the items match the search criterias.
 - 3.9. The system shall let the Manager and Customer Service Representatives search the services provided and the system shall visually respond with the services ordered after how well the services match the search criterias.
 - 3.10. The system shall let the Manager and Customer Service Representatives search the ordered room services and the system shall visually respond with the room services ordered after how well the room services match the search criterias.
 - 3.11. The system shall let the Manager and Customer Service Representatives search the bills and the system shall visually respond with the bills ordered after how well the bills match the search criterias.
 - 3.12. The system shall let a checked-in guest search the bills on their room and the system shall visually respond with the bills ordered after how well the bills match the search criterias.
 - 3.13. The system shall let the manager search the staff and the system shall visually respond with the staff ordered after how well the staff match the search criterias.
 - 3.14. The system shall let the Manager and Customer Service Representatives search the feedback and the system shall visually respond with the feedback ordered after how well the feedback match the search criterias.
4. Rooms
 - 4.1. The system shall provide Manager and Customer Service Representatives access to a register of the hotel rooms
 - 4.2. The system shall provide Manager and Customer Service Representatives access to a register of the available rooms
 - 4.3. The system shall provide Manager and Customer Service Representatives access to a register of the event/conferences rooms
 - 4.4. The system shall provide Manager and Customer Service Representatives access to a register of the available event/conferences rooms
 - 4.5. The system shall provide access to and be able to record information about every room. The information include baseprice, number of beds, room category, possible extra beds, view from room, location etc...
 - 4.6. The system shall provide the manager with the ability to add, edit and remove rooms in/from the room registry.
 5. Customers and guests

- 5.1. The system shall provide Manager and Customer Service Representatives access to a register of all customers
- 5.2. The system shall provide Manager and Customer Service Representatives access to a register of future booked customers
- 5.3. The system shall provide Manager and Customer Service Representatives access to a register of all guests
- 5.4. The system shall provide Manager and Customer Service Representatives access to a register of checked-in guests
- 5.5. The system shall provide Manager and Customer Service Representatives access to a register of checked-out guests
- 5.6. The system shall provide Manager and Customer Service Representatives access to a register of future guests
- 5.7. The system shall provide access to and be able to record information about every customer. The information includes firstname, lastname, SSNR, email, phone number, special requests, past bookings, discounts, transfers, bills payed/unpayed.
- 5.8. The system shall provide access to and be able to record information about every guest. The information includes firstname, lastname, SSNR, email, phone number, special requests, past stays, transfers, rooms stayed in.

6. Transfers/transport

- 6.1. The system shall provide Manager and Customer Service Representatives access to a register of booked transfers/transport and guests or customers involved
- 6.2. The system shall be able to add/change/remove bookings for transfer/transport of a guest or customer at a certain date.
 - 6.2.1. The system shall record transport type, departure date & time, arrival date & time, destination and departure location.

7. Feedback

- 7.1. The system shall be able to record feedback
- 7.2. The system shall be able to send emails asking the guests for an evaluation of their stay
- 7.3. The system shall be able to access a register of the feedback recorded
- 7.4. The system shall be able to mark feedback as resolved, noted etc.

8. Room Bookings

- 8.1. The system shall be able to book available rooms for specified dates and customer
 - 8.1.1. The system shall if the customer has booked anything at the hotel previously fetch the customer from the customer registry
 - 8.1.2. The system shall, if the customer is new, create a new customer

- 8.1.2.1. The system shall record firstname, lastname, title, SSNR, email, phone number, special requests
 - 8.1.3. The system shall record a booking
 - 8.1.3.1. The system shall record the credit card of the customer
 - 8.1.3.2. The system shall generate a unique booking number.
 - 8.1.3.3. The system shall record a hotel stay for each booked rooms and the booked rooms of each hotel stay, # of guests of the booking, possible occupants (guests) of each hotel stay, customer of the booking, booking date and time, arrival date of the hotel stay, departure date of the hotel stay, special requests of the booking.
 - 8.1.3.4. The system shall record specified guests information if provided at booking
 - 8.1.3.4.1. The system shall check if the guest has visited the hotel previously fetch the guest from the guest registry
 - 8.1.3.4.2. The system shall, if the guest is new, create a new guest
 - 8.1.3.4.2.1. The system shall record the firstname, lastname, title, SSNR, email, phonenumbers, special requests.
 - 8.1.4. The system shall record the payment of the hotel stays and the payment type if this customer pays the booking of the hotel stays directly.
 - 8.1.5. The system shall record a responsible credit card of the hotel stays if the customer wants to be billed for the whole stay upon check out.
(including bills put on each hotel stay during the visit)
 - 8.1.6. The system shall send a confirmation to the customer containing booking information.
 - 8.2. The system shall be able to make event/conferences bookings of event/conferences-rooms for customers when those rooms are available.
 - 8.2.1. Works as 8.1 but no guest information will be recorded.
 - 8.3. The system shall provide Manager and Customer Service Representatives access to a register of all bookings
 - 8.4. The system shall provide Manager and Customer Service Representatives access to a register of bookings of current stays
 - 8.5. The system shall provide Manager and Customer Service Representatives access to a register of bookings of future stays
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- 9. Booking Cancellation
 - 9.1. The system shall be able to cancel bookings.
 - 10. Booking Changes
 - 10.1. The system shall be able to change a room in a booking to an available room.
 - 10.2. The system shall be able to cancel and/or add a room in a booking before check in.

- 10.2.1. The system shall remove the booking if all rooms in a booking is removed.
- 10.3. The system shall be able to change dates for a booking
 - 10.3.1. The system shall change the date if the same rooms are available for the dates.
 - 10.3.2. The system shall if the same rooms are unavailable for the dates allow the Manager and Customer Service Representatives to select other available rooms.

11. Cleaning

- 11.1. The system shall provide Manager and Customer Service Representatives access to a list of all uncleaned rooms
- 11.2. The system shall be able to handle and generate scheduling of cleaning of rooms
- 11.3. The system shall provide Checked In Guests of the hotel with access to cleanliness status and cleanliness schedule information of their checked in rooms
- 11.4. The system shall provide Checked In Guests of the hotel with the ability to specify when the room is available for cleaning
- 11.5. The system shall provide Checked In Guests of the hotel with the ability to specify if the room does not need to be cleaned

12. Bills and restaurant

- 12.1. The system shall track all food, drinks and items purchased in the hotel.
- 12.2. The system shall record payment and payment type for food and items.
- 12.3. The system shall bill the hotel stay of the room if payment is not made at time of service.
- 12.4. The system shall accept reservations for the restaurant and room service.
- 12.5. The system shall provide Checked In Guests of the hotel with the ability to order room service and choose from a list of food, drinks, services and items.
- 12.6. The system shall provide Checked In Guests of the hotel with the ability to make reservations at the hotel restaurant.

13. Pricing/Cost

- 13.1. The system shall allow the manager to dynamically adjust room prices for certain dates.
- 13.2. The system shall allow the manager to change the rooms base price and prices for services and items (food & drinks included),
- 13.3. The system shall be able to calculate the total cost for a stay incl. extra costs for room service, mini bar, restaurant etc.
- 13.4. The system shall provide Checked In Guests of the hotel with the ability to access current paid/unpaid bills

14. Check in/out

- 14.1. The system shall be able to check in a guest of a booking.
 - 14.1.1. The system shall record check in date and time.
 - 14.1.2. The system shall if the guest information was provided at the booking fetch the guest from the guest registry
 - 14.1.3. The system shall, if the guest is new, create a new guest
 - 14.1.3.1. The system shall record the firstname, lastname, title, SSNR, email, phonenumber, special requests.
 - 14.1.4. The system shall record a credit card of the hotel stay before checking in the first guest of a hotel stay which will be billed unpaid bills upon check-out.
 - 14.1.5. The system shall record the payment and the payment type if this guest pays the hotel stay unpaid bills at check in.
 - 14.1.6. The system shall mark the guest as checked in.
 - 14.1.7. The system shall create a guest account for the guest to use
- 14.2. The system shall be able to check out a guest.
 - 14.2.1. The system shall display the total cost owed of the room.
 - 14.2.2. The system shall record the payment and the payment type if this guest pays the unpaid bills of the stay in an alternative way to the supplied credit card of the stay.
 - 14.2.3. The system shall record checkout date and time.
 - 14.2.4. The system shall remove the guest account of the guest
 - 14.2.5. The system shall if this is the last guest checking out of the hotel stay and there are still unpaid bills, bill the registered room credit card
 - 14.2.5.1. If that payment fails the credit card supplied at booking will be billed
 - 14.2.5.1.1. If even that fails an invoice will be sent to the customer email
 - 14.2.6. The system shall mark the guest as checked out.
 - 14.2.7. The system shall send email asking the guest for an evaluation of its stay

15. Statistics

- 15.1. The system shall be able to visually show statistics for occupancy for a specified period of time.
- 15.2. The system shall be able to visually show statistics for projected occupancy for a specified period of time.
- 15.3. The system shall be able to visually show statistics for room revenue for a specified period of time.
- 15.4. The system shall be able to visually show statistics for item revenue for a specified period of time.
- 15.5. The system shall be able to visually show statistics for hotel revenue for a specified period of time.

- 15.6. The system shall be able to visually show statistics for room profit/loss for a specified period of time.
- 15.7. The system shall be able to visually show statistics for item profit/loss for a specified period of time.
- 15.8. The system shall be able to visually show statistics for hotel profit/loss for a specified period of time.

Statistics is a nice feature that provides overview over the business and make predictions by visual data.

16. Inventory

- 16.1. The system shall provide Manager and Customer Service Representatives and Staff access to a register of all hotel inventory
- 16.2. The system shall let the manager change details about and add/remove inventory item types of the hotel
- 16.3. The system shall automatically show the manager notifications when some inventory is about to run out
- 16.4. The system shall let Manager and Customer Service Representatives and all Staff update inventory stock (indicate if something needs to be ordered or is about to run out etc)

17. Hostel Bookings

- 17.1. The system shall be able to book beds in special hostel rooms.
 - 17.1.1. Should work as room bookings (See 8.) with the addition of the system recording the booked beds.

18. Staff Management

- 18.1. The system shall provide manager access to a register of all hotel staff
- 18.2. The system shall allow the manager to be able to add/change/remove staff from the system.
- 18.3. The system shall provide manager access to and be able to record information about all staff. The information include firstname, lastname, phone, email, job, salary, schedule etc.
- 18.4. The system shall with the use of occupancy statistics provide the manager with the ability to schedule staff with respects to occupancy information for each day.

19. Account Management

- 19.1. The system shall allow the manager to be able to add/change/remove accounts from the system.
- 19.2. The system shall provide manager access to and be able to record information about all accounts. The information include username, password, staff, and type of account etc.

Non-functional (suggestions)

Important non-functional requirements are marked with blue.

20. The system shall be implemented in java
21. The system functions shall all be testable
22. The system shall be secure with authentication and appropriate authorization for different users.
 - 22.1. Hotel Managers have full access to the system.
 - 22.2. Customer Service Representatives have access to all system functions except account management, room management, restaurant management and staff management.
 - 22.3. Cleaning personnel can access the cleaning subsystem and inventory subsystem.
 - 22.4. Checked In Guests can only access guest subsystem.
 - 22.5. All Staff can access the inventory subsystem (view and update inventory status)
23. The system shall gracefully recover from all errors by checking for errors on several layers
24. The system shall be stable and not crash
 - 24.1. If a crash were to happen the system should be able to easily recover
25. The system shall be distributed
26. The system shall make use of a database
 - 26.1. The database should contain reservation details
 - 26.2. The database should contain guest information and their payment details
 - 26.3. The database should contain information about the rooms
27. The system shall run with high performance and < 100 ms latency for all operations

Requirements included and excluded

We have marked requirements that we will use in green and requirements that we have chosen to exclude at the moment in pink. Cursive text is the motivation for not including the requirements written in pink and normal text is motivation for including the requirements written in green.

(Note: Different authentication account types are capitalized. For example Manager)

Functional

1. Startup

- 1.1. The system shall show a login prompt on startup.

Basic functionality for a system, must be included.

2. Authentication and authorization

- 2.1. The system shall allow Managers to login with full permissions.
- 2.2. The system shall allow Customer Service Representatives to login with permissions to access all system functions except account management, room management and staff management.
- 2.3. **The system shall allow Cleaning Personnel to login with permissions to access all cleaning related functions (cleaning subsystem)**

Removed since cleaning subsystem is excluded as a result of interviews. (see Appendix B)

- 2.4. The system shall allow all Staff to login with permissions to update inventory stock on items, food and drinks (inventory subsystem)

- 2.5. The system shall allow Checked In Guests to login with permissions to access the guest subsystem.

Basic functionality for a system, important for us so that we are able to divide our system in different security levels and support different subsystems where different users of the system has different system access

3. Search

- 3.1. The system shall let the Manager and Customer Service Representatives search for a room (or hostel bed) and the system shall visually respond with the rooms ordered after how well the room match the search criterias.
- 3.2. The system shall let the Manager and Customer Service Representatives search for an available room (or hostel bed) at specified dates and the system

- shall visually respond with the available rooms for that date ordered after how well the room match the search criterias.
- 3.3. The system shall let the Manager and Customer Service Representatives search for available rooms next to each other at specified dates and the system shall visually respond with the available suggestions for that date ordered after how well the rooms in the suggestion match the search criterias.
 - 3.4. The system shall let the Manager and Customer Service Representatives search for a current customer and the system shall visually respond with the current customers ordered after how well the customers match the search criterias.
 - 3.5. The system shall let the Manager and Customer Service Representatives search for a customer and the system shall visually respond with the customers ordered after how well the customers match the search criterias.
 - 3.6. The system shall let the Manager and Customer Service Representatives search for a guest and the system shall visually respond with the guests ordered after how well the guests match the search criterias.
 - 3.7. The system shall let the Manager and Customer Service Representatives search for a booking and the system shall visually respond with the bookings ordered after how well the bookings match the search criterias.
 - 3.8. The system shall let the Manager and Customer Service Representatives and Staff search the inventory and the system shall visually respond with the items ordered after how well the items match the search criterias.
 - 3.9. The system shall let the Manager and Customer Service Representatives search the servcies provided and the system shall visually respond with the servcies ordered after how well the services match the search criterias.
 - 3.10. The system shall let the Manager and Customer Service Representatives search the ordered room services and the system shall visually respond with the room servcies ordered after how well the room services match the search criterias.
 - 3.11. The system shall let the Manager and Customer Service Representatives search the bills and the system shall visually respond with the bills ordered after how well the bills match the search criterias.
 - 3.12. The system shall let a checked-in guest search the bills on their room and the system shall visually respond with the bills ordered after how well the bills match the search criterias.
 - 3.13. The system shall let the manager search the staff and the system shall visually respond with the staff ordered after how well the staff match the search criterias.
 - 3.14. The system shall let the Manager and Customer Service Representatives search the feedback and the system shall visually respond with the feedback ordered after how well the feedback match the search criterias.

Search enables easy and quick navigation and is essential for a easy to use system.

4. Rooms

- 4.1. The system shall provide Manager and Customer Service Representatives access to a register of the hotel rooms
- 4.2. The system shall provide Manager and Customer Service Representatives access to a register of the available rooms
- 4.3. The system shall provide Manager and Customer Service Representatives access to a register of the event/conferences rooms
- 4.4. The system shall provide Manager and Customer Service Representatives access to a register of the available event/conferences rooms
- 4.5. The system shall provide access to and be able to record information about every room. The information include baseprice, number of beds, room category, possible extra beds, view from room, location etc...
- 4.6. The system shall provide the manager with the ability to add, edit and remove rooms in/from the room registry.

One of our core requirements, can't do without rooms in a hotel system.

5. Customers and guests

- 5.1. The system shall provide Manager and Customer Service Representatives access to a register of all customers
- 5.2. The system shall provide Manager and Customer Service Representatives access to a register of future booked customers
- 5.3. The system shall provide Manager and Customer Service Representatives access to a register of all guests
- 5.4. The system shall provide Manager and Customer Service Representatives access to a register of checked-in guests
- 5.5. The system shall provide Manager and Customer Service Representatives access to a register of checked-out guests
- 5.6. The system shall provide Manager and Customer Service Representatives access to a register of future guests
- 5.7. The system shall provide access to and be able to record information about every customer. The information includes firstname, lastname, SSNR, email, phone number, special requests, past bookings, discounts, transfers, bills payed/unpayed.
- 5.8. The system shall provide access to and be able to record information about every guest. The information includes firstname, lastname, SSNR, email, phone number, special requests, past stays, transfers, rooms stayed in.

Customers and guests are essential to a hotel system. But we find it important to separate the two since the customer (booker) does not have to be one of the

guest etc. The billing of the booking and bills put on the booked rooms will be billed the customer.

6. Transfers/transport

- 6.1. The system shall provide Manager and Customer Service Representatives access to a register of booked transfers/transport and guests or customers involved
- 6.2. The system shall be able to add/change/remove bookings for transfer/transport of a guest or customer at a certain date.
 - 6.2.1. The system shall record transport type, departure date & time, arrival date & time, destination and departure location.

We will remove the functionalities above for now since we don't see it as a necessity for the moment. Transport bookings can be handled by a simple call and communication with the customer, this does not have to be in the system, although if implemented it can help custom services to keep track of the information for later questions.

7. Feedback

- 7.1. The system shall be able to record feedback
- 7.2. The system shall be able to send emails asking the guests for an evaluation of their stay
- 7.3. The system shall be able to access a register of the feedback recorded
- 7.4. The system shall be able to mark feedback as resolved, noted etc.

We felt that feedback is an important requirement for a hotel system so that the hotel is given the chance to improve its services and overall business.

8. Room Bookings

- 8.1. The system shall be able to book available rooms for specified dates and customer
 - 8.1.1. The system shall if the customer has booked anything at the hotel previously fetch the customer from the customer registry
 - 8.1.2. The system shall, if the customer is new, create a new customer
 - 8.1.2.1. The system shall record firstname, lastname, title, SSNR, email, phone number, special requests
 - 8.1.3. The system shall record a booking
 - 8.1.3.1. The system shall record the credit card of the customer
 - 8.1.3.2. The system shall generate a unique booking number.
 - 8.1.3.3. The system shall record a hotel stay for each booked rooms and the booked rooms of each hotel stay, # of guests of the booking, possible occupants (guests) of each hotel stay, customer of the

- booking, booking date and time, arrival date of the hotel stay, departure date of the hotel stay, special requests of the booking.
- 8.1.3.4. The system shall record specified guests information if provided at booking
 - 8.1.3.4.1. The system shall if the guest has visited the hotel previously fetch the guest from the guest registry
 - 8.1.3.4.2. The system shall, if the guest is new, create a new guest
 - 8.1.3.4.2.1. The system shall record the firstname, lastname, title, SSNR, email, phonenumbers, special requests.
- 8.1.4. The system shall record the payment of the hotel stays and the payment type if this customer pays the booking of the hotel stays directly.
- 8.1.5. The system shall record a responsible credit card of the hotel stays if the customer wants to be billed for the whole stay upon check out. (including bills put on each hotel stay during the visit)
- 8.1.6. The system shall send a confirmation to the customer containing booking information.

Excluded since we lacked the time to implement a decent email confirmation subsystem.

- 8.2. The system shall be able to make event/conferences bookings of event/conferences-rooms for customers when those rooms are available.
 - 8.2.1. Works as 8.1 but no guest information will be recorded.
- 8.3. The system shall provide Manager and Customer Service Representatives access to a register of all bookings
- 8.4. The system shall provide Manager and Customer Service Representatives access to a register of bookings of current stays
- 8.5. The system shall provide Manager and Customer Service Representatives access to a register of bookings of future stays

One of our core requirements, an essential part of why one would need a hotel system.

9. Booking Cancellation

- 9.1. The system shall be able to cancel bookings.

Adds flexibility to the booking feature.

10. Booking Changes

- 10.1. The system shall be able to change a room in a booking to an available room.
- 10.2. The system shall be able to cancel and/or add a room in a booking before check in.

- 10.2.1. The system shall remove the booking if all rooms in a booking is removed.
- 10.3. The system shall be able to change dates for a booking
 - 10.3.1. The system shall change the date if the same rooms are available for the dates.
 - 10.3.2. The system shall if the same rooms are unavailable for the dates allow the Manager and Customer Service Representatives to select other available rooms.

Adds flexibility to the booking feature.

11. Cleaning

- 11.1. The system shall provide Manager and Customer Service Representatives access to a list of all uncleaned rooms
- 11.2. The system shall be able to handle and generate scheduling of cleaning of rooms
- 11.3. The system shall provide Checked In Guests of the hotel with access to cleanliness status and cleanliness schedule information of their checked in rooms
- 11.4. The system shall provide Checked In Guests of the hotel with the ability to specify when the room is available for cleaning
- 11.5. The system shall provide Checked In Guests of the hotel with the ability to specify if the room does not need to be cleaned

The interviews we had suggested that this was a bad idea since the cleaner still will likely take a similar round and walk past all doors and at each door check their system for info instead of checking the door if the room should be cleaned.

12. Bills and restaurant

- 12.1. The system shall track all food, drinks and items purchased in the hotel.
- 12.2. The system shall record payment and payment type for food and items.
- 12.3. The system shall bill the hotel stay of the room if payment is not made at time of service.
- 12.4. The system shall accept reservations for the restaurant and room service.
- 12.5. The system shall provide Checked In Guests of the hotel with the ability to order room service and choose from a list of food, drinks, services and items.
- 12.6. The system shall provide Checked In Guests of the hotel with the ability to make reservations at the hotel restaurant.

Selling of food and items is important for a hotel and we have therefore included this feature.

13. Pricing/Cost

- 13.1. The system shall allow the manager to dynamically adjust room prices for certain dates.
- 13.2. The system shall allow the manager to change the rooms base price and prices for services and items (food & drinks included),
- 13.3. The system shall be able to calculate the total cost for a stay incl. extra costs for room service, mini bar, restaurant etc.
- 13.4. The system shall provide Checked In Guests of the hotel with the ability to access current paid/unpaid bills

It is important to allow adjustments of prices and different room prices at different dates for a hotel. Prices are also needed to calculate total costs owed etc.

