Department of Information Systems

Systems Analysis (INF2009F) – 2017

USER REQUIREMENTS SPECIFICATION:

RestEasy Hotel Group

Team 70

TEAM MEMBERS

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Declaration

- We know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own.
- This User Requirements Specification is our own work.
- We have not allowed, and will not allow, anyone to copy our work with the intention of passing it off as their own work.

Team Member Name……..……Signature:……..…….. Date ...../...../…....

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1. BACKGROUND

1.1. Business overview

The RestEasy Hotel Group is a group of hotels which are independent from one another but are managed at a group level. The main focus of the group is to provide the best quality of service, keep the customers comfortable and doing all this whilst keeping prices reasonable.

The business currently has around 30 hotels in their group, the hotels are spread throughout South Africa, but their head office is at Century City in Cape Town. Their employees are spread throughout hotels and they also have some at their head office. They also have a small but dynamic IT department which supports the head office and all the hotels in the group.

The group was created last year and many of the hotels in the group were privately owned but some have been bought and now owned by the group. The group is devoted on staff training and as lot of training sessions and training opportunities where the staff can be trained in using the latest technology, improve their communications skills, etc. Strategic planning is managed through Exco, the Executive Committee, at the head office. The have an existing marketing department, human resources department and a IT function for centralized events.

The group wants to set a standard met by all the hotels in the group so as to establish a brand throughout the hotel industry and South Africa. In this standardization they want to have an computer system that can standardize or even automatize normal hotel processes like financial reports, financial accounting systems at hotel and group level, booking process, customer account management, staff management, etc. This is also in the hope that the system will bring in the best business and IT practices and to decrease operation, ownership, hardware, software and staff training costs.

1.2. **Project definition statement**

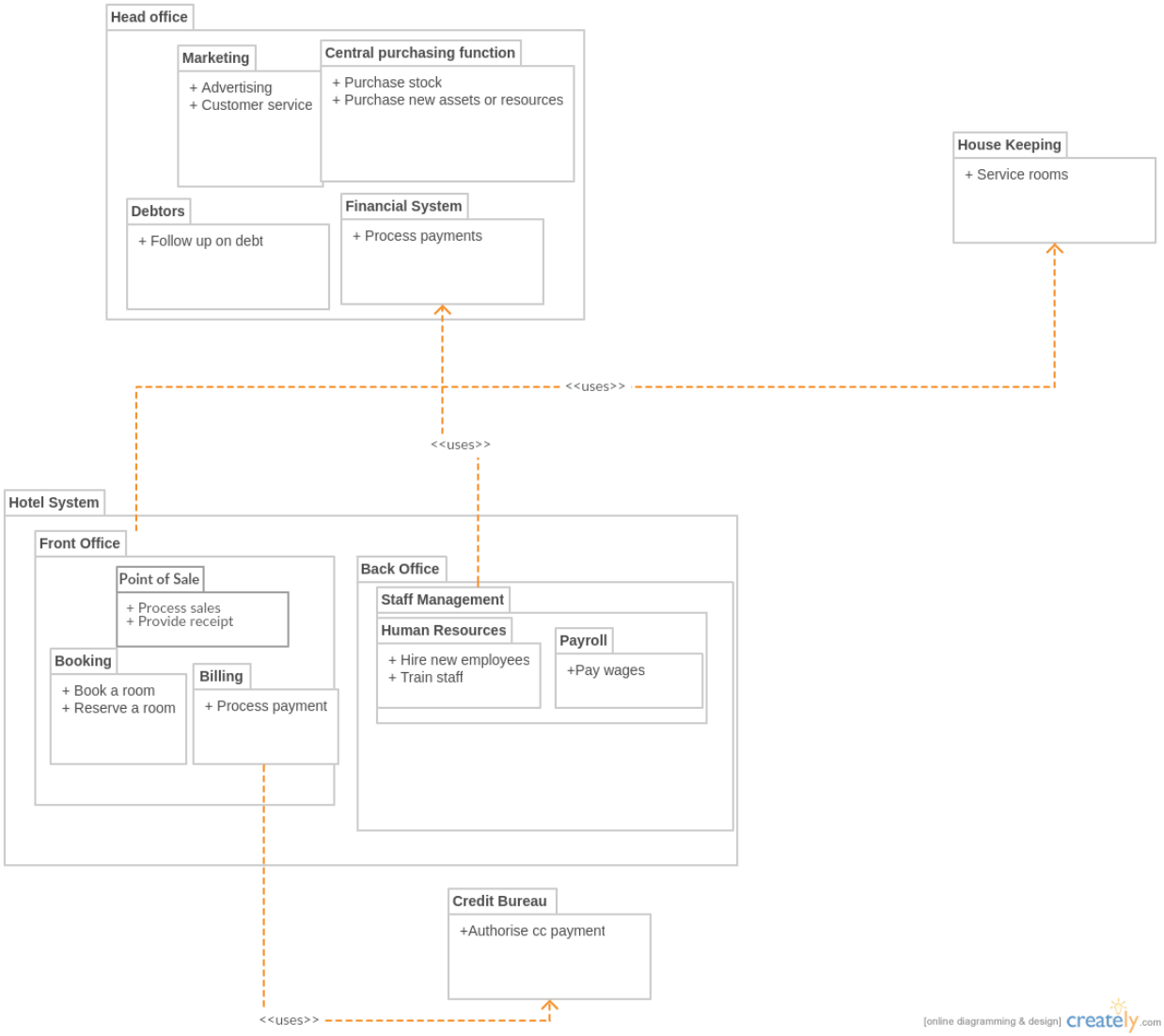
From going through the Rest Easy Hotel Group and hotel's in the group everyday business processes, identifying opportunities, of which arise from the identified problems and problem areas, and knowing the overview, background and focus of the group the objectives of this project is to standardise business practices and increase security and thereby lift customer satisfaction and give customers a realistic expectation of what customers can expect from all branches.