14. Check in/out

- 14.1. The system shall be able to check in a guest of a booking.
 - 14.1.1. The system shall record check in date and time.
 - 14.1.2. The system shall if the guest information was provided at the booking fetch the guest from the guest registry
 - 14.1.3. The system shall, if the guest is new, create a new guest
 - 14.1.3.1. The system shall record the firstname, lastname, title, SSNR, email, phonenumber, special requests.
 - 14.1.4. The system shall record a credit card of the hotel stay before checking in the first guest of a hotel stay which will be billed unpaid bills upon check-out.
 - 14.1.5. The system shall record the payment and the payment type if this guest pays the hotel stay unpaid bills at check in.
 - 14.1.6. The system shall mark the guest as checked in.
 - 14.1.7. The system shall create a guest account for the guest to use
- 14.2. The system shall be able to check out a guest.
 - 14.2.1. The system shall display the total cost owed of the room.
 - 14.2.2. The system shall record the payment and the payment type if this guest pays the unpaid bills of the stay in an alternative way to the supplied credit card of the stay.
 - 14.2.3. The system shall record checkout date and time.
 - 14.2.4. The system shall remove the guest account of the guest
 - 14.2.5. The system shall if this is the last guest checking out of the hotel stay and there are still unpaid bills, bill the registered room credit card
 - 14.2.5.1. If that payment fails the credit card supplied at booking will be billed
 - 14.2.5.1.1. If even that fails an invoice will be sent to the customer email

Excluded since we lacked the time to implement a decent email

confirmation subsystem.

- 14.2.6. The system shall mark the guest as checked out.
- 14.2.7. The system shall send email asking the guest for an evaluation of its stay

An essential feature of a hotel is the process of check in/out.

15. Statistics

- 15.1. The system shall be able to visually show statistics for occupancy for a specified period of time.
- 15.2. The system shall be able to visually show statistics for projected occupancy for a specified period of time.
- 15.3. The system shall be able to visually show statistics for room revenue for a specified period of time.
- 15.4. The system shall be able to visually show statistics for item revenue for a specified period of time.
- 15.5. The system shall be able to visually show statistics for hotel revenue for a specified period of time.
- 15.6. The system shall be able to visually show statistics for room profit/loss for a specified period of time.
- 15.7. The system shall be able to visually show statistics for item profit/loss for a specified period of time.
- 15.8. The system shall be able to visually show statistics for hotel profit/loss for a specified period of time.

Statistics is a nice feature that provides overview over the business and make predictions by visual data.

16. Inventory

- 16.1. The system shall provide Manager and Customer Service Representatives and Staff access to a register of all hotel inventory
- 16.2. The system shall let the manager change details about and add/remove inventory item types of the hotel
- 16.3. The system shall automatically show the manager notifications when some inventory is about to run out
- 16.4. The system shall let Manager and Customer Service Representatives and all Staff update inventory stock (indicate if something needs to be ordered or is about to run out etc)

The inventory is something that all staff is related to and uses. Therefore it seems natural that staff can indicate status of different kind of inventory so that

managers and customer service gets this information and can do something in response.

17. Hostel Bookings

- 17.1. The system shall be able to book beds in special hostel rooms.
 - 17.1.1. Should work as room bookings (See 8.) with the addition of the system recording the booked beds.

All kinds of bookings are essential for the hotel system and shall be included. Possibility of hostel bookings make the system more general.

18. Staff Management

- 18.1. The system shall provide manager access to a register of all hotel staff
- 18.2. The system shall allow the manager to be able to add/change/remove staff from the system.
- 18.3. The system shall provide manager access to and be able to record information about all staff. The information include firstname, lastname, phone, email, job, salary, schedule etc.
- 18.4. The system shall with the use of occupancy statistics provide the manager with the ability to schedule staff with respects to occupancy information for each day.

Staff management is useful for easy management of a hotel and we can use our statistics to schedule staff for each day which is a nice fun feature.

19. Account Management

- 19.1. The system shall allow the manager to be able to add/change/remove accounts from the system.
- 19.2. The system shall provide manager access to and be able to record information about all accounts. The information include username, password, staff, and type of account etc.

Since we have different types of authorization and we need the system to be secure accounts is essential for the system.

Non-functional

Important non-functional requirements are marked with **blue**.

- 20. The system shall be implemented in java
- 21. The system functions shall all be testable

22. The system shall be secure with authentication and appropriate authorization for different users.
 - 22.1. Hotel Managers have full access to the system.
 - 22.2. Customer Service Representatives have access to all system functions except account management, room management, restaurant management and staff management.
 - 22.3. Cleaning personnel can access the cleaning subsystem and inventory subsystem.

Removed since cleaning subsystem is excluded as a result of interviews. (see Appendix B)

- 22.4. Checked In Guests can only access guest subsystem.
- 22.5. All Staff can access the inventory subsystem (view and update inventory status)
23. The system shall gracefully recover from all errors by checking for errors on several layers
24. The system shall be stable and not crash
 - 24.1. If a crash were to happen the system should be able to easily recover
25. The system shall be distributed

Excluded since we lacked the time to implement this.

26. The system shall make use of a database
 - 26.1. The database should contain reservation details
 - 26.2. The database should contain guest information and their payment details
 - 26.3. The database should contain information about the rooms

Excluded since we lacked the time to implement this.

27. The system shall run with high performance and < 100 ms latency for all operations

Assignments of requirements

Team A

1,2,7,8,9,10,16,17,19

Anders: 2, 19
Tobias: 1, 7, 17
Daniel: 8, 9
Marcus O: 10, 16

Team B

3,4,5,12,13,14,15,18

Marcus L: 3, 4
Sebastian: 5
Adam: 15, 18
Tomas 12, 13
Philip: 14

Design

Possible concepts

- Hotel
- Room
- Hotel Room
- Conference/Event Room
- Hostel Room
- Room Category
- Room Location
- Guest
- Special Request
- Customer
- Booking
- Hotel Room Booking
- Conference/Event Booking
- Hostel Booking
- Hostel Bed
- Staff
- Staffs Schedule
- Item
- Menu
- Food
- Bookable
- Salary Contract
- Monthly Salary Contract
- Hourly Salary Contract
- Drink
- Service
- Pricing
- Bill
- Credit Card
- Payment
- Feedback
- Inventory
- Date
- Time
- Statistic
- Statistic Entry
- Occupancy statistics
- Revenue statistics
- Restaurant
- Restaurant Table
- Reservation
- Room Service
- Room Service Order
- Order
- Bookable
- Hotel Room Category
- Conference Room Category
- Hotel Stay

Relevant concepts, attributes and responsibilities

Chosen concepts and their attributes

- Bookable
 - baseprice
- Room
 - room number
- Hotel Room
 - # of beds
- Conference/Event Room
 - capacity
- Hotel Room Category
 - category
- Conference Room Category
 - category
- Room Location
 - floor
 - additional Information
- Guest
 - firstname
 - lastname
 - title
 - email
 - phone number
 - isCheckedIn
- Special Request
 - request
- Customer
 - firstname
 - lastname
 - title
 - email
 - phone number
 - ID number
- Booking
 - booking number
 - # of guests
- Hostel Bed
 - bed number
- Staff
 - firstname
- Staffs Schedule
- Item type
 - name
 - price (each)
 - expense (each)
 - stock
- Menu
 - name
- Service
 - name
 - price
 - expense
- Bill
 - isPaid
 - payment type
- Credit Card
 - card number
 - security code
 - expiration year
 - expiration month
- Feedback
 - description
 - isNoted
 - isResolved
- Inventory
- Date and Time
 - year
 - month
 - day
 - hour
 - minute
- StatisticGenerator
 - daily static expenses
- Statistic
- Statistic Entry
 - value
- Restaurant
 - name
- Restaurant Table

- lastname
 - job
 - phone
 - email
 - ID number
- Hotel Stay
 - table number
 - # of seats
- Reservation
 - identifier
- Room Service
- Room Service Order
 - isDelivered
- Salary Contract
- Monthly Salary Contract
 - salary
- Hourly Salary Contract
 - salary per hour

Responsibilities

- Room
 - Maintain and provide access to general room information such as room number and room location
- Room location
 - Maintain and provide access to rooms floor and other relevant location information
- Hotel Room
 - Maintain and provide access to hotel room specific information such as number of beds
- Conference room
 - Maintain and provide access to conference room specific information such as room capacity
- Hotel room category
 - Maintain and provide access to hotel room category information such as single room, double room, suit etc.
- Conference room category
 - Maintain and provide access to conference room category information such as lecture room, dining room etc.
- Hostel bed
 - Maintain and provide access to hostel bed specific information such as the bed number and the room where the bed is located
- Bookable
 - Maintain and provide access to bookable specific information such as baseprice of something that can be booked (rooms or hostel bed). A bookable can also have if there are checked in guests a responsible credit card and bills put on the room.
- Room Service
 - Maintain and provide access to the room service menu if there is one and a register of room service orders. An order of room service shall also create a bill containing the same items and/or services that is put on the room.
- Room Service Order
 - Maintain and provide access to an order of room service which can include items and/or services, also can provide access to the room service menu if there is one.
- Service
 - Maintain and provide access to information of guest services provided by the hotel.
- Feedback
 - Maintain and provide access to information about any feedback a guest or customer may have provided about the hotel
- Credit card

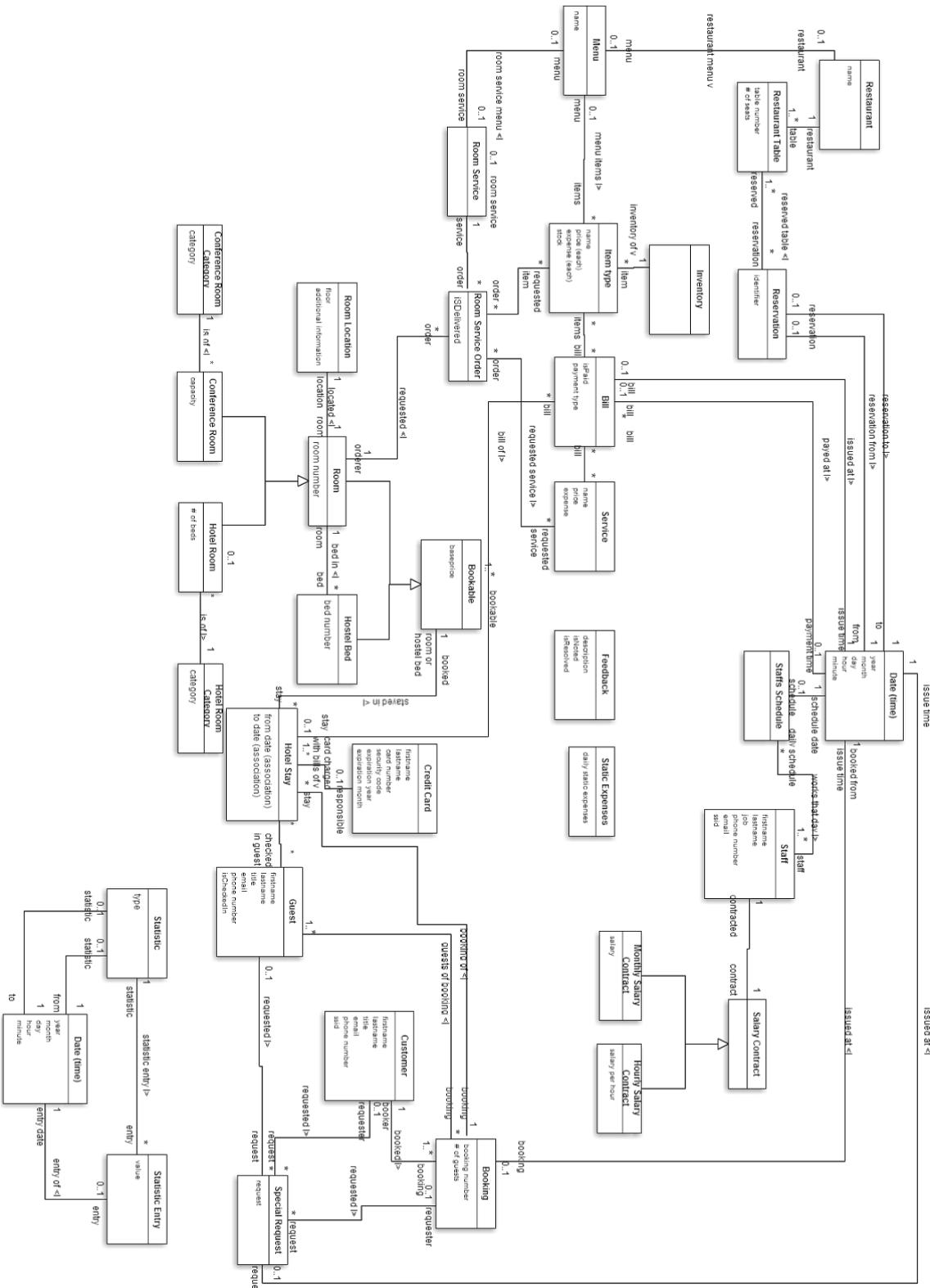
Maintain and provide access to information about the credit card that is responsible for unpaid bills of a room or hostel bed with checked in guests

- Special request
Maintain and provide access to information about any special requests a customer or guest or booking may have provided, the request also has an issue date.
- Booking
Maintain and provide access to information about a booking made by a customer. Information such as a unique booking number, number of guests, issue date, from date, to date, special requests, bookable, guests.
- Date
Maintain and provide access to specific date and time, typically timestamp
- Guest
Maintain and provide access to guest information such as name and contact information and check in status and a list of hotel stays. The guest can also have a list of special requests made and has a list of previous hotel stays at the hotel.
- Hotel Stay
Maintain and provide access to a hotel room or hostel bed stay information such as from date and to date of the stay and the hotel room or hostel bed of the stay and the booking of the stay. Also the stay has a list of all the guests of the stay.
- Customer
Maintain and provide access to customer information such as name, ID, contact information and bookings made by the customer. The customer can also have a list of special requests made.
- Staff
Maintain and provide access to employer information such as name, ID, job, contact information and contract.
- Staffs Schedule
Maintain and provide access to daily schedule information such as the scheduled date and the staff that works that day.
- Bill
Maintain and provide access to information about bills issued at the hotel containing items and/or services and/or bookables. Also the bill has an issue date and if paid a registered payment type and payment date.
- Item type
Maintain and provide access to information about item types of the hotel inventory, such as price (each), expense (each), name and stock. The item should be able to notify the hotel inventory if a specific item is low on stock.
- Inventory

Maintain and provide access to a register of the different hotel inventory item types. The inventory should be able to notify the hotel if a specific item is low on stock.

- Restaurant
 - Maintain and provide access to information about an hotel restaurant such as restaurant name, restaurant tables, also can provide access to the restaurant menu if there is one.
- Restaurant table
 - Maintain and provide access to information about number of people that the table can serve and a unique identifier
- Reservation
 - Maintain and provide access to the start and end date and time of the reservation and the table(s) reserved.
- Menu
 - Maintain and provide access to a menu consisting of a selection of item types
- Statistic
 - Maintain and provide access to date-value mapped statistic information
- Statistic Entry
 - Maintain and provide access to a date-value mapped statistic entry.

Domain-model



Vocabulary

Customer	A person who made a booking
Guest	A person staying/stayed in a room
Credit Card	A credit card which is responsible for unpaid bills of a hotel stay at check-out
Item type	Description of an purchasable item
Date	A timestamp
Service	Service that can be provided for guests via for example room service
Special request	A guest or a booker could make a special request such as adding an extra bed
Feedback	Customer and guests can have positive or negative feedback of the hotel
Bookable	A hotel-room, hostel bed or a conference room.
Room	A generalisation of a room and a specialisation of a bookable
Hotel Room	A bookable hotel room with beds
Hotel Room Category	Type of hotel room
Conference/Event Room	A specific kind of bookable room where events and conferences can be held
Conference/Event Room Category	Type of conference/event room
Room Location	Location of a room
Booking	A booking of hotel stays with bookables
Hostel Bed	A bookable bed
Staff	An employee of the hotel
Staffs Schedule	A daily schedule of the staff that works at a specific date
Item type	Type of an inventory item that have a stock

Menu	A menu containing a list of items and/or services
Service	A service provided to guests of the hotel
Bill	A bill of purchased items/services/bookables that can be put on a hotel stay
Feedback	Feedback from a guest of a hotel stay
Inventory	Register of item types
Statistic	Date-value mapped statistics of some type of values
Statistic Entry	A date-value mapped statistic entry
Restaurant	A hotel restaurant
Restaurant Table	A table of a hotel restaurant that can be reserved
Reservation	A reservation of a particular restaurant table at a specific time period
Room Service	Items/services provided to a room
Room Service Order	An order of items and/or services to a room
Salary Contract	A general salary contract of an employee
Monthly Salary Contract	An monthly salary contract of an employee
Hourly Salary Contract	An hourly salary contract of an employee

Actors and Brief Use-cases

Actors

- Checked In Guest
- Staff
- Manager
- Customer Service Representative

Use-cases

High priority use case

11. **Use case:** Add Payment To Bill As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Register a payment of a hotel bill

Description: Customer service representatives or manager should be able to register a payment of a bill, and if the bill is not existing already the bill shall be issued too.

13. **Use case:** Issue Bill As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Issue a hotel bill

Description: Customer service representatives or manager should be able to put a bill on a hotel stay according to what items/services/bookables the customer/guest has purchased.

14. **Use case:** View Bill Details As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: View bill details

Description: Customer service representatives or manager should be able to view all details of a bill including purchased items, issue date and payment status and so on.

17. **Use case:** Edit Customer Details As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Edit customer details

Description: Customer service representatives or manager should be able to edit and/or update all details of a customer by supplying valid edited customer information.

19. **Use case:** Search Customers As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Find a specific customer

Description: The actor specifies search criterias and chooses to search the customers and performs a search. The customers are ordered after how well they match the search criterias and the actor can then select the customer that was searched for if that item was found in the search.

20. **Use case:** Search Bookings As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Find a specific booking

Description: The actor specifies search criterias and chooses to search the bookings and performs a search. The bookings are ordered after how well they match the search criterias and the actor can then select the booking that was searched for if that booking was found in the search.

21. **Use case:** Add New Booking As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Add a booking

Description: The actor should be able to make a booking of rooms (or hostel beds) at certain dates for a customer, with possible special customer and/or booking requests. If the customer is new the customer needs to be added first. If the customer supplies guest information in the booking the guest will be created too. If the customer pays the booking in advance the payment of the hotel stays bills is registered. For each room (or hostel bed) in a booking a hotel stay is created connected to the room, the specified dates, the eventual guests in that room and the unpaid/paid bill.

22. **Use case:** Cancel Booking As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Cancel a booking

Description: The actor should be able to cancel a booking. The booking and the connected hotel stay is then removed and the systems indicates for the actor that the booking has been removed.

23. **Use case:** Update Booking Details As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Update booking details

Description: If the actor updates the dates of the rooms in the booking the system changes the date if the same rooms are available for the dates, otherwise, if the same rooms are unavailable for the dates, the system shall allow the Manager and Customer Service Representatives to select other available rooms for that date.

If the actor cancels a room in a booking the system should remove the booking if all rooms in a booking is removed otherwise the room and its connected hotel stay is removed from the booking.

If the actor changes the room of the booking, the actor can choose from a list of rooms which are available the same dates if any.

24. **Use case:** Check In Guest As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Check in a guest

Description: The actor finds the booking and stay associated with the guest and mark the guest as checked in if the guest is already in the system. Otherwise a new guest is created first with supplied input if the input is valid, the guest is then registered to the hotel stay. The first guest of the hotel stay must supply a credit card that is responsible for the stay if there is none registered already before checking the guest in. The guest is marked as checked in. If the guest pays any unpaid bills of the hotel stay now those payments shall be registered. After

this a checked in guest account is automatically created for the guest and the username and password is shown to the actor which then pass this information to the guest.

25. **Use case:** Check Out Guest As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Check out a guest

Description: The actor finds the booking and stay associated with the guest and tries to check out the guest. The total cost owed of the hotel stay is displayed by the system fetching all unpaid bills registered for the hotel stay. If the guest pays the bills in an alternative way too the registered credit card, the payment and payment type must be supplied by the actor and is then registered in the system for the bills. The system removes the checked-in guest account of the guest. The system bills the registered credit card any unpaid bills. The system marks the guest as checked out. The system records check out information such as date and time and saves it to the stay. The system removes the credit card information of the stay. The system sends a hotel stay evaluation mail to the guest.

26. **Use case:** Edit Guests Details As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Edit guest details

Description: The actor selects a guest and edit the details of the guest, if the input is valid the system then updates the details of that guest.

28. **Use case:** Search Guests As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Find a specific guest

Description: The actor specifies search criterias and chooses to search the guests and performs a search. The guests are ordered after how well they match the search criterias and the actor can then select the guest that was searched for if that guest was found in the search.

29. **Use case:** View Room or Hostel Bed Details As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: View room details

Description: The actor selects a room or a hostel bed and are shown all details of the room or hostel bed.

30. **Use case:** Search Rooms or Hostel Beds As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Find a specific room

Description: The actor specifies search criterias and chooses to search the rooms or hostel beds and performs a search. The rooms or hostel beds are ordered after how well they match

the search criterias and the actor can then select the room or hostel bed that was searched for if that room or hostel bed was found in the search.

53. **Use case:** Add New Room or Hostel Bed As Manager

Actor name: Manager

Goal: Add new room or hostel bed

Description: The manager accesses the room or hostel bed and supplies input for a new room or hostel bed, if the input is valid the system adds a new room or hostel bed to the rooms or hostel beds.

54. **Use case:** Delete Room or Hostel Bed As Manager

Actor name: Manager

Goal: Delete room or hostel bed

Description: The manager selects a room or hostel bed and removes it and the system then removes that room or hostel bed.

55. **Use case:** Edit Room or Hostel Bed Details As Manager

Actor name: Manager

Goal: Edit room or hostel bed details

Description: The manager accesses room or hostel bed details of a particular room or hostel bed and edits the details, if the input is valid the system edits the room or hostel bed details.

62. **Use case:** View Account Details As Manager

Actor name: Manager

Goal: View details of an account

Description: The manager accesses account details of a particular account and the system shows the details of the account.

65. **Use case:** Delete Account As Manager

Actor name: Manager

Goal: Delete an account

Description: The manager selects an account and removes it and the system then removes that account.

64. **Use case:** Edit Account Details As Manager

Actor name: Manager

Goal: Edit details of an account

Description: The manager selects an account and edit the details and the system then updates the details of that account if the input is valid.

65. **Use case:** Search Accounts As Manager

Actor name: Manager

Goal: Find a specific account

Description: The manager specifies search criterias and chooses to search the accounts and performs a search. The accounts are ordered after how well they match the search criterias and the manager can then select the account that was searched for if that account was found in the search.

66. **Use case:** Add New Account As Manager

Actor name: Manager

Goal: Add a new account

Description: The manager accesses the accounts and supplies input for a new account, if the input is valid the system adds a new account to the accounts.

67. **Use case:** View Statistics As Manager

Actor name: Manager

Goal: View statistics

Description: The manager accesses statistic details of a statistic type over a specified period of time and if the input was valid the system then generates and presents the statistics to the user.

Medium priority use cases

4. **Use case:** View Paid/Unpaid Bills Of Room As Checked In Guest

Actor name: Checked In Guest

Goal: View paid/unpaid bills of the hotel stay the guest is checked in at

Description: The checked in guest accesses a list of bills put on the room for the current stay and related information of each. The checked in guest can filter on paid or unpaid or all bills of the room.

8. **Use case:** View Inventory Item Type As Staff, Customer Service Representative or Manager

Actor name: Staff, Customer Service Representative or Manager

Goal: View details about a specific inventory item type

Description: The actor accesses the inventory which displays a list of item types. The actor selects one of the item types and is provided with details regarding the item type.

9. **Use case:** Update Inventory Item Type Stock As Staff, Customer Service Representative or Manager

Actor name: Staff, Customer Service Representative or Manager

Goal: Update number of items in stock about a specific inventory item type

Description: The actor selects an item type and updates the number of items in stock information of that item type.

10. **Use case:** Search Inventory As Staff, Customer Service Representative or Manager

Actor name: Staff, Customer Service Representative or Manager

Goal: Find a specific item type

Description: The actor specifies search criterias and chooses to search the inventory and performs a search. The items are ordered after how well they match the search criterias and the actor can then select the item that was searched for if that item was found in the search.

12. **Use case:** Search Bills As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Find a specific bill

Description: The actor specifies search criterias and chooses to search the bills and performs a search. The bills are ordered after how well they match the search criterias and the actor can then select the bill that was searched for if that bill was found in the search.

15. **Use case:** View Service Details As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: View details of a service that can be provided to a guest

Description: Customer service representatives or manager should be able to view all details of a service that can be provided to a guest.

16. **Use case:** Search Services As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Find a service that can be provided to a guest

Description: The actor specifies search criterias and chooses to search the services and performs a search. The services are ordered after how well they match the search criterias and the actor can then select the service that was searched for if that service was found in the search.

18. **Use case:** Add Customer Requests As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Add customer requests

Description: Customer service representatives or manager should be able to add a special request to a customer if valid information is supplied.

27. **Use case:** Add Guest Requests As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Add guest requests

Description: The actor selects a guest and enter the special requests for the guest, if the input is valid the system then updates the special requests for that guest.

34. **Use case:** Search Feedback As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Find a specific feedback

Description: The actor specifies search criterias and chooses to search the feedback and performs a search. The feedback are ordered after how well they match the search criterias and the actor can then select the feedback that was searched for if that feedback was found in the search.

35. **Use case:** View Feedback As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: View feedback details

Description: The actor selects a feedback item and the system displays the details of that feedback item.

36. **Use case:** Mark Feedback As Noted/Resolved As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Mark feedback as noted/resolved

Description: When the actor accesses the details of a particular feedback the system marks the feedback as noted. When the actor marks a feedback as resolved the system marks the feedback as resolved

37. **Use case:** Add Feedback As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Add guest feedback

Description: The actor should be able to register provided feedback in the system if the feedback details provided by the actor are valid.

38. **Use case:** Search Room Service Orders As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Find a specific room service order

Description: The actor specifies search criterias and chooses to search the room service orders and performs a search. The room service orders are ordered after how well they match the search criterias and the actor can then select the room service order that was searched for if that room service order was found in the search.

39. **Use case:** Mark Room Service Order As Delivered As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Mark room service order as delivered

Description: When the room service order is marked as delivered the system marks the room service order as delivered and generates a bill put on the current hotel stay of the room who ordered the room service.

40. **Use case:** View Room Service Menu As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: View the room service menu

Description: The actor accesses the room service menu which displays possible room service services and items and the prices of each.

41. **Use case:** Order Room Service To Guest As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Make a room service order from the items and/or services in the menu to a checked-in guest.

Description: The actor chooses items and/or services from the room service menu and makes a room service order to a room of a checked-in guest which the system registers if the input is valid.

42. **Use case:** View All Room Service Orders As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: View a list of all room service orders.

Description: The actor accesses a list of all room service orders made where the actor can see order detail of each. The actor can filter the list on rooms and dates.

47. **Use case:** Add New Inventory Item Type As Manager

Actor name: Manager

Goal: Add new inventory item type

Description: The manager accesses the inventory and supplies input for a new inventory item type, if the input is valid the system adds a new inventory item type to the inventory.

48. **Use case:** Delete Inventory Item Type As Manager

Actor name: Manager

Goal: Delete a inventory item type

Description: The manager selects a inventory item type and removes it and the system then removes that inventory item type.

49. **Use case:** Edit Inventory Item Type Details As Manager

Actor name: Manager

Goal: Edit inventory item type details

Description: The manager accesses inventory item type details of a particular inventory item type and edits the details, if the input is valid the system edits the inventory item type details.

50. **Use case:** Edit Service Details As Manager

Actor name: Manager

Goal: Edit service details

Description: The manager accesses service details of a particular service and edits the details, if the input is valid the system edits the service details.

51. **Use case:** Add New Service As Manager

Actor name: Add new service

Goal: Add new service

Description: The manager accesses the services and supplies input for a new service, if the input is valid the system adds a new service to the services.

52. **Use case:** Delete Service As Manager

Actor name: Manager

Goal: Delete service

Description: The manager selects a service and removes it and the system then removes that service.

56. **Use case:** Search Staff As Manager

Actor name: Manager

Goal: Find a specific employee

Description: The manager specifies search criterias and chooses to search the employees and performs a search. The employees are ordered after how well they match the search criterias and the manager can then select the employee that was searched for if that employee was found in the search.

57. **Use case:** Schedule Staff As Manager

Actor name: Manager

Goal: Schedule staff for day(s)

Description: The manager should be able to schedule staff for a specific day or period of days with help from the visual statistics.

58. **Use case:** Add New Staff As Manager

Actor name: Manager

Goal: Add a new employee

Description: The manager accesses the employees and supplies input for a new employee, if the input is valid the system adds a new employee to the employees.

59. **Use case:** Delete Staff As Manager

Actor name: Manager

Goal: Delete an employee

Description: The manager selects an employee and removes it and the system then deletes that employee.

60. **Use case:** View Staff Details As Manager

Actor name: Manager

Goal: View details about an employee

Description: The manager accesses employee details of a particular employee and the system shows the details of the employee.

61. **Use case:** Edit Staff Details As Manager

Actor name: Manager

Goal: Edit details about an employee

Description: The manager accesses employee details of a particular employee and edits the details, if the input is valid the system edits the employee details.

68. **Use case:** Edit Room Service Menu As Manager

Actor name: Manager

Goal: Edit details of the room service menu

Description: The manager accesses room service menu details and edits the details, if the input is valid the system edits the room service menu.

Low priority use cases

1. Use case: Make Restaurant Reservation As Checked In Guest

Actor name: Checked In Guest

Goal: Make a restaurant reservation

Description: The checked in guest selects an hotel restaurant and supplies number of guests of the sitting and a date and time. The system shows possible reservation options and the checked in guest reserves one of them.

2. Use case: View Restaurant Reservations Made As Checked In Guest

Actor name: Checked In Guest

Goal: View previously made restaurant reservations

Description: The checked in guest accesses a list of previous reservations of the hotel restaurants and related information of each.

3. Use case: Cancel Restaurant Reservation As Checked In Guest

Actor name: Checked In Guest

Goal: Cancel a restaurant reservation that the guest made

Description: The checked in guest chooses a previous made restaurant reservation which has not taken place and cancels the reservation.
ach.

5. Use case: View Room Service Menu As Checked In Guest

Actor name: Checked In Guest

Goal: View the room service menu

Description: The checked in guest accesses the room service menu which displays possible services and items and the prices of each.

6. Use case: Order Room Service As Checked In Guest

Actor name: Checked In Guest

Goal: Make a room service order from the items and/or services in the menu

Description: The checked in guest chooses items and/or services from the room service menu and makes a room service order.

7. Use case: View Room Service Orders Made As Checked In Guest

Actor name: Checked In Guest

Goal: View room service orders previously made by the guest

Description: The checked in guest accesses a list of previous room service orders made by the guest and related information of e

31. **Use case:** Make Restaurant Reservation As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Make a restaurant reservation

Description: The actor should be able to make a restaurant reservation for a number of guests at a given date and time, if the restaurant is open and have enough tables available at the given date and time.

32. **Use case:** View All Restaurant Reservations As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: View all restaurant reservations

Description: The actor accesses a list of all registered restaurant reservations ordered by the date and time of the reservations.

33. **Use case:** Cancel Restaurant Reservation As Customer Service Representative or Manager

Actor name: Customer Service Representative or Manager

Goal: Cancel restaurant reservation

Description: The actor selects a restaurant reservation and removes it, the system then removes that restaurant reservation.

43. **Use case:** Add New Restaurant As Manager

Actor name: Manager

Goal: Add new restaurant

Description: The manager gives restaurant details input and the system adds a new restaurant if the input is valid.

44. **Use case:** Edit Restaurant Menu As Manager

Actor name: Manager

Goal: Edit restaurant details

Description: The manager accesses restaurant menu of a particular restaurant and edits the menu details, if the input is valid the system edits the restaurant menu details.

45. **Use case:** Remove Restaurant As Manager

Actor name: Manager

Goal: Remove restaurant

Description: The manager selects a restaurant and removes it and the system then removes that restaurant.

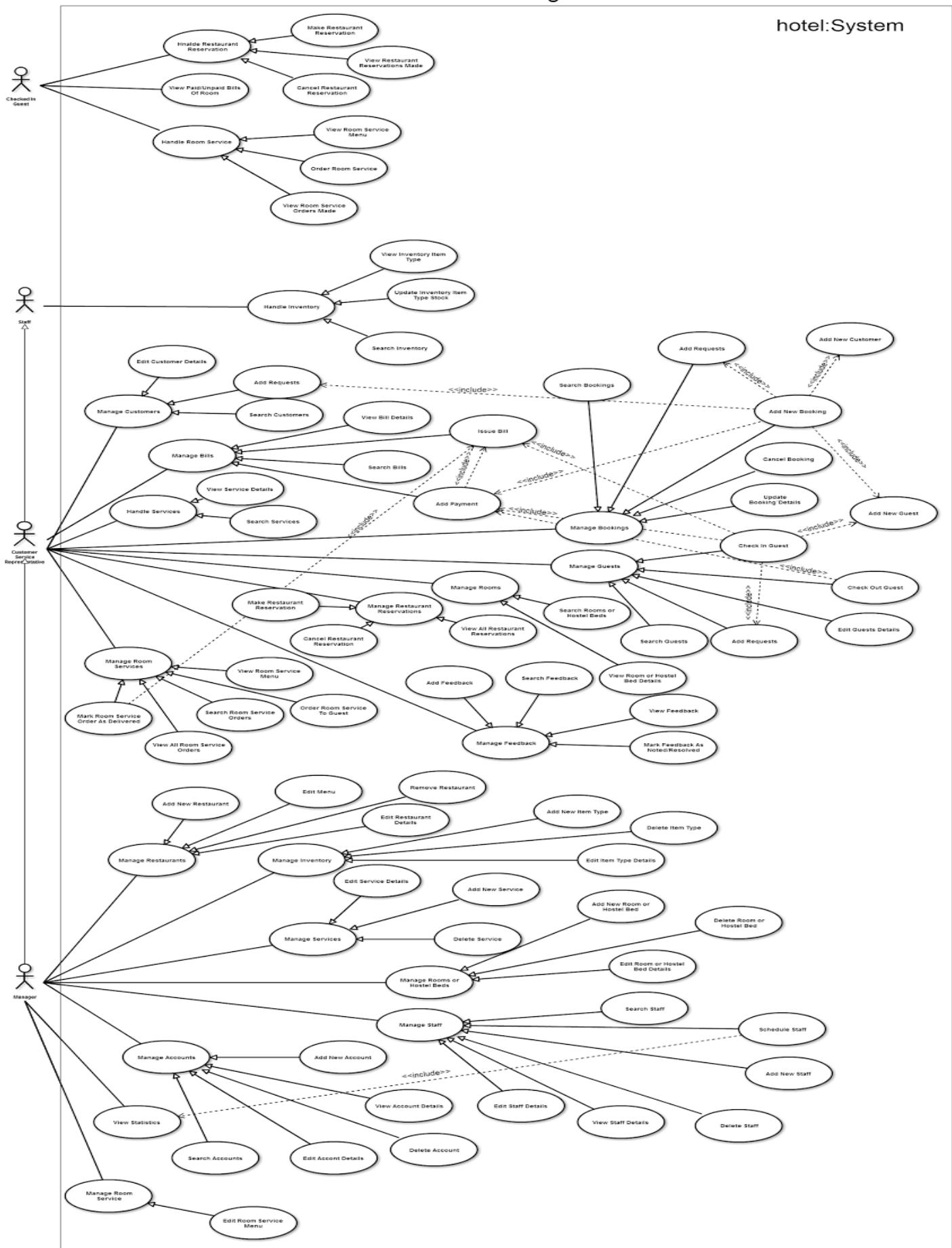
46. **Use case:** Edit Restaurant Details As Manager

Actor name: Manager

Goal: Edit restaurant details

Description: The manager accesses restaurant details of a particular restaurant and edits the details, if the input is valid the system edits the restaurant details.

Use-case Diagram



Assignments of use-cases

Team A

Anders: (Accounts: 62, 63, 64, 66)

Tobias: (Feedback: 35, 36, 37), (Hostel Bookings: 21, 22)

Daniel: (Bookings: 21, 22), (Room Service: 5, 6, 7, 39, 40, 41, 42, 68)

Marcus O: (Booking changes: 23) (Inventory: 8, 9, 47, 48, 49)

Team B

Marcus L: (Search: 10, 12, 16, 19, 20, 28, 30, 34, 38, 56, 65), (Rooms: 29, 53, 54, 55)

Sebastian: (Customers and Guests: 17, 18, 26, 27)

Adam: (Statistics: 67), (Staff: 57, 58, 59, 60, 61)

Tomas: (Bills: 4, 11, 13, 14), (Restaurant: 1, 2, 3, 31, 32, 33, 43, 44, 45, 46)

Philip: (Check in/out: 24, 25), (Services: 15, 50, 51, 52)

Five business rules

1. Before the last guest is checked out of a hotel stay the unpaid bills of the hotel stay should be paid either by the responsible registered credit card for the stay if any or by other means. If they cannot pay or if the customer who booked the system is the one who should pay, the system should be able to send an invoice to the customer who booked the stay.
2. One can't make a booking for a period of time in the past.
3. Cancellation of a booking within x hours to check in may result in a fee.
4. The customer must be x years old to make a booking.
5. The number of guests staying in a room may not exceed the number of beds in the room.

Complete Use-cases

(21) Add New Booking As Customer Service Representative or Manager

Use case name: Make a new booking as Customer Service Representative or Manager

Use case goal: Make a new booking

Actor names: Customer Service Representative or Manager

Main flow of events:

1. The actor logs himself into the system by entering username and password
2. The system checks that it's a valid account
3. The system logs in the actor
4. The actor specifies the bookable type, period and chooses to search for an available such bookable type for those dates.
5. The system retrieves the bookables of that bookable category that is unbooked for the specified period.
6. The system displays the found bookables in an ordered list
7. The actor chooses one or more of the bookables in the list and continues
8. The system asks for customer and possible additional booking information
9. If the customer has newer booked at the hotel before the actor specifies customer information including firstname, lastname, title, ssid, phone number, email and continues
10. The actor supplies eventual special booking requests and the number of guests of the booking and continues
11. The system asks for guest information of the number of guests of the booking
12. The actor chooses to skip this and let the guest(s) supply this at check in
13. The actor supplies credit card information for the booking
14. If the actor is satisfied he chooses to book the room or the hostel bed.
15. The system generates a unique booking number.
16. The system registers the customers booking of the hotel stays with their respective bookable and eventual supplied guests of the booking and/or special booking requests, and the credit card of the booking.
17. The system creates a bill for each hotel stay
18. The system sends a confirmation email of the booking to the customer and confirms the booking
19. The actor adds payment information for one or more of the bills in advance and continues
20. The system records the payment of the bills
21. The system sends a confirmation email of the payments to the customer

Alternative flows:

- 1-3a. The actor is already logged in
 1. Go to 4.
- 2b. The system doesn't find a matching account

1. The system indicates that the details was invalid and asks the actor to enter the account details again
 2. Go to 1.
- 5a. The system can't find such bookables
1. The system indicates that no search results could be found and asks the actor to enter another set of search criterias
 2. Go to 4.
- 9a The customer has booked at the hotel before
1. The actor searches for the customer
 2. The system retrieves the customer(s) that match the search
 3. The system displays the found customers in an ordered list
 4. The actor picks the customer searched for or if not found go to 11a.1
- 12a The actor supplies guest information for one or more guests
1. The actor supplies firstname, lastname, title, email, phone number(optional) for each guest
 2. The system registers the guests if they are not already in the system.
- 19-21a The actor does not add any payment information of the bills in advance
1. Do nothing

Post-conditions:

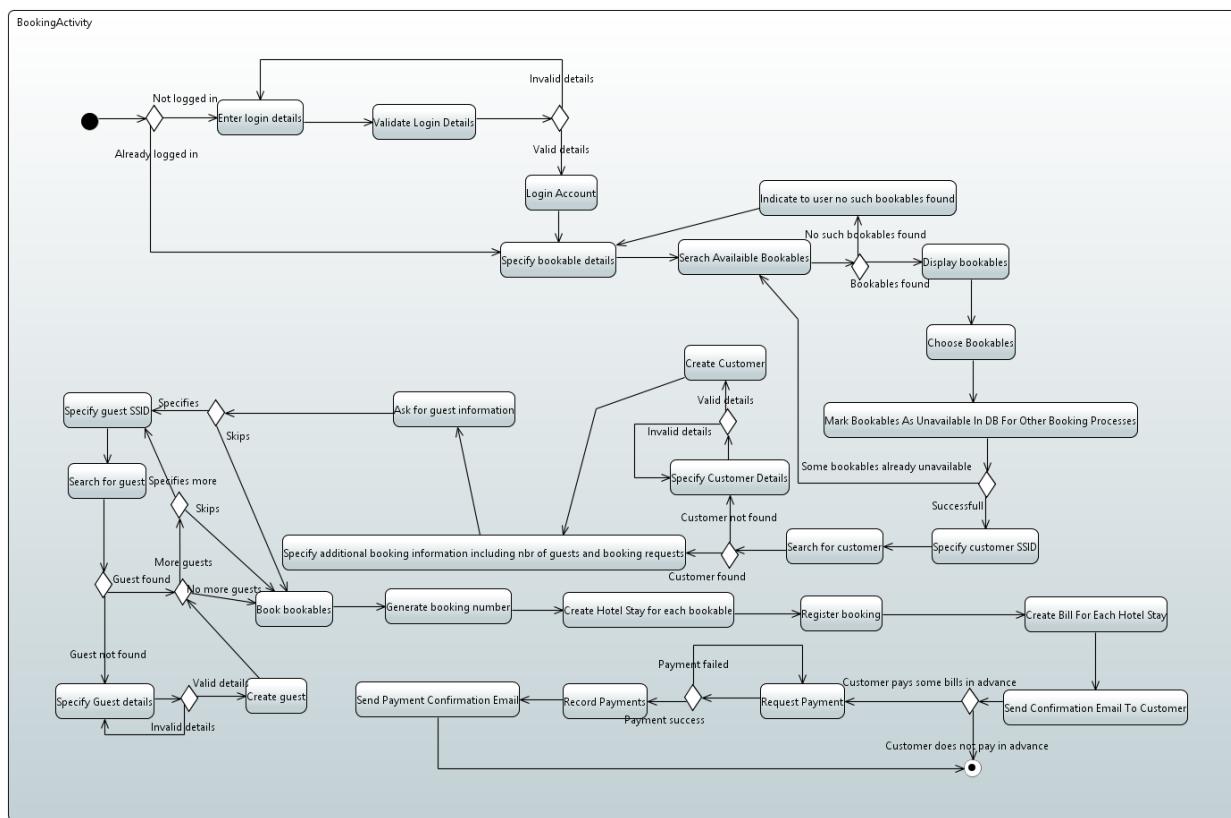
- If the actor entered valid account details and logged in or was already logged in and performed a booking by inputting/choosing a customer and eventual guests and periods, where the chosen bookables were available for booking, and then created a booking.
 - A booking and the booked hotel stays has been registered
 - The customer that knows about the booking has been registered
 - An confirmation email has been sent to the customer
 - Eventual guests supplied in the booking is registered but not connected to any hotel stay yet. However the booking knows about the guests.
- If payment was done in the booking the payment is registered for each hotel stay in the booking that was payed for.

Textual description of the booking use case

The actor logs herself into the system (if not logged in already) by entering username and password and the system checks that it's a valid account, if it isn't the actor is asked to enter the correct account details again. The system then logs in the actor after which the actor specifies the search criterias and chooses to search the bookables (rooms or hostel beds). The system then performs a search to see if there are any available rooms of hostel beds fulfilling the search criterias and if there are any results it displays the results in an ordered list, if there are none the actor is asked to enter another set of search criterias. The actor then chooses one or more of the results in the list and continues. The system then asks for customer information and the actor supplies it either by inputting new customer info or by

searching for an existing customer. The actor then supplies eventual additional booking requests, credit card info and the number of guests of the booking and continues. The system then asks for guest information which the actor either skips (to be done at check in) or supplies. If the actor is satisfied he chooses to go ahead with the booking and the system then generates a unique booking number, registers the customers booking of the hotel stays with their respective bookable and eventual supplied guests of the booking and/or special booking requests, creates a bill for each hotel stay, sends a confirmation email of the booking to the customer Then if the actor pays any bills in advance those are recorded and a confirmation mail for those are sent to the customer.