The overall development project will be split into three phases:

- The first phase will focus on the development of a **standalone computer system in each hotel to handle reservations and guest account management (billing).** This will include handling all guest charges and accounts but no corporate billing (facility to combine individual accounts for a single company) or debtors accounts. In addition, a third party organisation has been contracted to install point of sale (POS) devices in all hotel restaurants and bars. These terminals will transmit details of each purchase to the billing system in real time mode. We are not providing web based functionality in this phase of the project.
- Phase two will introduce a central group system to handle centralised booking, corporate billing and marketing as well as a general ledger, human resources, debtors and stock control.
- The final phase, planned for 2018, will focus on decision support and function management.

On the next page you'll find a package diagram describing all the systems within the big system and their associations with each other.

A package diagram,package diagram describing all the systems within the big system and their associations with each other, of the agreed solution is given below and a statement of scope follows after



On the next page you'll find a scope statement depicting the scope of all the systems.

Scope statement, depicting the scope of all the systems

InScope
Hotel System
- **Front Office**
  - Point of sale
    - Process payments
    - Provide receipt
  - Booking
    - Book a room
    - Reserve a room
  - Billing
    - Process payment via credit card
- **Housekeeping**
  - Service rooms

Out of Scope
- **Back Office**
  - Human resources
    - Hire new staff
    - Train current staff
  - Payroll
    - Pay wages
- **Credit card bureau**
  - Authorise credit card payment

- **Head Office**
  - Marketing
    - Advertising
    - Customer service
  - Financial system
    - Process payments
  - Debtors
    - Follow up on debt
  - Central purchasing function
    - Purchase new stock
    - Purchase new assets or resources

1.3. **Work method followed**

The Waterfall Approach with its 6 distinct phases and its deliverables will be followed, given below:

The phases include:

1. Initiation
2. Analysis
3. Design
4. Construction
5. Testing
6. Implementation

The deliverables include:

1. Business Case (Initiation Document)
2. User Requirements Specification (Functional specification)
3. Technical specification
4. Solution (hardware and software)
5. Test pack (test plans, test cases, test results)
6. Implementation or change in management plan or implemented solution (Final software package)

By using the waterfall approach, outcomes and artefacts of each phase are pre-defined, project progress is evaluated at the end of each phase and it provides high level of management control

The following fact finding techniques were used:

- Interviewing Saratoga staff to outline the RestEasy user-requirements and organisational culture
- Joint Application Development (JAD) was used via structured a workshop with a facilitator, scribe and all important stakeholders present in order to to find consensus regarding user requirements across the user community