Activity diagram



(24) Check In Guest As Customer Service Representative or Manager

Use Case Name: Check in guest as Customer Service Representative or Manager

Use Case Goal: To check in a guest

Actor Names: Customer Service Representative or Manager

Main Flow of Event:

1. The actor logs himself into the system by entering username password information
2. The system checks that it's a valid account

3. The system logs in the actor
4. The actor searches for the booking by inputting the booking number
5. The system retrieves the bookings matching the search criterias
6. The system displays the found bookings in an ordered list
7. The actor picks the booking searched for
8. The system displays information about the booking including the booked hotel stays
9. The actor chooses to check in a guest in a chosen unfilled hotel stay
10. The actor searches for a guest
11. The system retrieves the guest(s) that match the search
12. The system displays the found guests in an ordered list
13. The actor picks the guest searched for
14. The system computes that this is the first checked in guest in the hotel stay
15. The actor enters credit card information that is responsible for the hotel stay
16. The system marks the guest as checked in
17. The system generates a guest account
18. The system displays the guest account information
19. The actor adds payment information for one or more of the bills in advance and continues
20. The system records the payment of the bills

Alternative Flows:

- 1-3a. The actor is already logged in
 - 2. Go to 4.
- 2a. The system doesn't find a matching account
 - 1. The system ask the user to enter the correct account details again
 - 2. Go to 1.
- 5a. The system can't find any booking with that booking number
 - 1. The system asks the user to try again
 - 2. Go to 4.
- 11-13a. The system doesn't find any matching guests
 - 1. The system indicates this and asks the guest to create a new guest
 - 2. The actor supplies firstname, lastname, title, email, phone number(optional) for the guest and continues
 - 3. The system registers the guest if the guest is not already in the system.
- 14-15a. The guest isn't the first checked in guest in the hotel stay
 - 1. Go to 16
- 18-20a. The actor does not add any payment information of the bills in advance
 - 2. Do nothing

Post-Conditions:

- If the account details were valid (or if actor was already logged in) and the actor found an existing booking to which he found an existing guest the guest is checked in and added to the hotel stay as an checked in guest.
- If the guest wasn't the first guest checking in to the room the system has not registered any credit card information.
- If the guest was the first guest checking in to the room the system has registered credit card information connected to that room stay.
- If payment was done during check-in the payment is registered for the hotel stay it that was payed for.

(25) Check Out Guest As Customer Service Representative or Manager

Use Case Name: Check Out Guest As Customer Service Representative or Manager

Use Case Goal: To check out a guest

Actor Names: Customer Service Representative or Manager

Main Flow of Event:

1. The actor logs himself into the system by entering username password information
2. The system checks that it's a valid account
3. The system logs in the actor
4. The actor searches for the hotel stay by inputting the guest and or booking information
5. The system retrieves the matches for the search criterias
6. The system displays the matches in a list
7. The actor chooses the hotel stay from the list
8. The system displays further information about the chosen hotel stay
9. The actor chooses to check out the guest or guests in the chosen hotel stay
10. The system displays the unpaid bills of the hotel stay
11. The actor supplies payment information of one or more of the hotel unpaid bills
12. The system records the payment of the bills
13. The actor chooses to complete the check out
14. The system computes that this is the last guest checking out of the hotel stay
15. The system bills the responsible credit card of any unpaid bills
16. The system enters the date and time as check out time for the booking
17. The system confirms the check out of the guest
18. The system removes the guest account generated at check in

Alternative Flows:

- 1-3a. The actor is already logged in
 3. Go to 4.
- 2a. The system doesn't find a matching account
 1. The system ask the user to enter the correct account details again
- 5a. The system can't find any search results
 1. The system asks the user to enter another set of search criterias
- 11-12a The actor does not supply any payment information

1. Go to 13
- 14-15a The guest is not the last guest checking out
1. Go to 16
- 15a The payment fails
1. The system bills the credit card supplied at booking
 - a. If this also fails an invoice is sent to the customer who booked the stay

Post-Conditions:

- If the account details were valid (or if actor was already logged in) and the actor found an existing booking to which he found an existing guest the guest is now checked out.
- The hotel stay should have a time and date for the check out of selected hotel stay with selected guest as checked out
- If the guest wasn't the first guest checking out of the room the system has not billed the responsible credit card for any unpaid bills of the stay
- If the guest was the first guest checking out of the room the system has billed the responsible credit card for any unpaid bills of the stay
- If payment of some bills was done during check-out the payment is registered for the bills payed for

(22) Cancel Booking As Customer Service Representative or Manager

Use Case Name: Cancel Booking As Customer Service Representative or Manager

Use Case Goal: To cancel a booking

Actor Names: Customer Service Representative or Manager

Main Flow of Event:

1. The actor logs himself into the system by entering username password information
2. The system checks that it's a valid account
3. The system logs in the actor
4. The actor searches for the booking by inputting the guest and or booking information
5. The system retrieves the matches for the search criterias
6. The system displays the matches in a list
7. The actor chooses the booking from the list
8. The system displays further information about the chosen hotel stay
9. The system checks whether the customer ssid corresponds to the booking customer ssid
10. The actor chooses to cancel the the booking.
11. The system performs a cancelation of the specified booking

Alternative Flows:

- 1-3a. The actor is already logged in
 4. Go to 4.
- 2a. The system doesn't find a matching account
 2. The system ask the user to enter the correct account details again

- 5a. The system can't find any search results
 - 2. The system asks the user to enter another set of search criterias
- 9a If the customer name doesn't correspond to the booking details
 - 1. The system prompts an error message

Post-Conditions:

- If the account details were valid (or if actor was already logged in) and the actor found an existing booking the booking is now deleted.
- If and only if the customer name corresponded to the name of the booking, the booking was deleted.
- If a room is canceled of a booking and that was not the only booked room, the hotel stay of that booking is removed
- If a room is canceled of a booking and that was the only booked room, the whole booking is removed.

(23) Update Booking Details As Customer Service Representative or Manager

Use Case Name: Update Booking As Customer Service Representative or Manager

Use Case Goal: To update a booking

Actor Names: Customer Service Representative or Manager

Main Flow of Event:

1. The actor logs himself into the system by entering username password information
2. The system checks that it's a valid account
3. The system logs in the actor
4. The actor searches for a booking by inputting the customer and or booking information
5. The system retrieves the matches for the search criterias
6. The system displays the matches in a list
7. The actor chooses the booking from the list
8. The system displays further information about the chosen booking
9. The actor updates the relevant information
10. The actor chooses to save the new updates
11. The system validates the new information
12. The system performs an update in the system and database

Alternative Flows:

- 1-3a. The actor is already logged in
 - 5. Go to 4.
- 2a. The system doesn't find a matching account
 - 3. The system ask the user to enter the correct account details again
- 5a. The system can't find any search results
 - 3. The system asks the user to enter another set of search criterias
- 9-12a The actor chooses to change a room of a hotel stay in the booking
 - 1. The system displays available rooms of the same category for the same period

2. The actor chooses a room to change to
3. The system registers the changed room of the hotel stay

9-12b The actor chooses to add a room of a booking

1. The actor supplies period information and room category
2. The system shows available rooms in a list
3. The actor picks one of rooms
4. The system adds a hotel stay of the room in the booking

9-12c The actor chooses to change period of a hotel stay in the booking

1. The actor supplies the new period information
2. The system computes that the rooms are unavailable for the specified period
3. The system lists other rooms of the same category that are available for booking in that period.
4. The actor chooses one of the rooms
5. The system registers the changed room and period of the hotel stay

9-12d The actor chooses to change period of a hotel stay in the booking

1. The actor supplies the new period information
2. The system computes that the rooms are available for the specified period
3. The system registers the changed period of the hotel stay

Post-Conditions:

- If the account details were valid (or if actor was already logged in) and the actor found an existing booking and inputted valid updated booking information the booking is now updated.
- If all booked rooms of the booking was canceled the whole booking is removed
- If the period of a hotel stay in the booking was changed and the room was available for that new period the period has changed of that hotel stay
- If the period of a hotel stay in the booking was changed and the room was unavailable for that new period the period and room has changed of that hotel stay
- If a new room was added to the booking a new hotel stay is created with that room that the booking knows about
- If a room was changed in a hotel stay of the booking that room is changed of the hotel stay

System operations needed for the use-cases above

For a full list of system operations and parameters see the class diagrams in appendix A or in the diagrams subfolder.

- *login()*
 - Given a username and a password it either logs in the actor if there isn't a matching account in the system or rejects the login request.
- *searchBookables()*
 - Given a set of criterias it returns a list of bookables that matches the criterias.
- *getBookable____()*
 - Given a unique bookable identifier it returns the ____ property about the bookable.
- *searchBookings()*
 - Given a set of criterias it returns a list of bookings that matches the criterias.
- *getBooking____()*
 - Given a unique booking identifier it returns the ____ property about the booking.
- *searchStays()*
 - Given a set of criterias it returns a list of hotel stays that matches the criterias.
- *getStay____()*
 - Given a unique hotel stay identifier it returns the ____ property about the stay.
- *makeBooking()*
 - Given the customer and booking information it saves the customer and booking in the database.
- *changePeriodOfStay()*
 - Given a unique hotel stay identifier and a period it updates the period of the stay.
- *changeBookableOfStay()*
 - Given a unique hotel stay identifier and a period it updates the period of the stay.
- *removeStay()*
 - Given a unique hotel stay identifier and booking identifier it cancels the stay of a booking.
- *cancelBooking()*
 - Cancel a specific booking
- *addBill()*
 - Given bookable, items, or services information and possibly hotel stay it creates a bill possibly connected to a hotel stay
- *getBillsOfStay()*
 - Given a hotel stay returns all bills of that stay.
- *getUnpaidBillsOfStay()*
 - Given a hotel stay returns all unpaid bills of that stay.
- *payBillsWithCreditCard()*

- Given credit card information and bills identifiers it registers payments for the bills
- *payBillsWithCreditCash()*
 - Given bills identifiers it registers payments for the bills
- *searchCustomers()*
 - Given a set of criterias it returns a list of customers that matches the criterias.
- *getCustomer____()*
 - Given a unique customer identifier it returns the ____ property about the customer.
- *searchGuests()*
 - Given a set of criterias it returns a list of guests that matches the criterias.
- *addGuest()*
 - Given the needed information it creates a new guest in the database.
- *getGuest____()*
 - Given a unique guest identifier it returns the ____ property about the guest.
- *addResponsibleCreditCard()*
 - Given a unique booking identifier and a set of credit card information it registers the credit card with the hotel stay.
- *isFirstGuestCheckingIn()*
 - Given a unique guest identifier and a unique hotel stay identifier it registers the given guest as checked in with the given booking.
- *checkInGuest()*
 - Given a unique guest identifier and a unique hotel stay identifier registers the given guest as checked in with the given hotel stay.
- *checkOutGuest()*
 - Given a unique guest identifier and a unique hotel stay identifier identifier it registers the given guest as checked out with the given hotel stay.
- *generateGuestAccount()*
 - Given a unique guest identifier it creates an guest account to the system associated with the guest.

Motivations for the design of the components

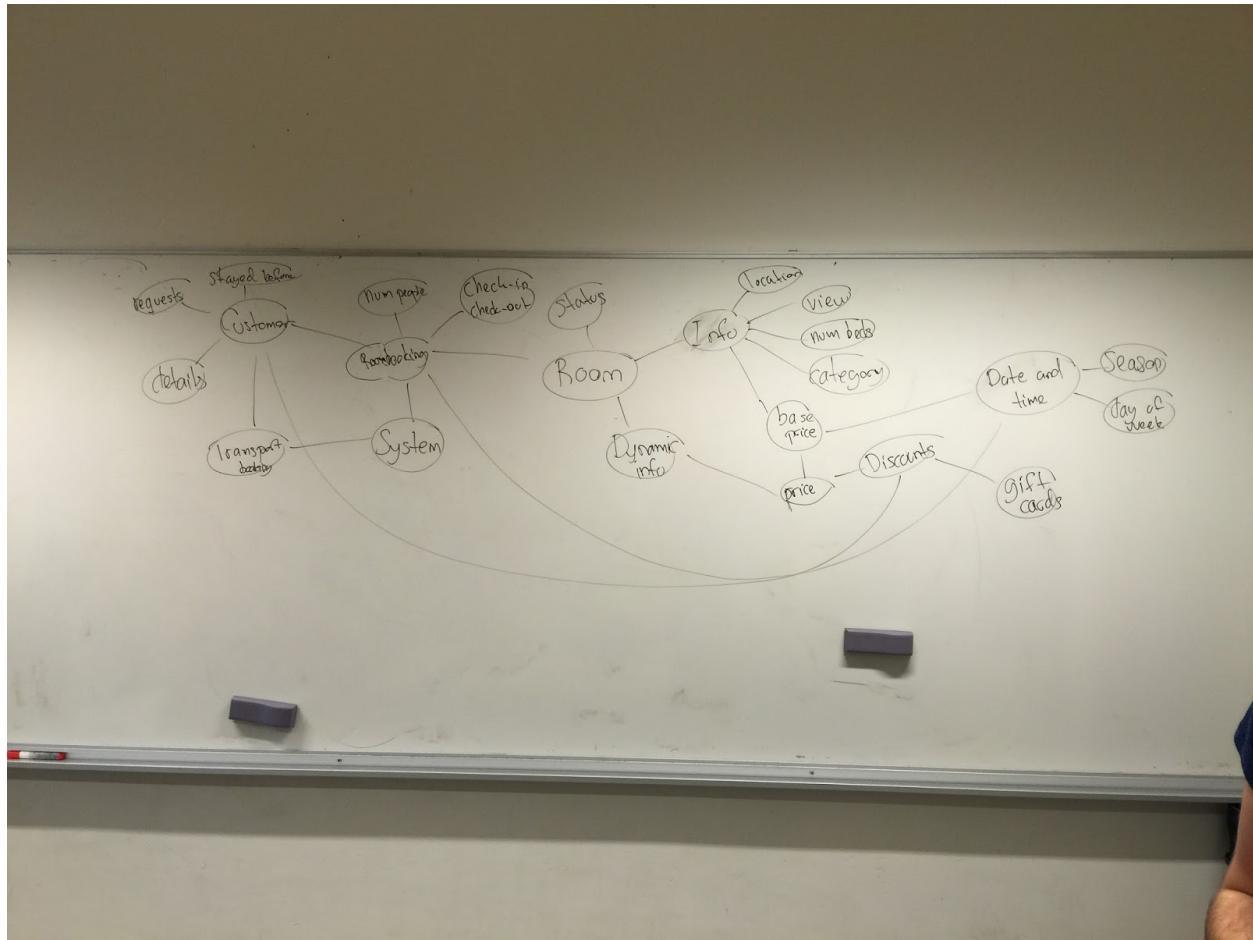
See appendix A or the diagram subfolder for details about the components, component interfaces and their operations.

There are many components in our system, but this was a decision that we felt strongly for, since with many small components the system parts would be more reusable and easier to swap out. This vast amount of decoupling can have an impact on performance, but with a hashing based component design we argued that we could decouple while maintaining the performance of the system and did so successfully.

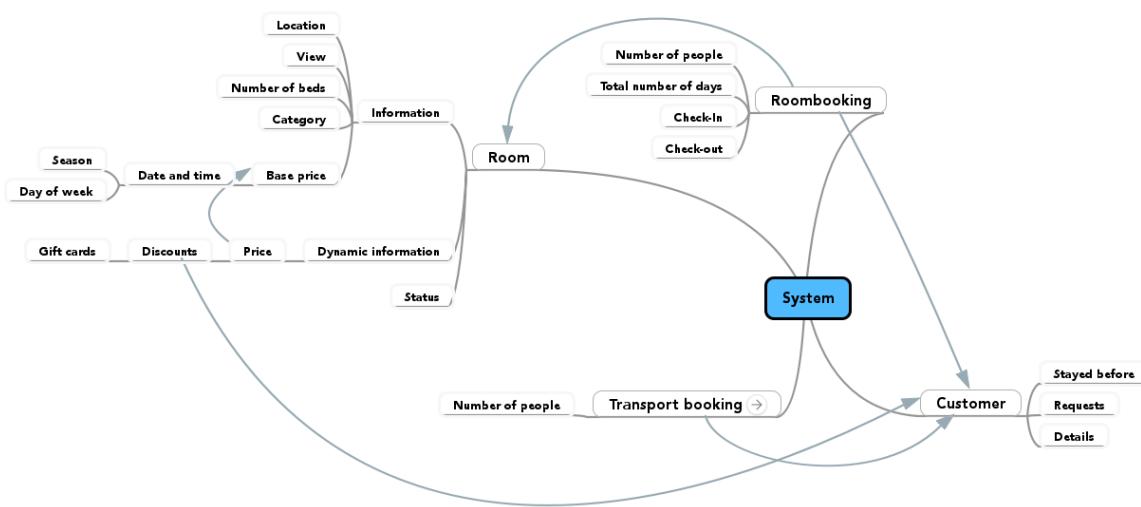
To ensure that our system functioned properly we wrote a massive amount of tests for each component and their operations. We also spent a lot of time writing specifications for the code with pre- and post-conditions for every operation which we used to verify the implementation of the operations. **Please look at these specifications in the interfaces of the components for further system information since they document clearly how the operations work.**