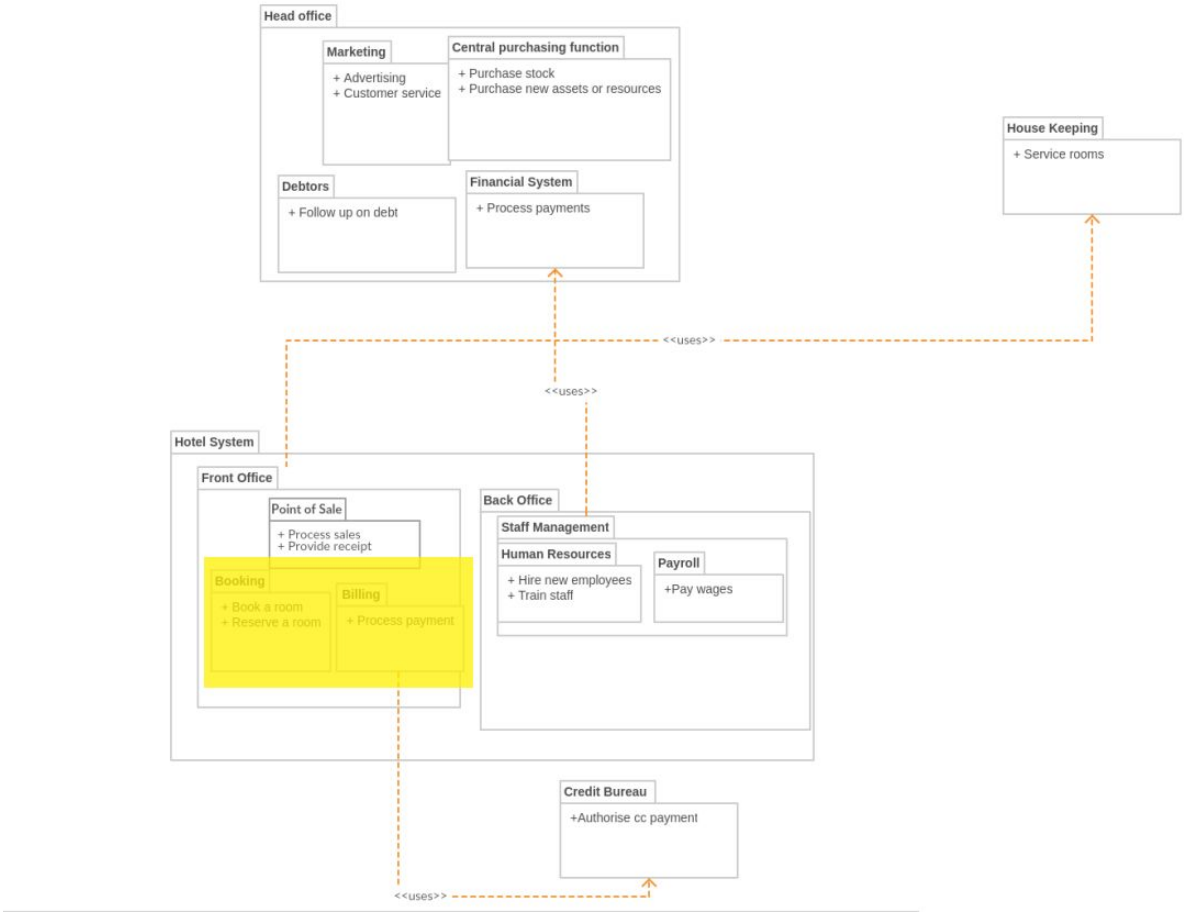
These fact finding techniques, as well as the careful study of the case study provided, allowed us to clearly outline the user-requirements and the necessary changes needed to fulfil these requirements

2. USER REQUIREMENTS

2.1. Overview

In this section all the actors and their role and business processes, in the system in discussion, will be discussed in the form of tables.

The system under discussion is highlighted below:



On the next page you'll find an actor table describing all the actors involved in the system in discussion as mentioned above.

Below is an actor table describing all the actors involved in the system in discussion as mentioned above. The actors name, role, level and description is mentioned.