Appendix A - Diagrams

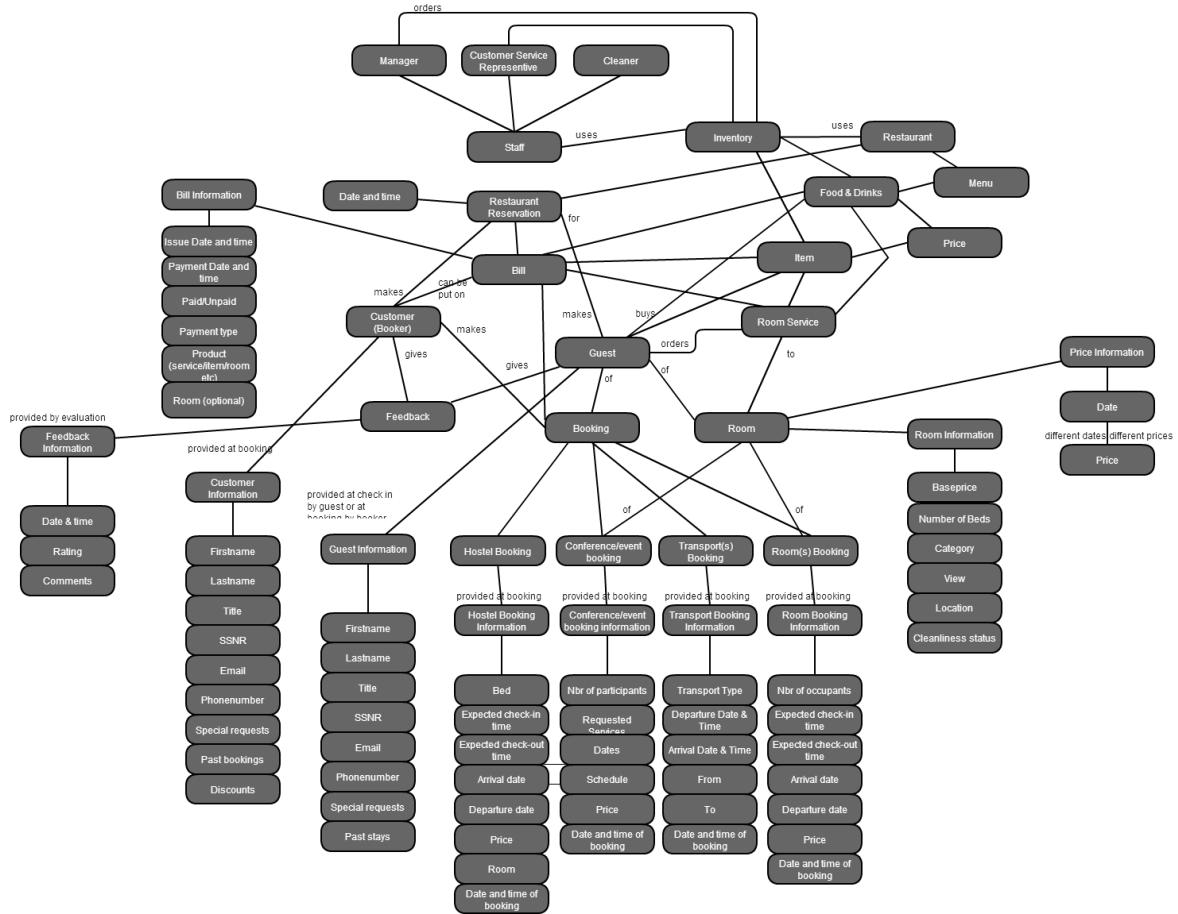
Mind maps



Initial brainstorm diagram



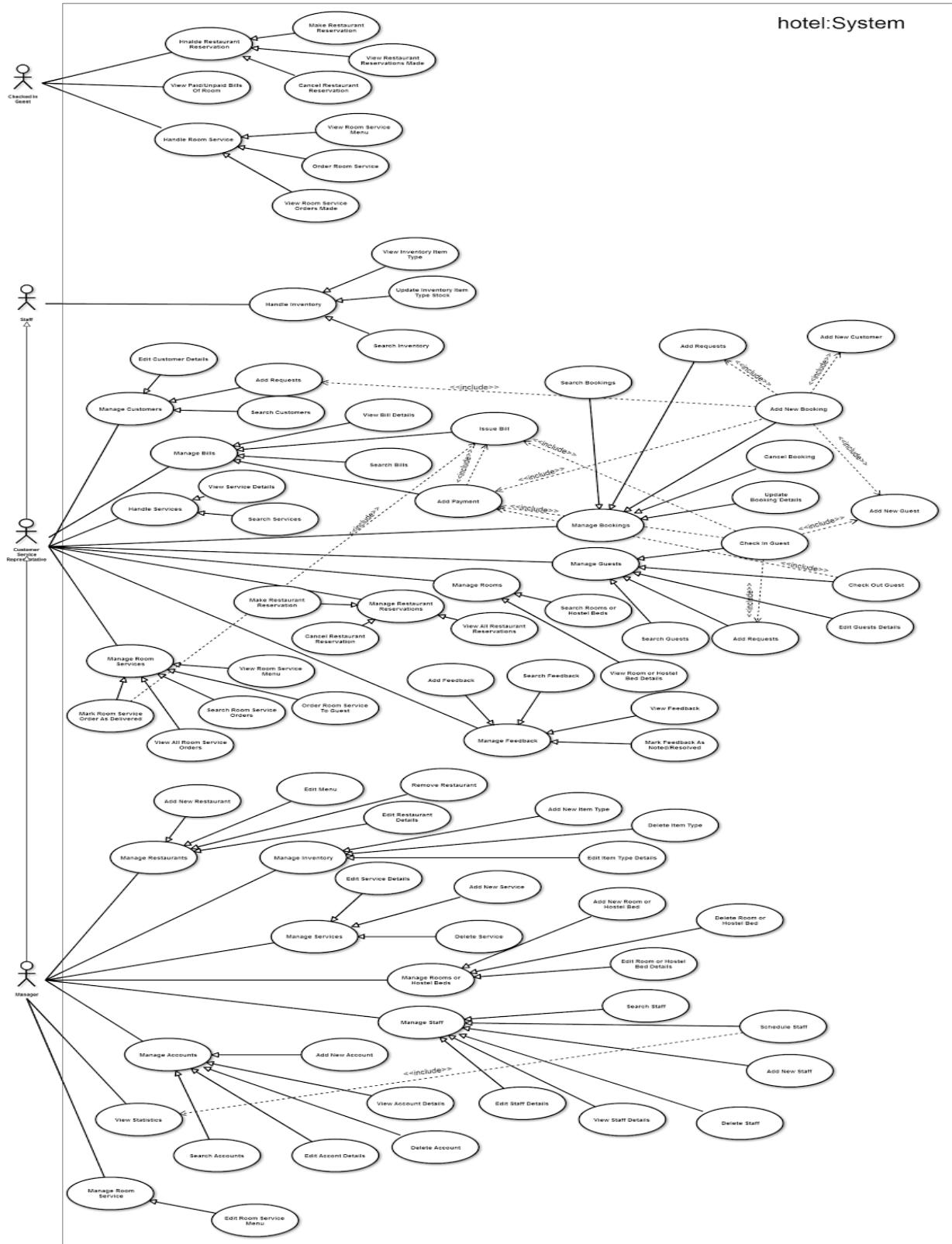
Initial brainstorm diagram



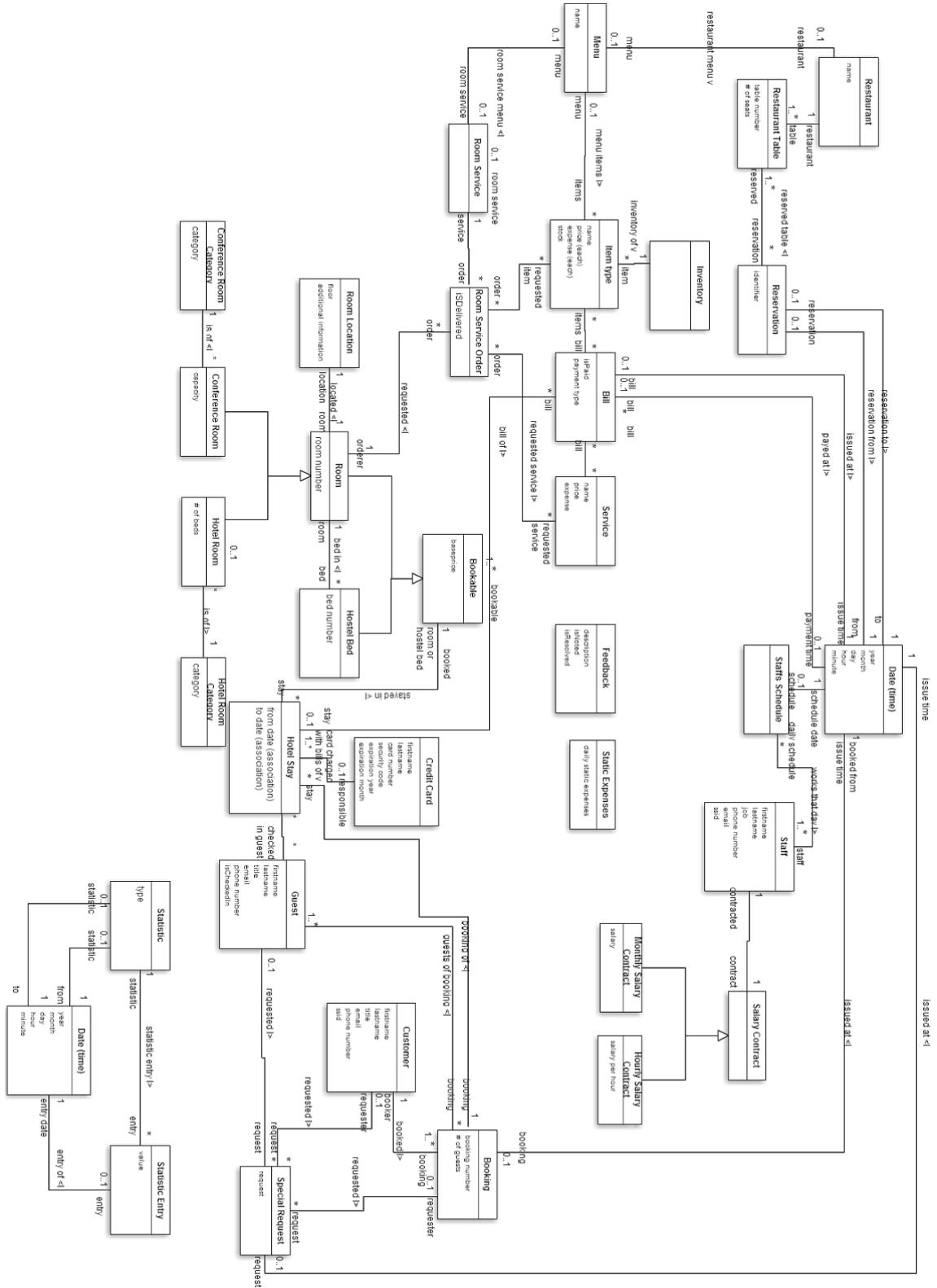
Mind map used as a base to define requirements