Actor role	Level	Description	System
Receptionist	Primary	Employee at Reception Desk	Booking and Billing
Hotel Manager	Secondary	The person managing the hotel that communicates with head office about statistics of how hotel is doing.	Booking
Accounting	Secondary	The accounting department that is recording the bills of the hotel for accounting purposes.	Billing
Tellers	Primary	Any staff of the hotel that can record or make bills for the guest of the hotel.	Billing
Hotel Guest	Stakeholder	The guest of the hotel that is paying the bills and making the booking	Booking and Billing
Head Office	Stakeholder	The RestEasy Group head offices	Booking and Billing
Housekeeping	Primary	The person doing the housekeeping for the guest's room	Billing
Time	Primary	When it is time for something to happen	Booking and Billing

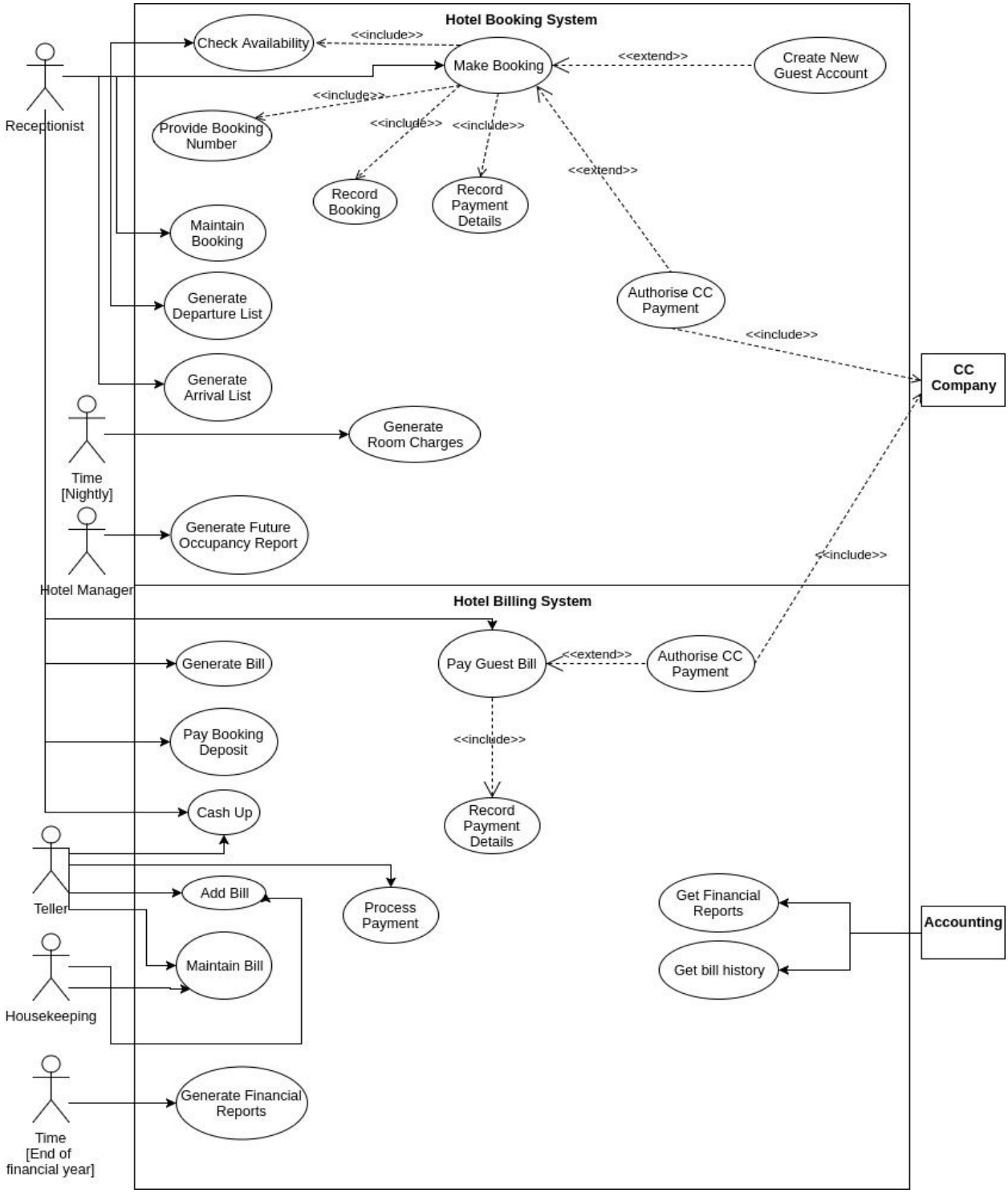
On the next page you'll find a table describing all the basic business processes, also known as a use case, of the system in discussion.

Below is a table describing all the basic business processes, also known as a use case, of the system in discussion. The name, numer, primary actor and priority of the use case is mentioned.

Number	Use Case	Primary Actor	Priority	System
1	Make Booking	Receptionist	High	Booking
2	Maintain Booking	Receptionist	Medium	Booking
3	Add Bill	Teller Housekeeping	High	Billing
4	Maintain Bill	Teller Housekeeping	Medium	Billing
5	Generate Bill	Receptionist	High	Billing
6	Check Room Availability	Receptionist	High	Booking
7	Generate Future Occupancy Report	Hotel Manager	Medium	Booking
8	Generate List of Departures	Receptionist	Medium	Booking
9	Generate List of Arrivals	Receptionist	Medium	Booking
10	Pay Booking At Check in	Receptionist	Medium	Billing
11	Pay Guest Bill	Receptionist	Medium	Billing
12	Generate Financial Reports	Accountant	Medium	Billing
13	Cash Up	Teller Receptionist	Low	Billing

2.2. **Use Case Diagram**

The RestEasy Hotels Booking and Billing System will have to do a lot of business processes and there is a few people interacting with the system. The Use Case diagram below depicts all these processes and the actors involved in those processes.



2.3. **Use Case Narrative**

Below is a description of the Make a Guest Booking use case, it describes the actors, stakeholders, preconditions, postcondition and flow of the use case:

Expanded Use Case:	Make a Guest Booking	ID: 1	Level: High
Actors:	Receptionist		
Stakeholders and Interests:	Guest - to know if his booking has been recorded, the date and price of booking. Hotel Manager - to know for statistical purposes for Head Office. Accountant - to record all transactions		
Brief Description:	A client will call in to make a booking. The receptionist will reserve a room for a client that wishes to make a booking, the client provides the booking details. The room availability is checked until an available room is found, booking is recorded and payment details is recorded. A new guest account is made if the guest is new.		
Preconditions:	A room must be available. The client must not be on the hotels blacklist.		
Postconditions:	The payment details must have been recorded. The reservation must have been recorded. A guest account must have been created if the client is new. A reservation number must have been provided to the receptionist. If the client wanted to pay via CC the CC Company must have authorised the CC. Room availability must be updated.		
Related Use Cases:	Include: Check Availability Include: Record Booking Include: Record Payment Details Include: Provide Booking Number Extends: Authorise CC Payment Extends: Create New Guest Account		

Please see rest of the Use Case Narrative on next page.

Please see rest of the Use Case Narrative on below:

Typical Course of Events (Assumes nothing goes wrong)	
Actor Action	System Response
1 Client calls	
2. Receptionist asks for booking details	
3. Check Room Availability	4. Returns the room availability and room price
5. Enter Guest Details	6. Gets guest account details
7. Enter booking details	8. Ask for reservation confirmation
9. Confirms reservation	10. Record reservation details
	11. Creates guest account
	12. Calculates Deposit
	13. Provides booking number
14. Ask for payment	
14. Verify payment details	
15. Enter payment details	16. Authorise CC payment
	17. Record payment details
	18. Ask for confirmation if reservation is complete
19. Confirm that reservation is correct	20. Generate Confirmation Letter
	21. Send confirmation letter to client
	22. Display confirmation letter