Use-cases

Use-case Diagram



Domain model

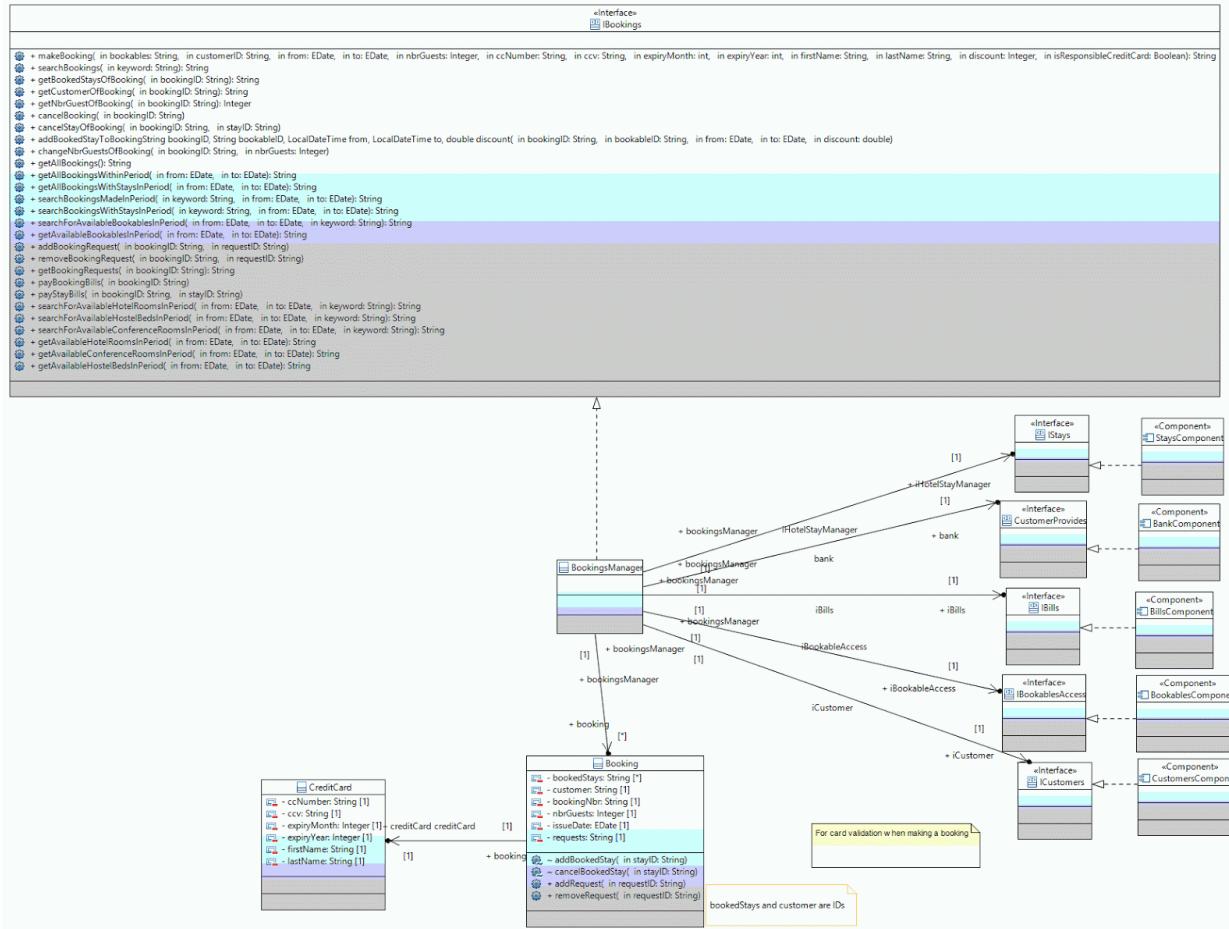


Class Diagram

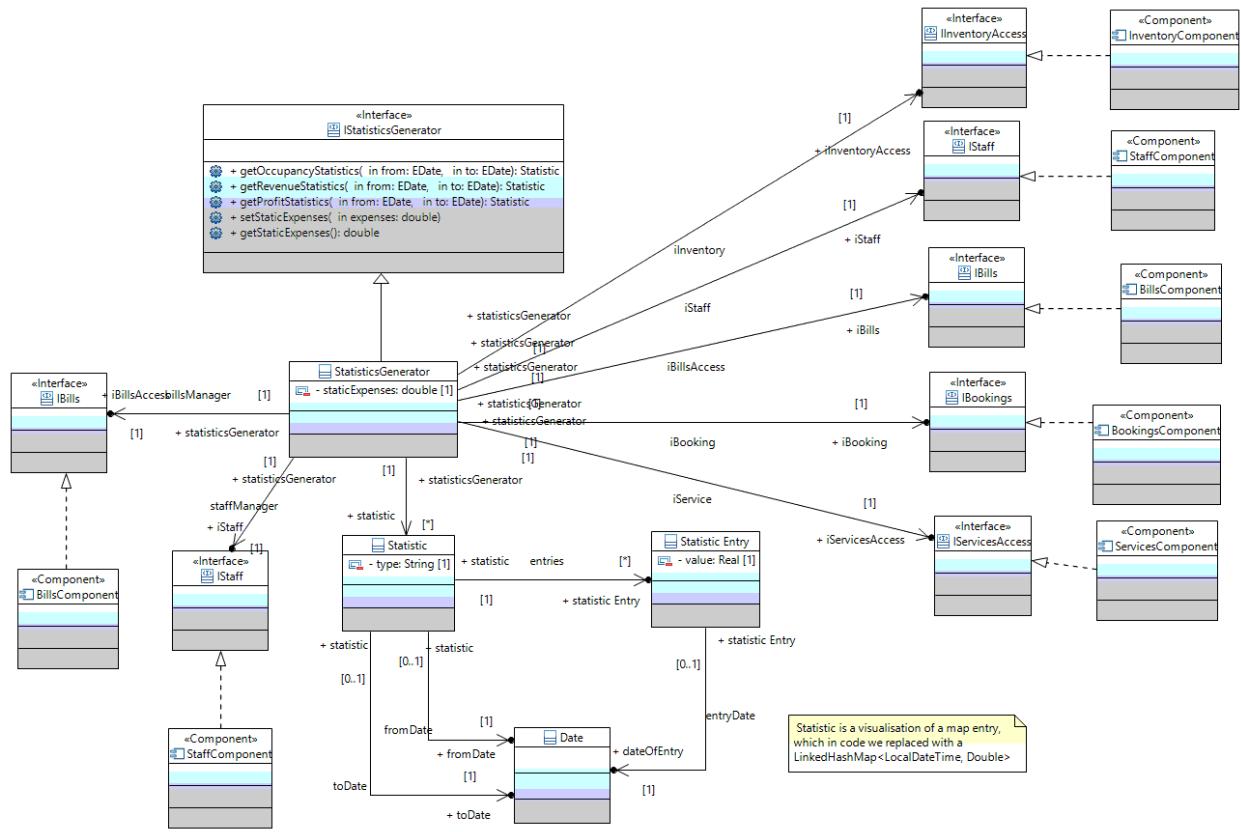
Bookables component



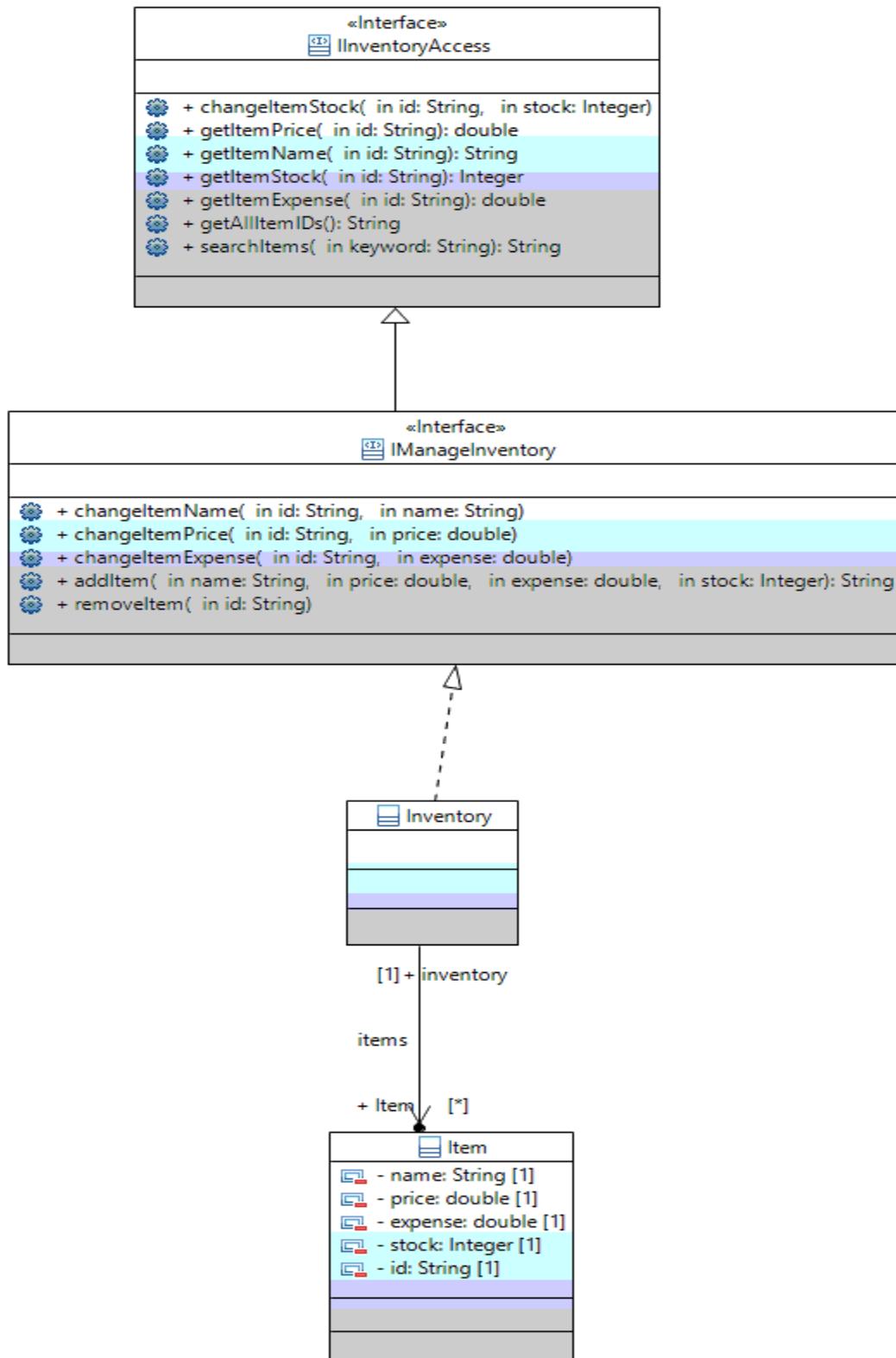
Bookings component



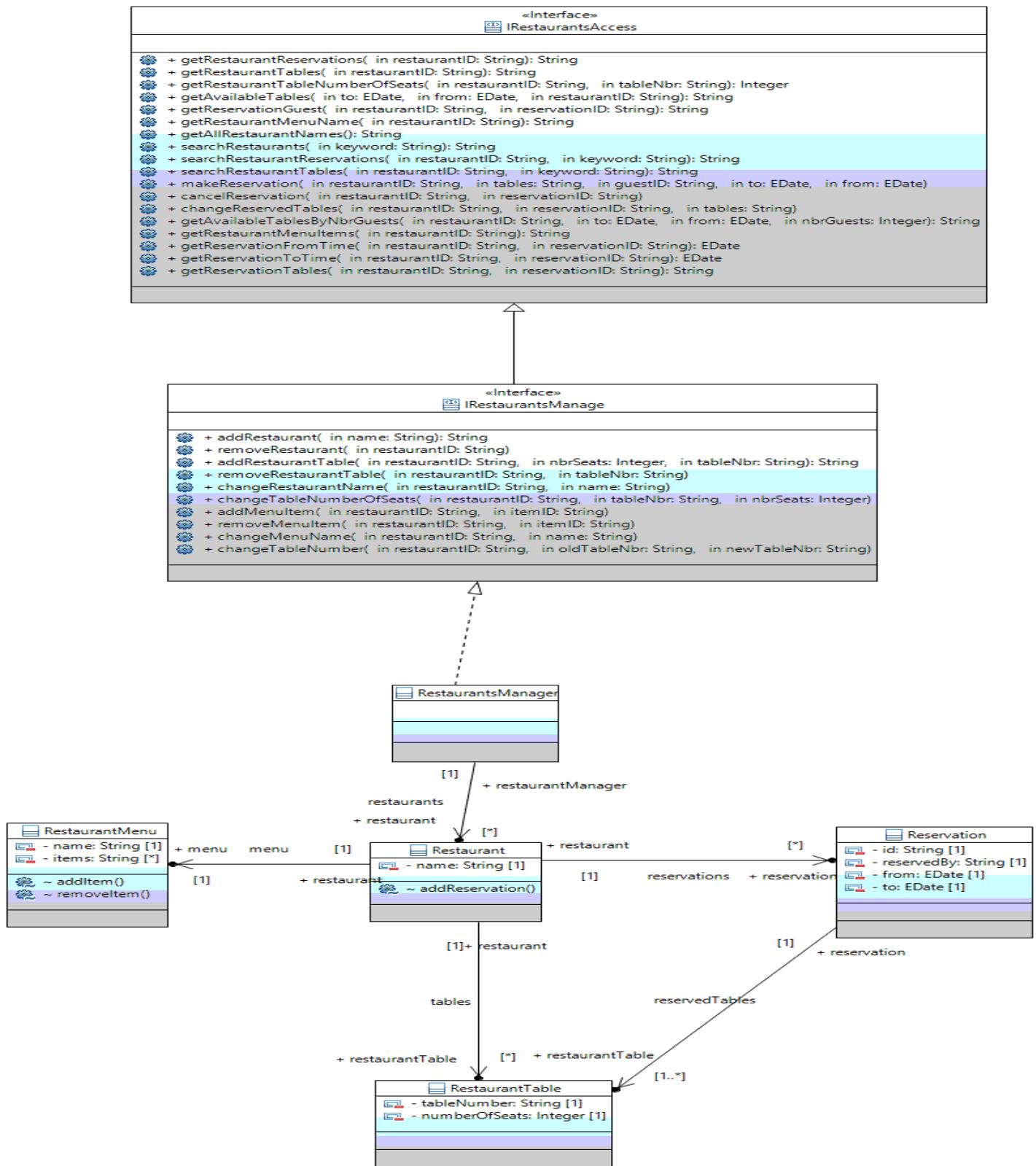
Statistics component



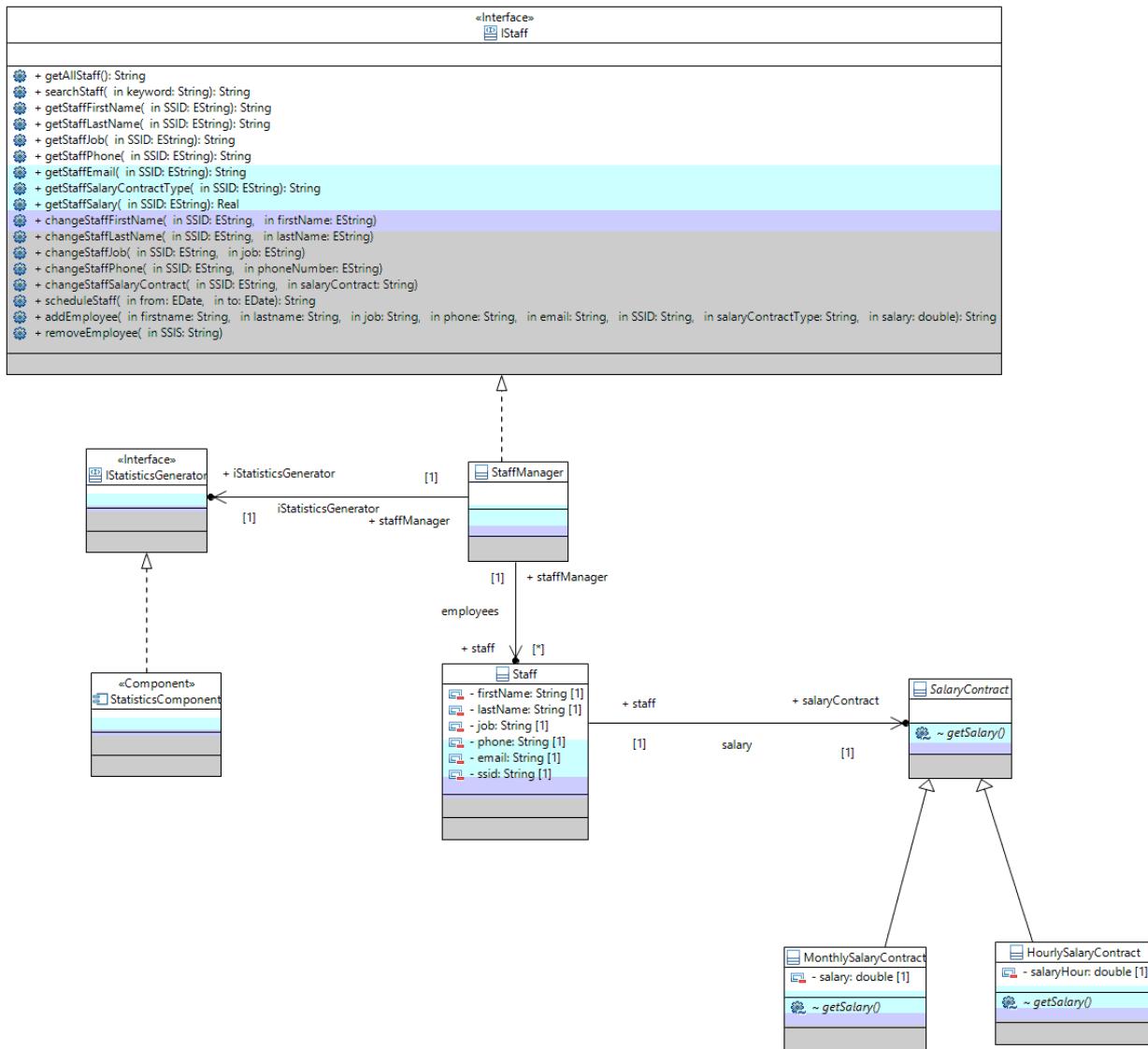
Inventory component



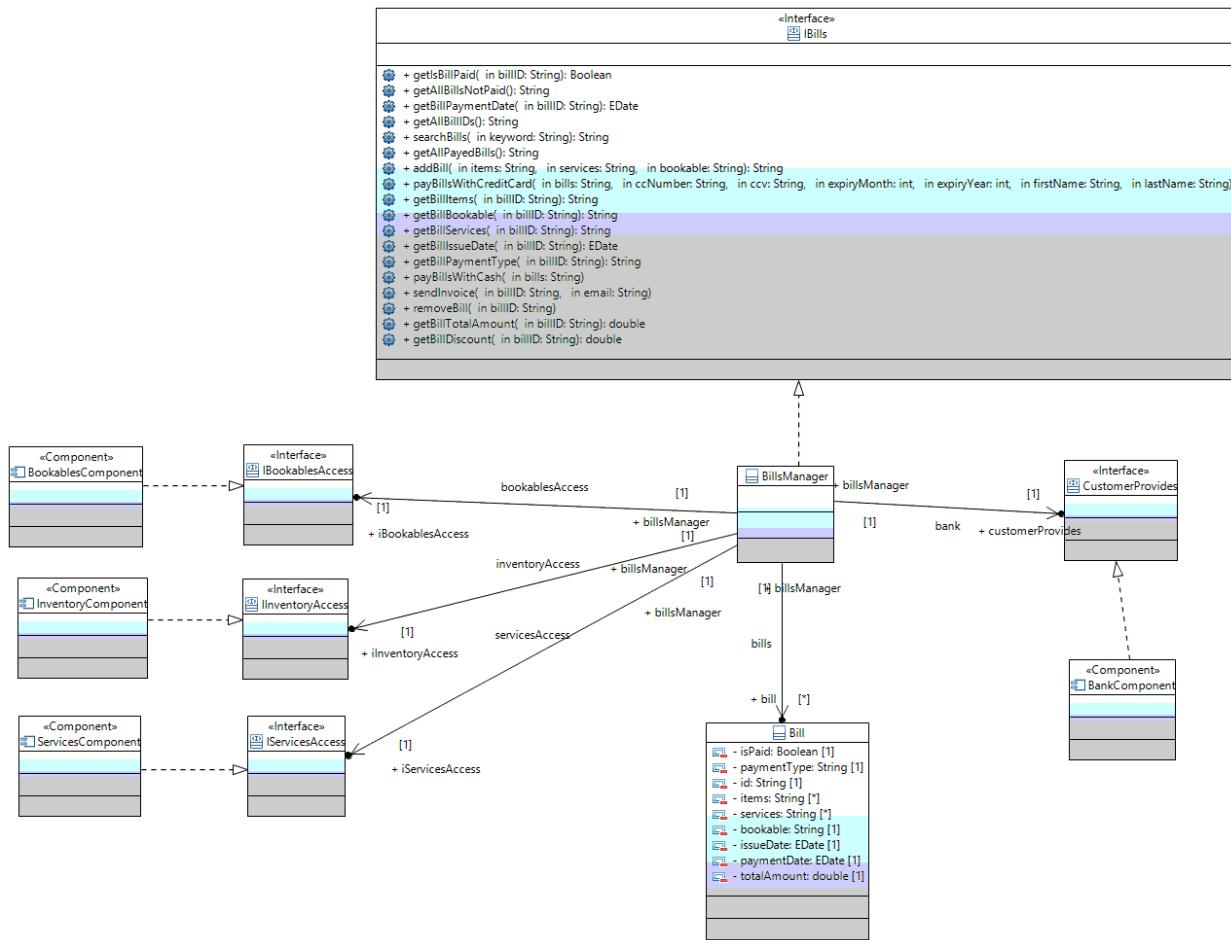
Restaurants component



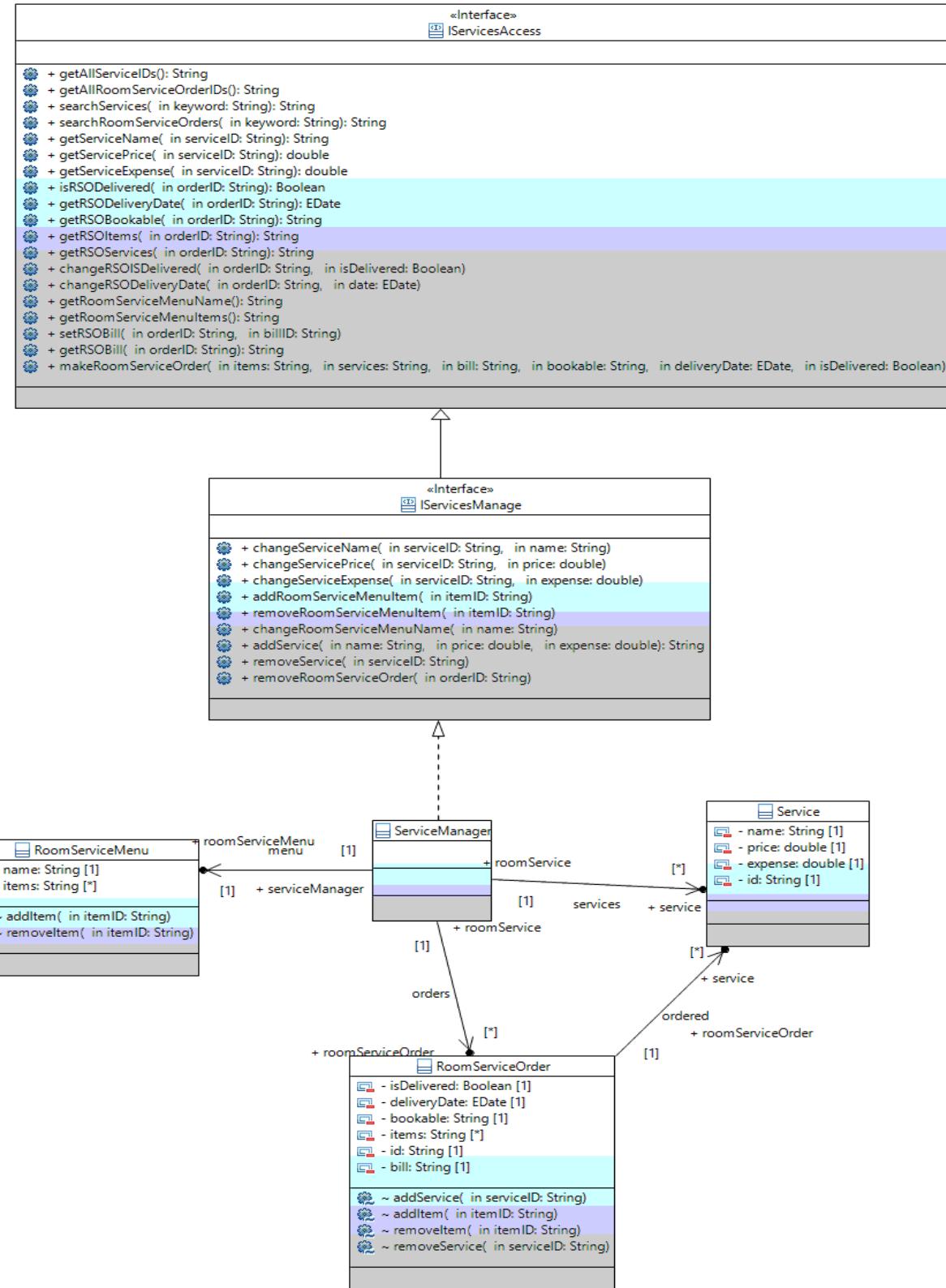
Staff component



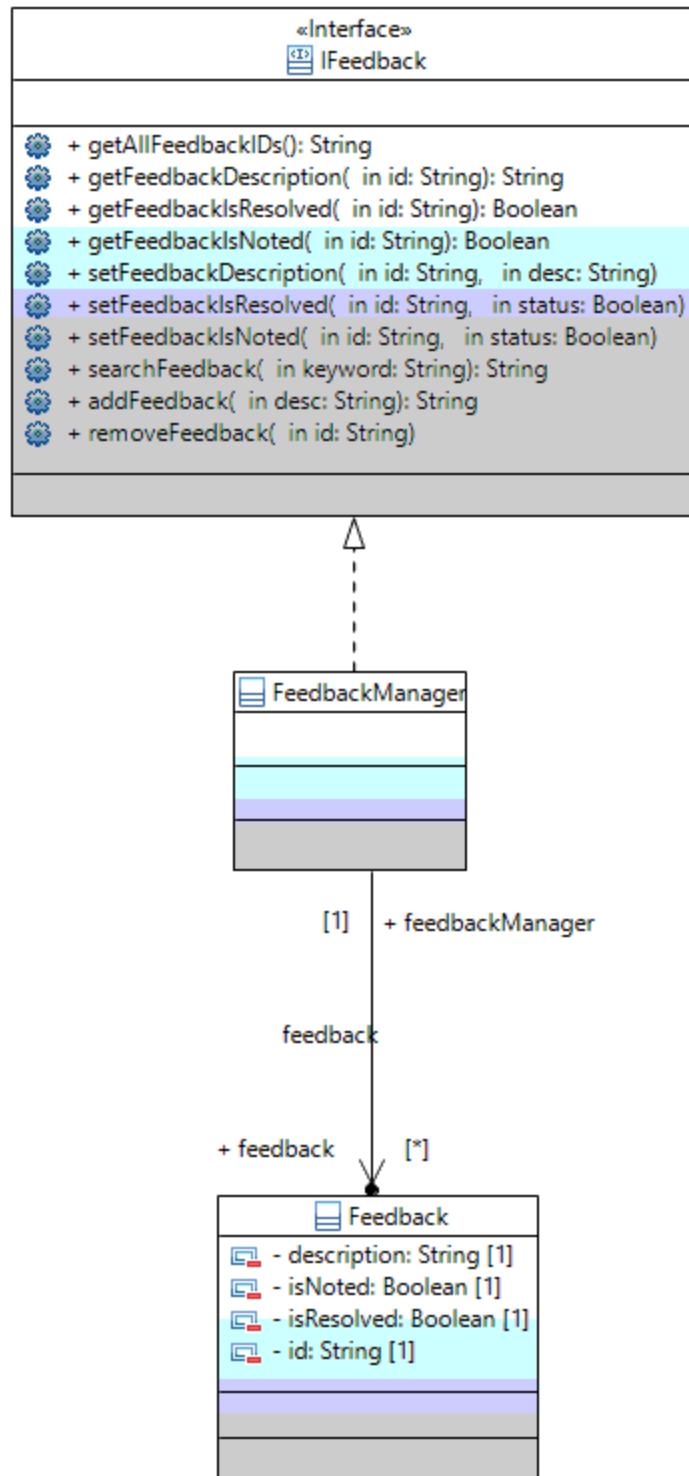
Bills component



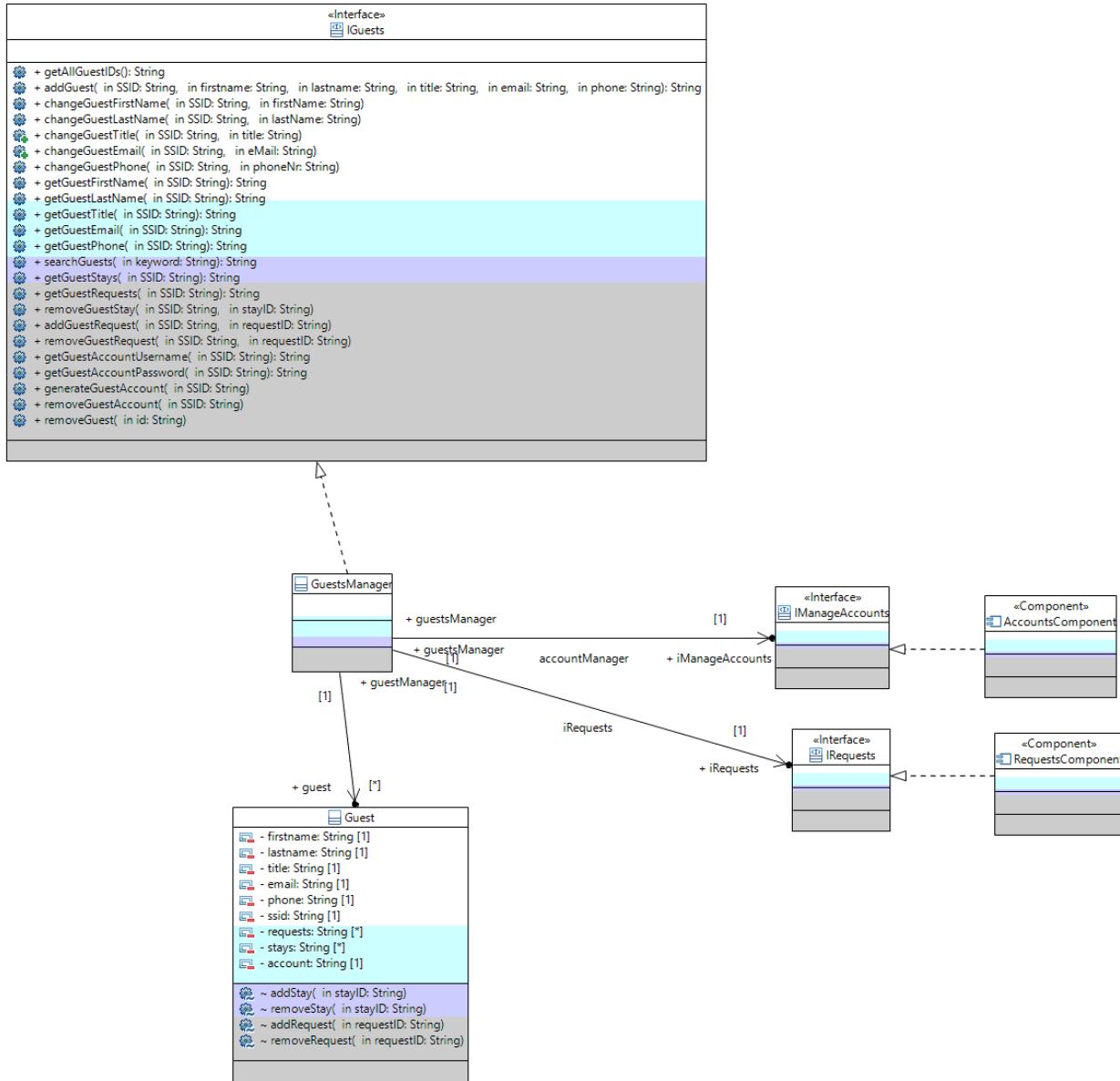
Services component



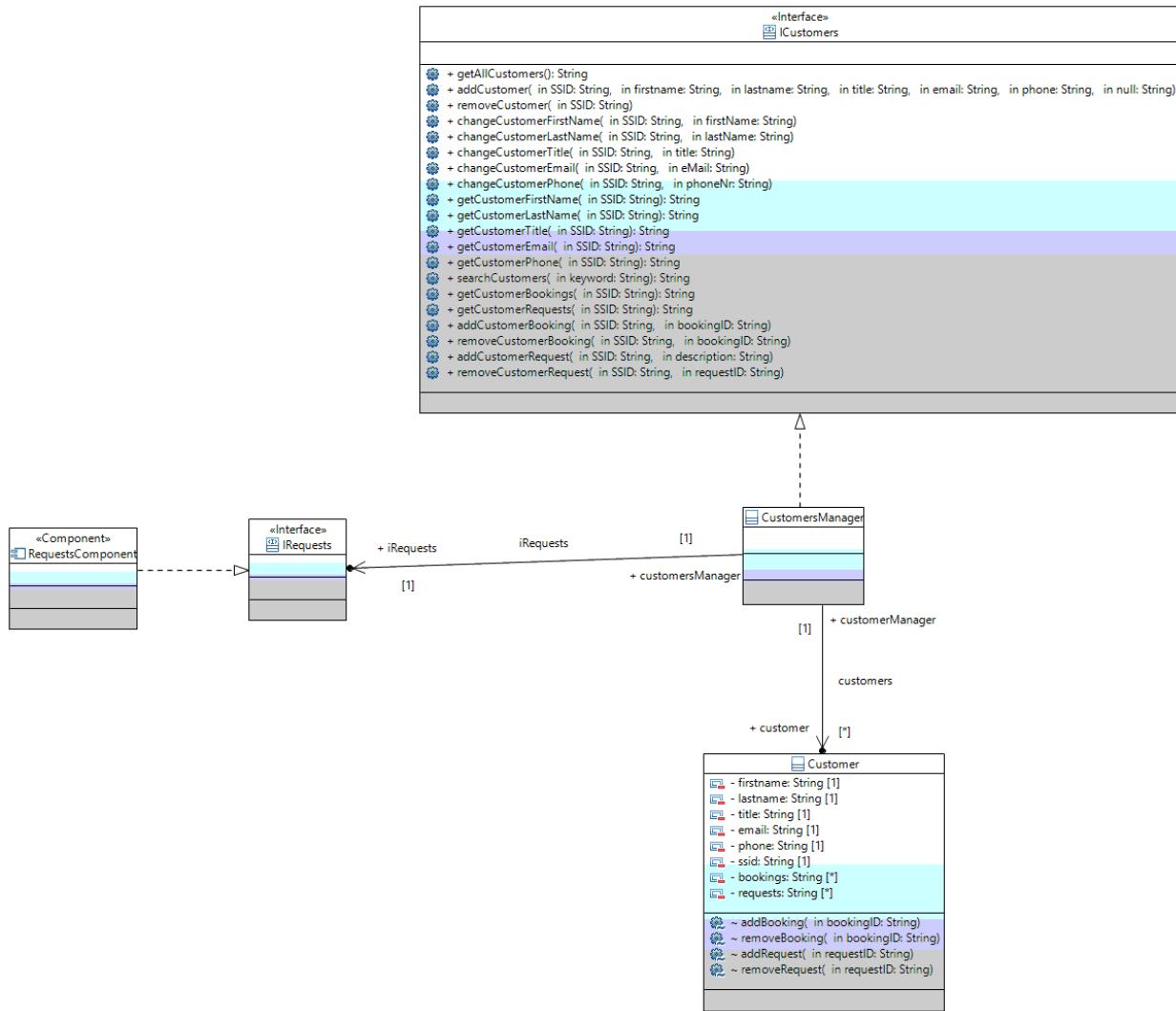
Feedback component



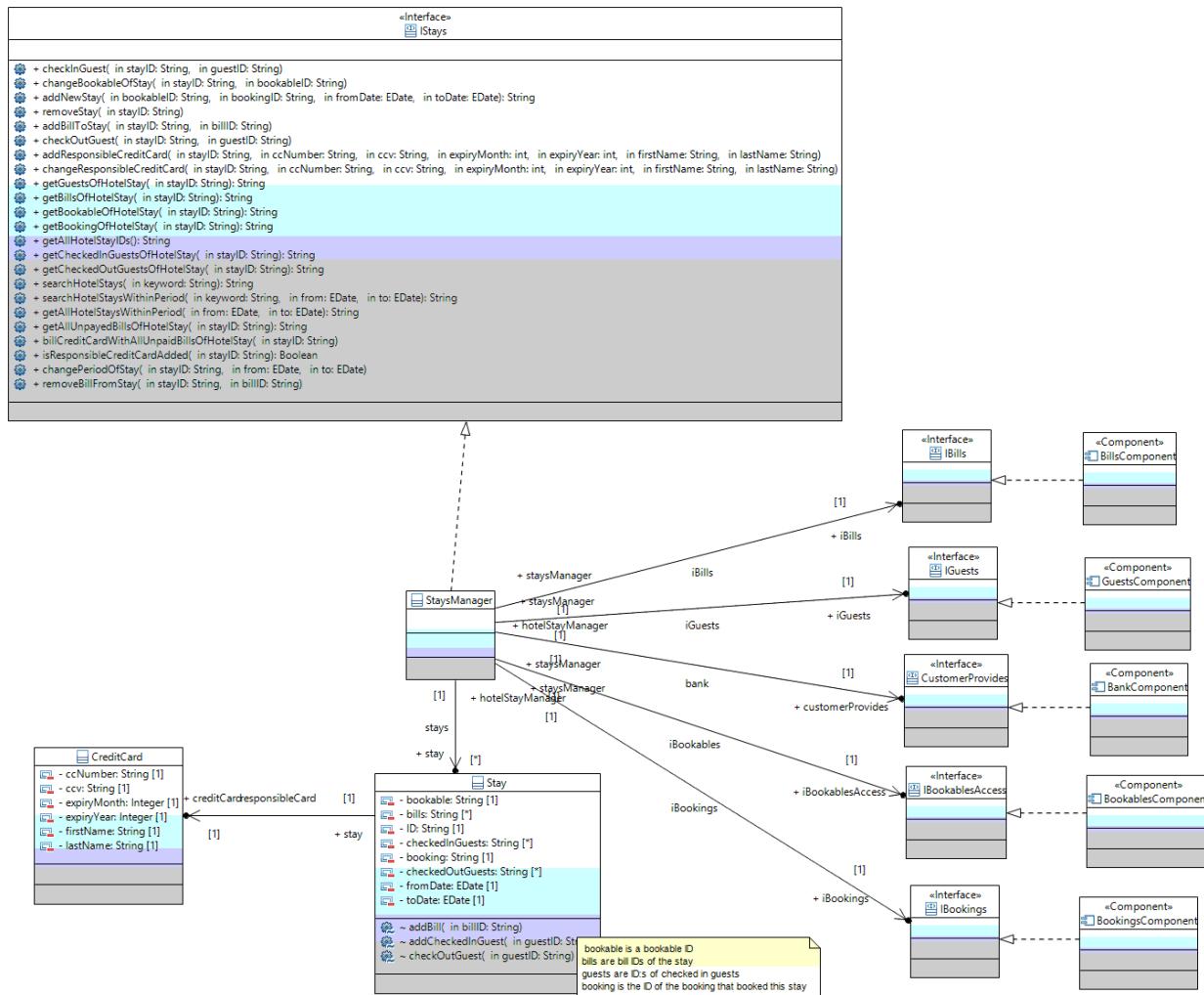
Guests component



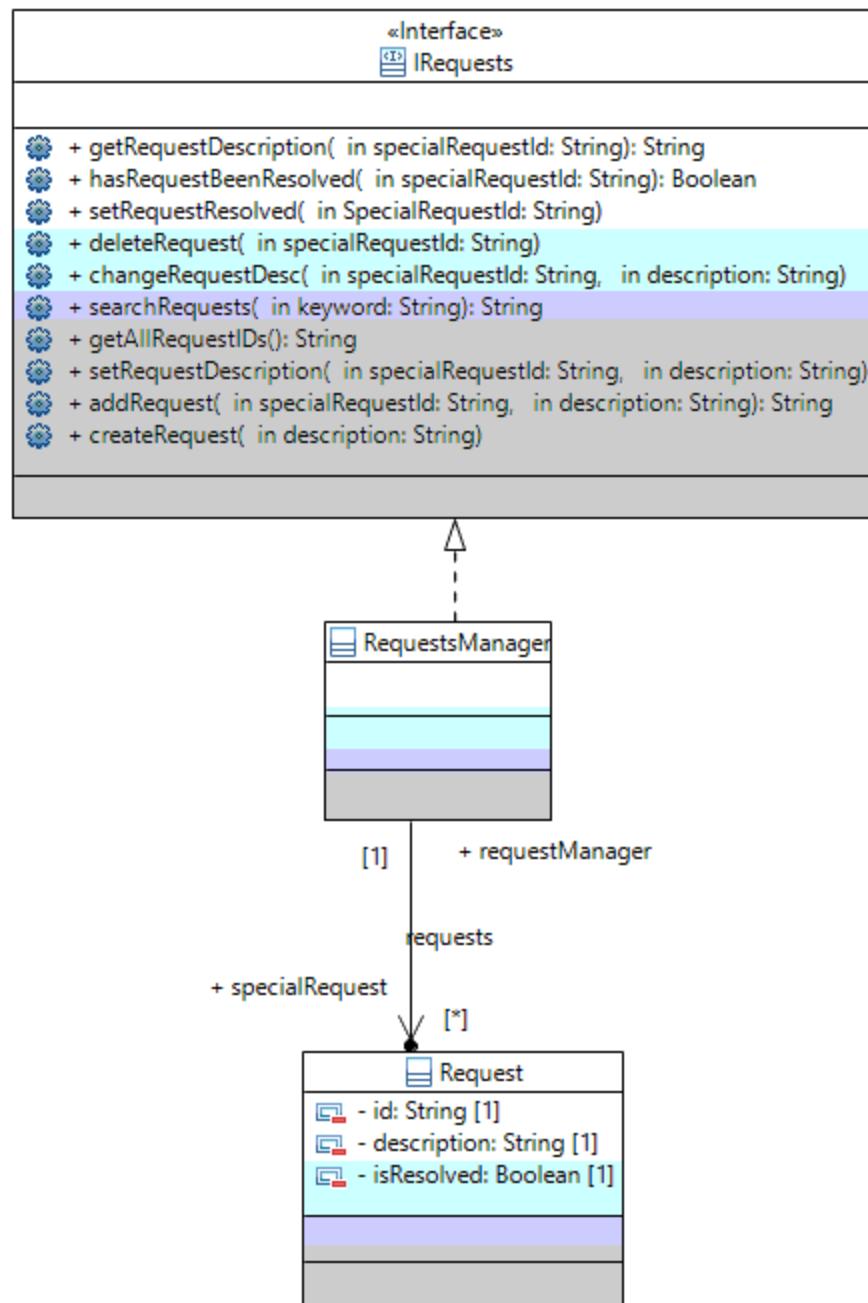
Customers component



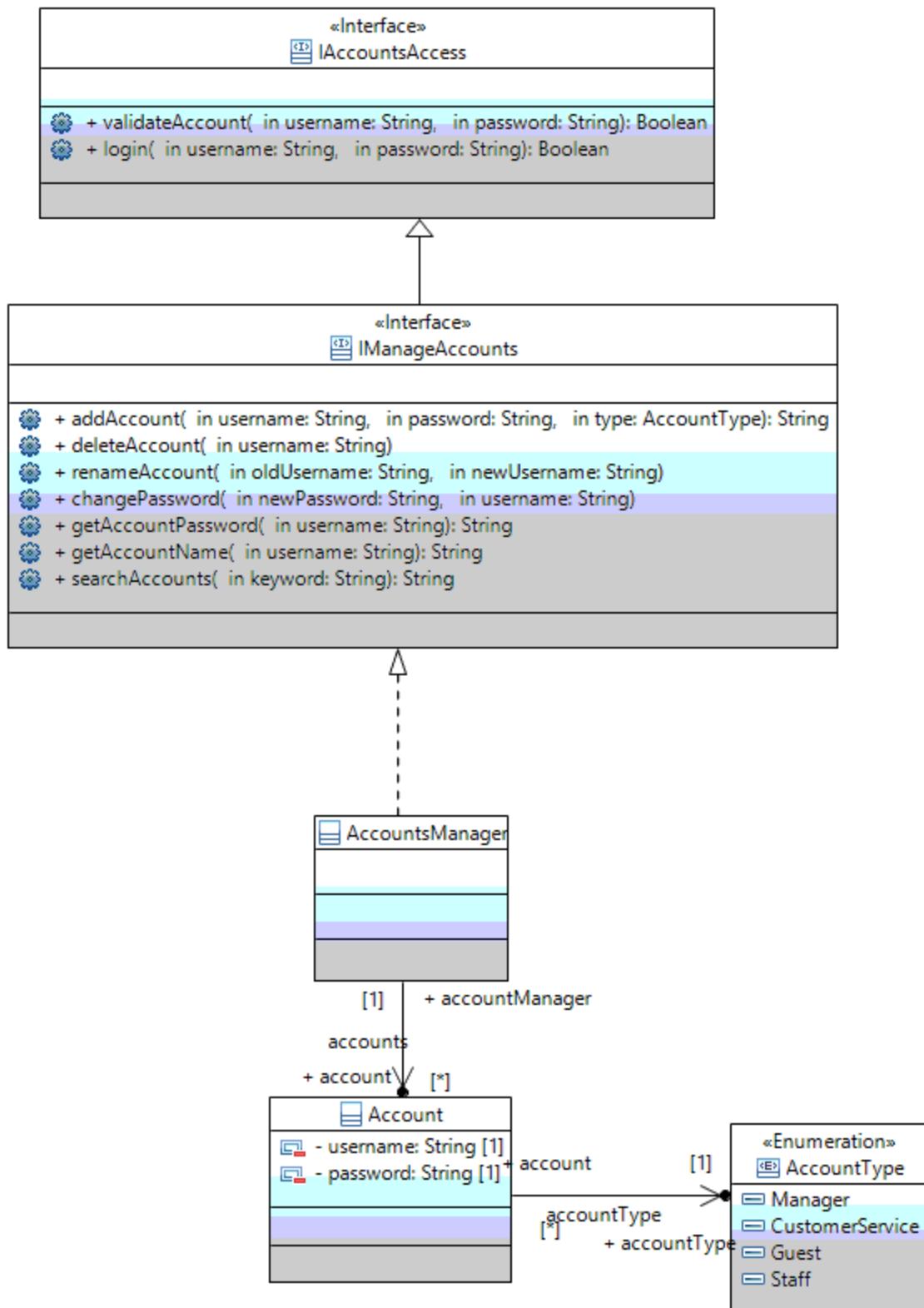
Stays component



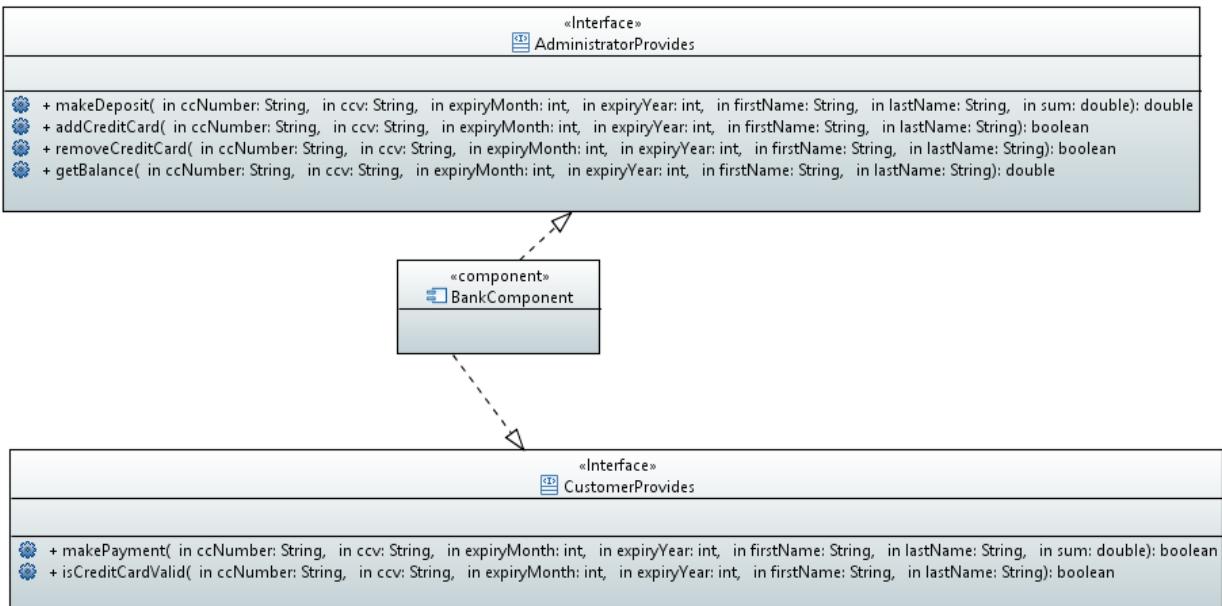
Requests component



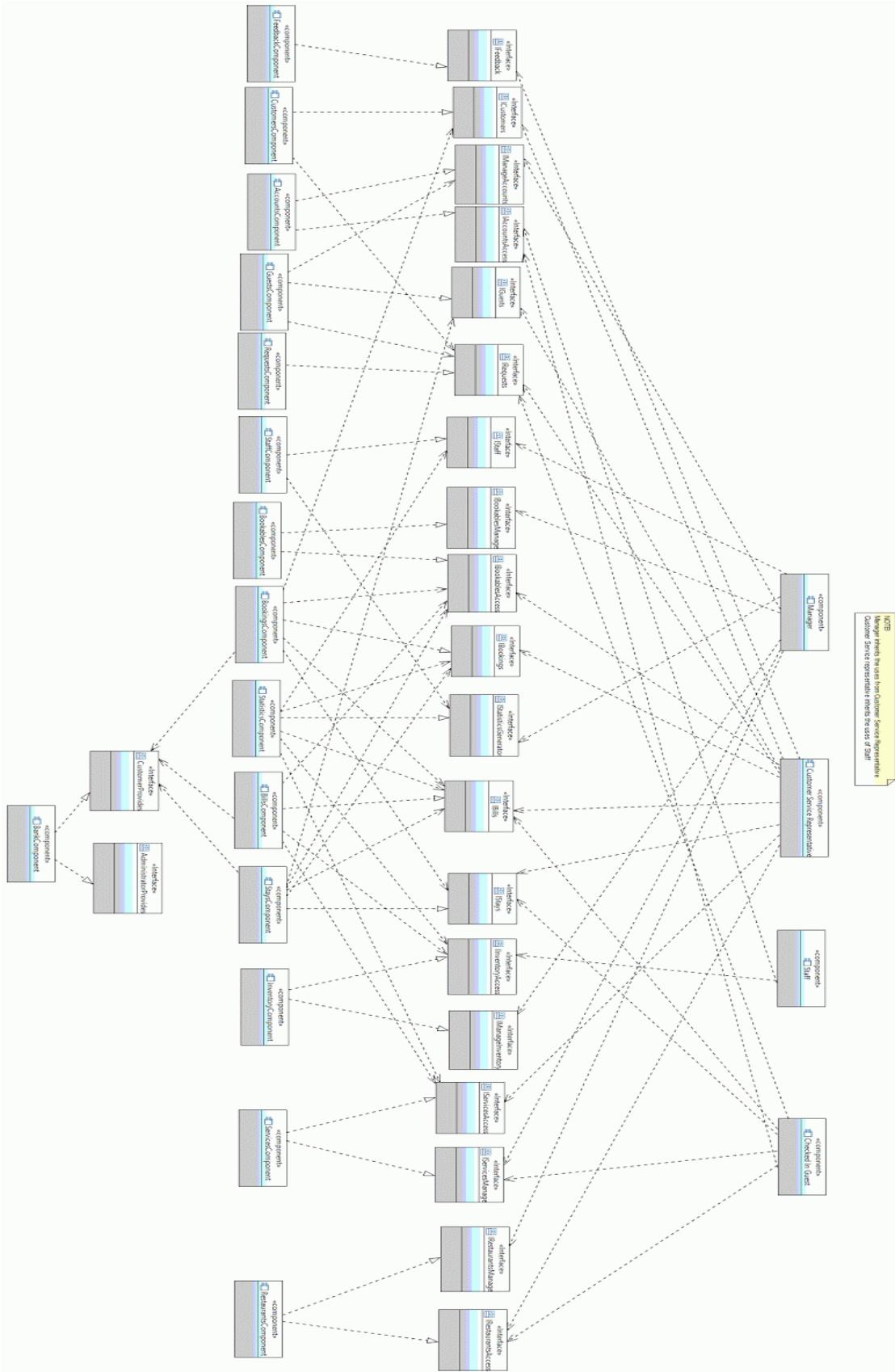
Accounts component



Banking component

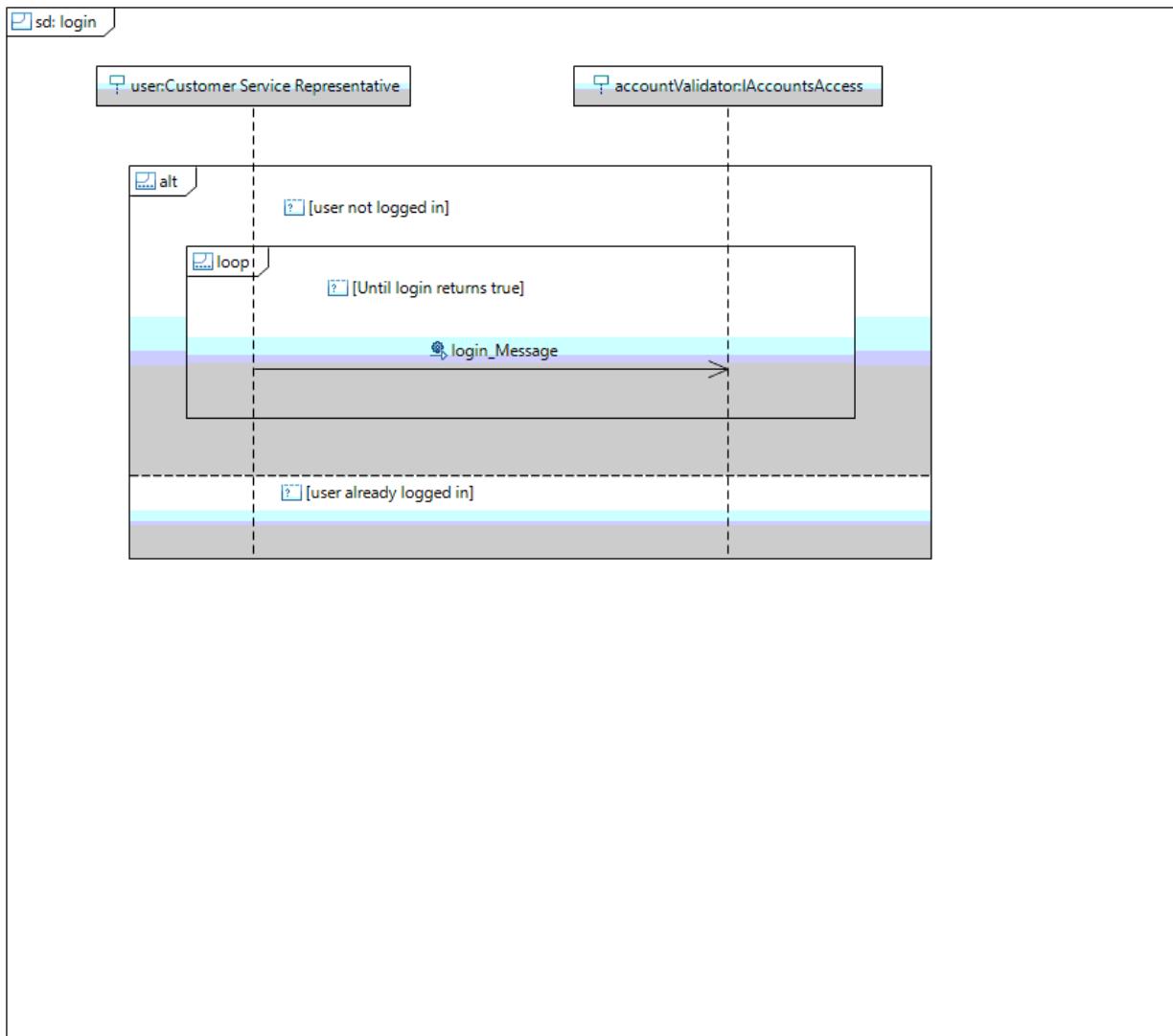


Component Diagram

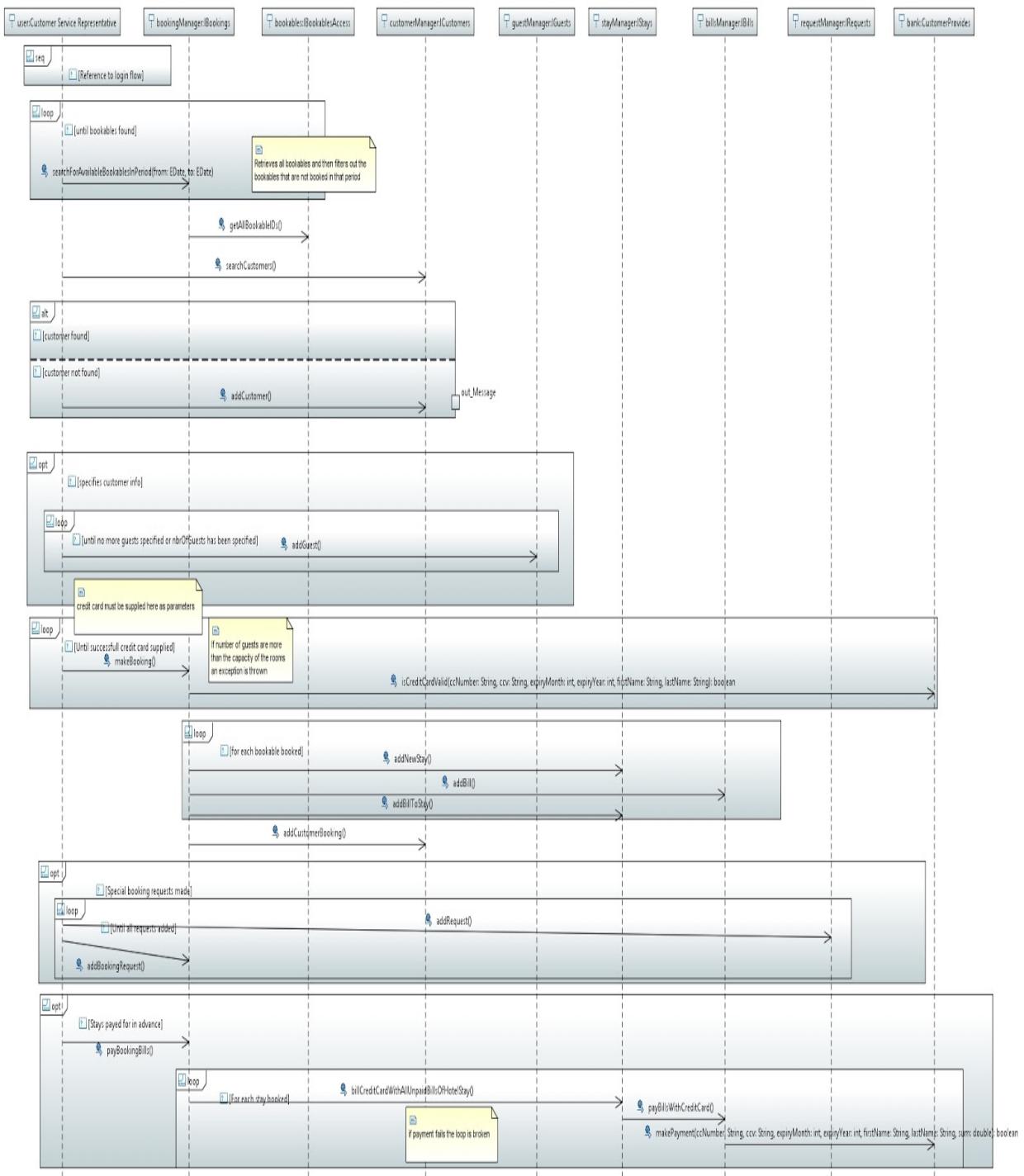


Sequence Diagrams

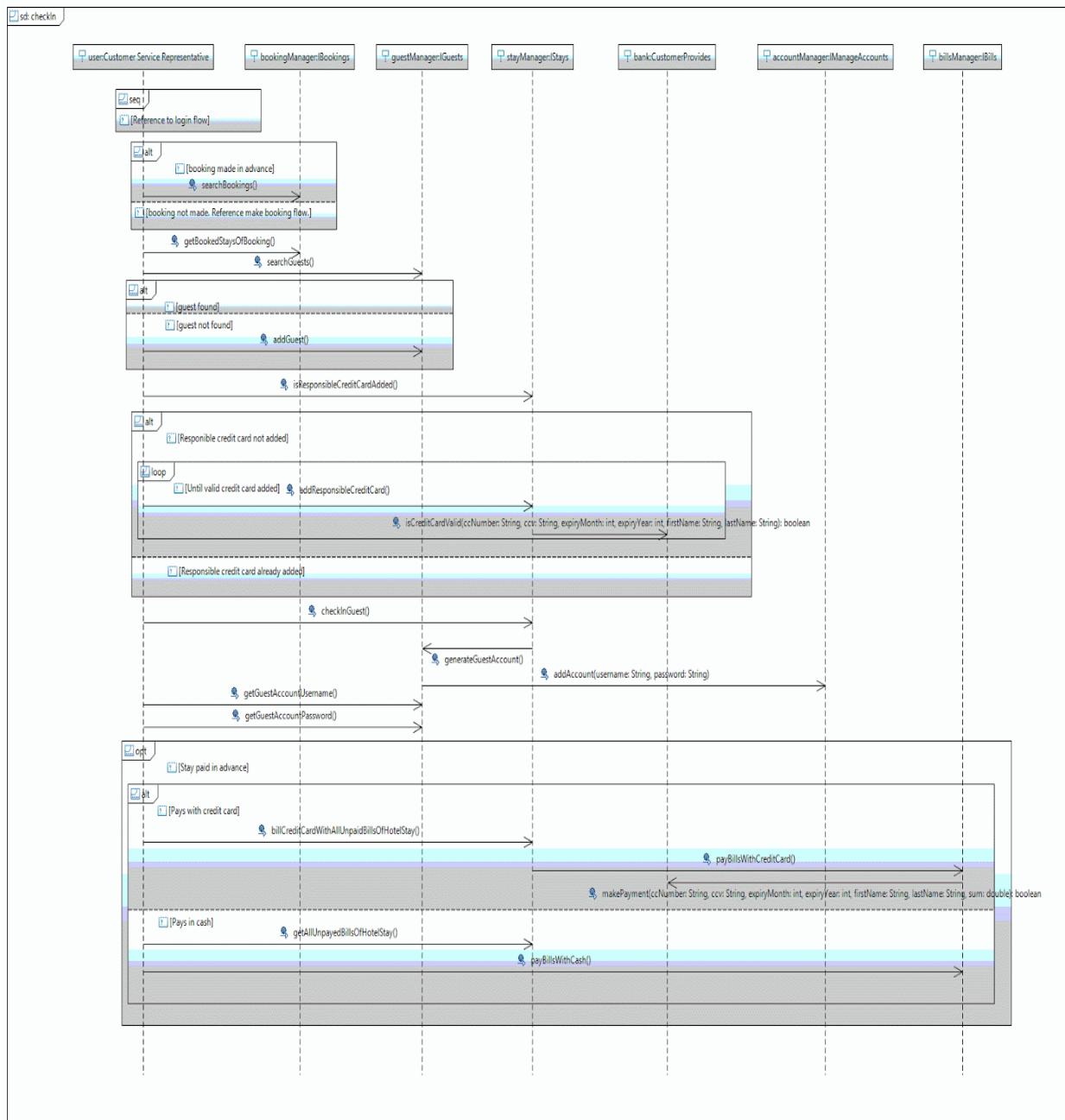
Login



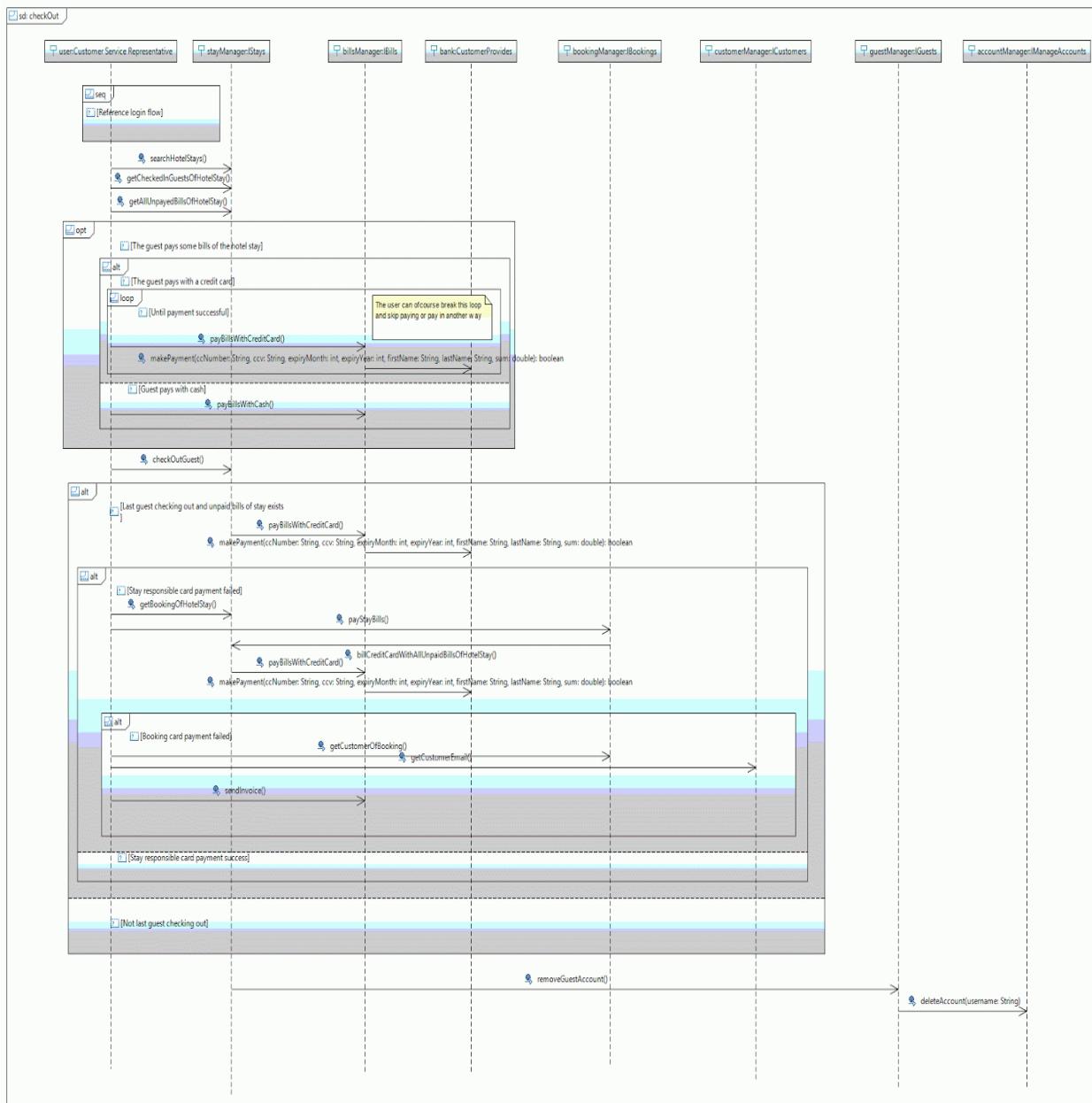
(21) Add New Booking As Customer Service Representative or Manager



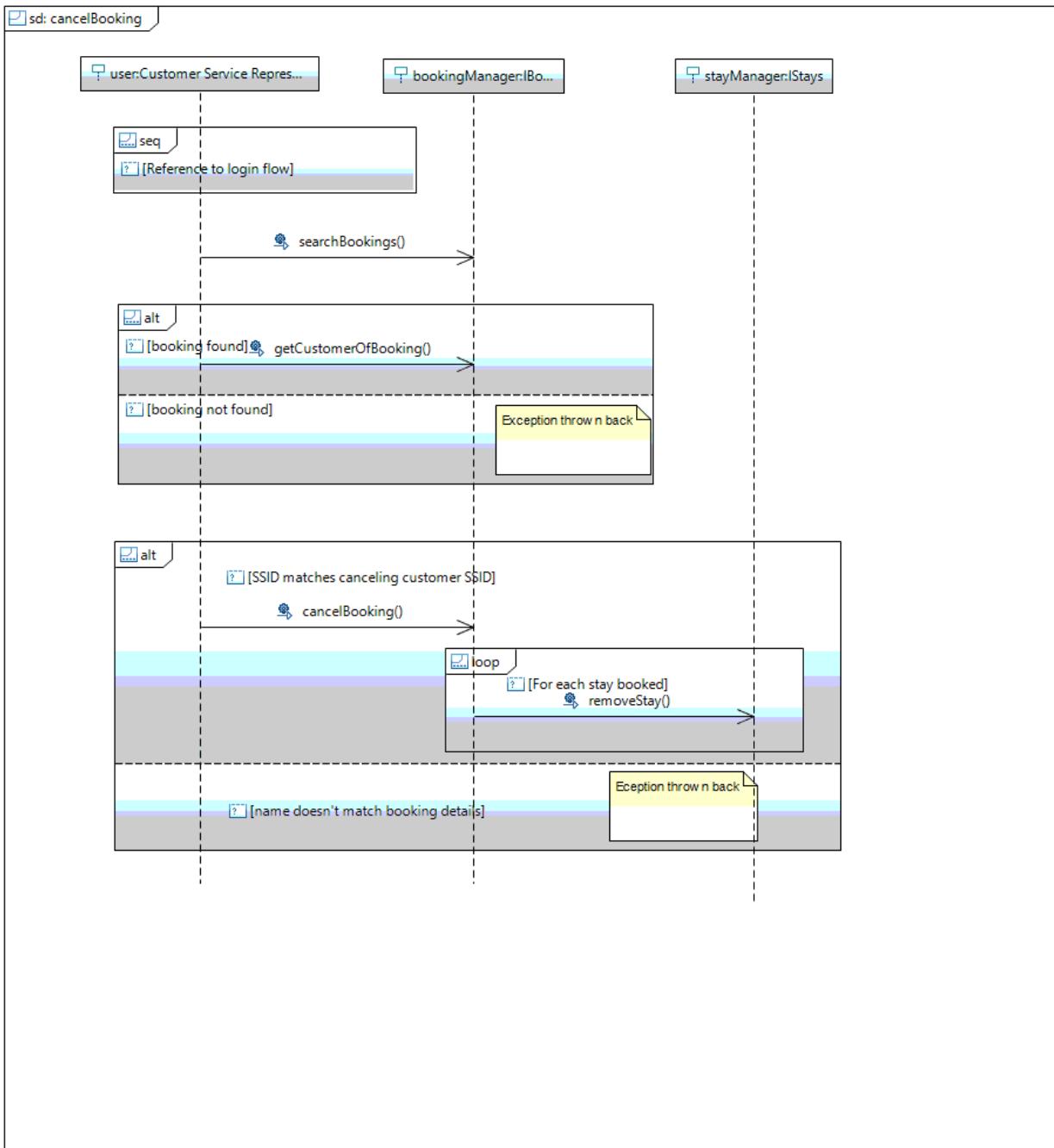
(24) Check In Guest As Customer Service Representative or Manager



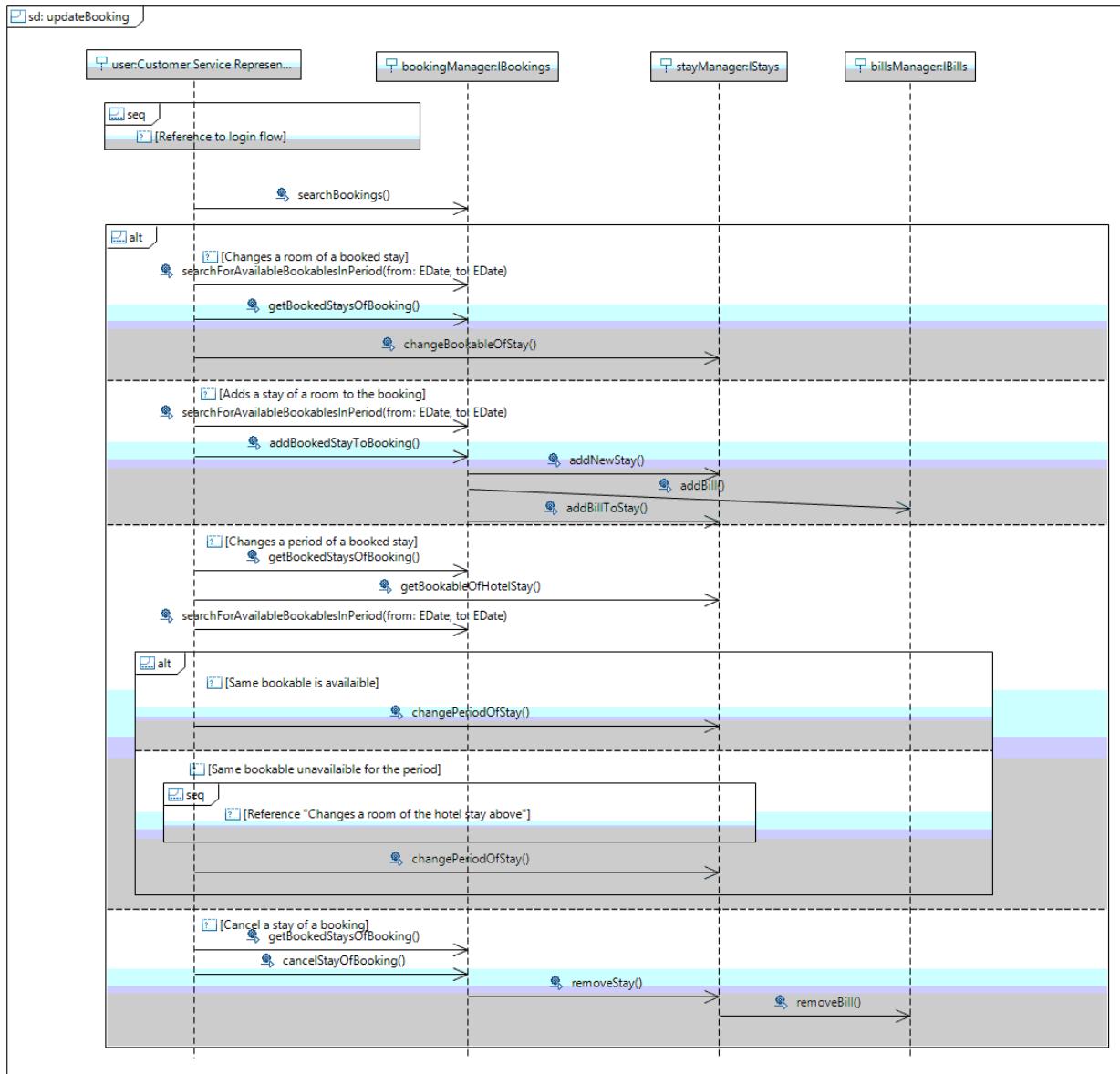
(25) Check Out Guest As Customer Service Representative or Manager



(22) Cancel Booking As Customer Service Representative or Manager



(23) Update Booking Details As Customer Service Representative or Manager



Appendix B - Hotel System Research

Existing Systems Designs

- <http://www.slideshare.net/thissagamage1/ho-39734768>
- <http://www.slideshare.net/thissagamage1/project-proposal-document-for-hotel-management-system>

Interview with Best Western Hotell Halland

Who gets registered for a booking? Is it only the person that makes the reservation and pays for the room or everyone that stays there?

Everyone that stays in the room is registered with their full name. A reservation is made when the booking is entered, and the day before arrival the customer gets a confirmation by mail or a text message. The customer also gets a booking number which is needed if the customer wants to cancel or edit the booking.

The hotel won't save the booking number in any database if the booking is made by phone, only on paper. It will get saved if the booking is made by mail or fax.

When registering a booking the staff member checks the date to see if there are any available rooms. Then they ask about what type of room, length of stay and the customers information, such as phone number, e-mail, name etc. The staff member fills in the price and if there are any special requests, like extra beds or two single beds instead of one double. They also register how the booking was made. (Phone, mail, fax or in person) The customer is asked if they want an confirmation of their booking sent to them right away, otherwise they get one automatically one day ahead of the day the booking starts.