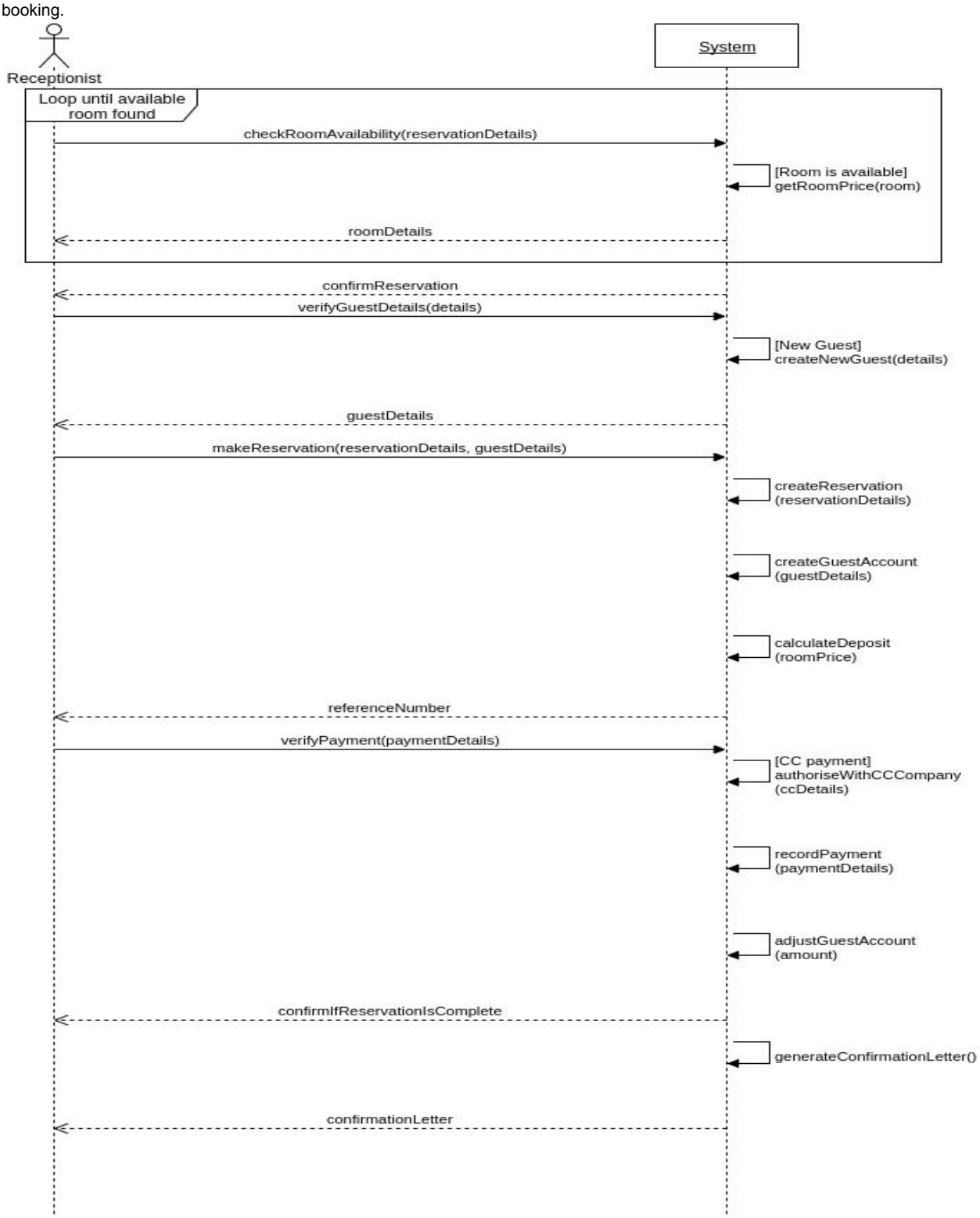
Please see rest of the Use Case Narrative on next page.

Please see rest of the Use Case Narrative on below:

Exception/Alternative Course of Events	
Actor Action/System Response	Exception
2 Check Room Availability	No Room available
5. Gets guest account details	No account for this guest
8. Confirms reservation	Receptionist declines confirmation
15. Authorise CC payment	Client doesn't want to pay with CC
15. Authorise CC payment	CC Company declines payment
18. Confirm that reservation is correct	Receptionist declines confirmation because client wants to add more bookings
18. Confirm that reservation is correct	Receptionist declines confirmation because client wants to cancel
20. Send confirmation letter to client	Client email address or phone number doesn't exist