How does the scheduling for the cleaning of the rooms work? What do they think about our idea of letting guests enter when their room is available for cleaning themselves?

The cleaners prints a list over all the rooms that needs cleaning either one or two days in advance. Of course this only covers the rooms that will be checked out that day. The receptionist tries to book rooms on the same floors that are already booked to make cleaning faster and easier.

They did not seem too fond over our idea since it would mean getting new rooms to clean and possibly running back to an area that was already finished. That comes from that when a floor has been cleaned, they do not clean it again in the same day.

The only time the cleaners come back to that floor is before their shift ends to check if the guests that had the "Do not disturb" sign has taken it down and wants cleaning. They never knock and offer cleaning if the "Do not disturb" sign is up.

The cleaners need to know in advance what rooms that needs cleaning in advance for it to fit into their schedule. It could work in a very big hotel where they have enough cleaning staff such that, at least, one cleaner only has one floor to manage.

The cleaning staff has access to printing out the cleaning schedule and has one key card that works on every door.

How much can employees edit bookings? What rights do you have? For example, do you need a booking reference to be able to edit?

Receptionists can edit just about everything with a booking.

How do you evaluate the guests stay at the hotel?

Evaluation forms with a grading system from 1-5 is present in every room. The cleaners collects the forms after they are done cleaning the room and deliver them to the front desk.

If the guest was especially nice, the hotel might send a postcard to thank them for their stay.

What information, about the customer and the guests, do you save?

Every information about the customers contact details gets saved. Their payment information does not get saved.

For finding guest who have stayed at the hotel before you search for the name. Can sometimes be tricky and often faster to create a new booking without searching for the customer.

Minimum requirements for making a reservation on a room:

- First- and last name
- Phonenumber
- Address (Recommended, but can wait until arrival.)

If all the guests don't arrive for the check-in, how is it handled?

A credit card must be registered when checking in unless if you are paying in cash. The payment (if you use a credit card) can be made before or after your stay. Extra fees (for example a tab in the restaurant.) is added afterwards and will be charged at the same time as the other fees.

It does not matter how many guests there are at the check-in as long as one of them checks in and receives the keycards with the right booking information.

Are you happy with the current booking system?

An “easier” interface would have been nice.

Interview with Comfort Nordic Choice

Who gets registered for a booking? Is it only the person that makes the reservation and pays for the room or everyone that stays there?

Everyone is registered in the reservation. For the one who is responsible for the booking they ask for more information; including name, phone number, email address and payment method. For the other visitors they only need their name and title.

How does the scheduling for the cleaning of the rooms work? What do they think about our idea of letting guests enter when their room is available for cleaning themselves?

To let the guests choose when they want to have their rooms cleaned would be chaotic, according to the hotel staff. Instead they have a cleaning schedule that is the same every day (between 9 am - 3 pm). The customers are however able to chose if they don't want to have their room cleaned at all a day.

How much can employees edit bookings? What rights do you have? For example, do you need a booking reference to be able to edit?

Receptionists can edit just about everything with a booking. You need a booking reference to make a change, but everyone is able to do this. They have a certain change log where you can see who did what among the hotel staff.

How do you evaluate the guests stay at the hotel?

When a guest is checking out from the hotel, an automatic evaluation form is sent to them. If you are a frequent customer and have stayed at one of their hotels during the last 3 months, you won't get a new evaluation form. You are only asked to evaluate your stay every three months in that case.

What information, about the customer and the guests, do you save?

They will need the names of the guests for safety reasons. If there for example would be a fire on the hotel they need to know every one who is currently staying in the hotel.

If all the guests don't arrive for the check-in, how is this handled?

You as a customer have the opportunity to cancel your stay until 4 pm on the arrival day. If you don't show up in time they will charge you from the card that you registered when you made the reservation. If you don't show up they will also try to get in touch with you the following day on telephone.

Are you happy with the current booking system?

Yes, it looks a bit out-dated however. One of the best features of the system, according to the interviewee, is the SMS function where they send a reminder to the customers about their hotel stay a couple of days before their arrival day