2.4. **Systems Sequence Diagram**

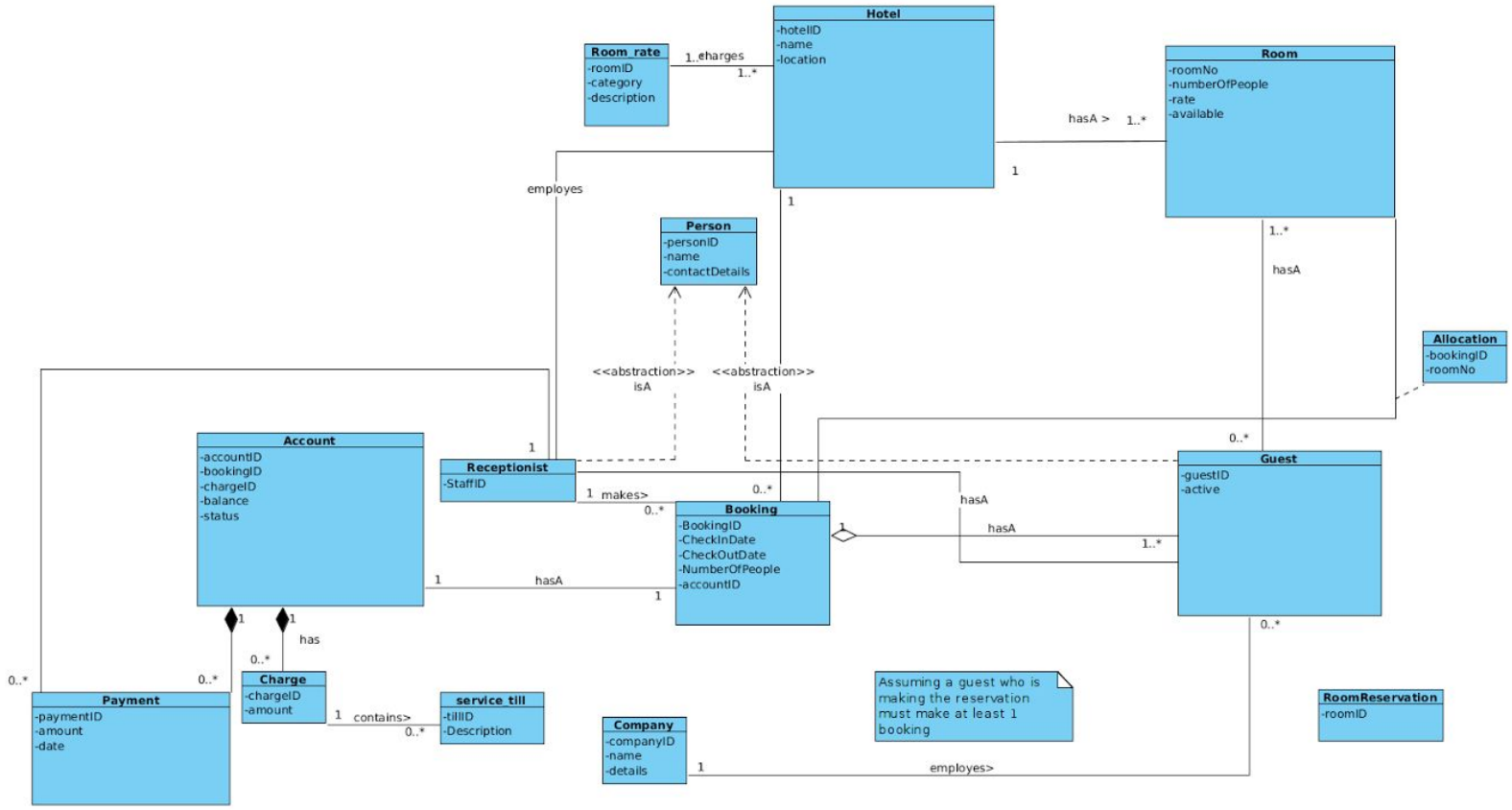
Below is a system sequence diagram that shows the sequence of events that unfold as the receptionist makes a guest booking.



3. OBJECTS, RELATIONSHIPS AND BEHAVIOUR

3.1. Analysis Class Diagram

Below is a analysis class diagram depicting all the classes in the system and their relationship with each other.



On the next page is a short description of each class and its purpose.

Below is a short description of each class and its purpose.

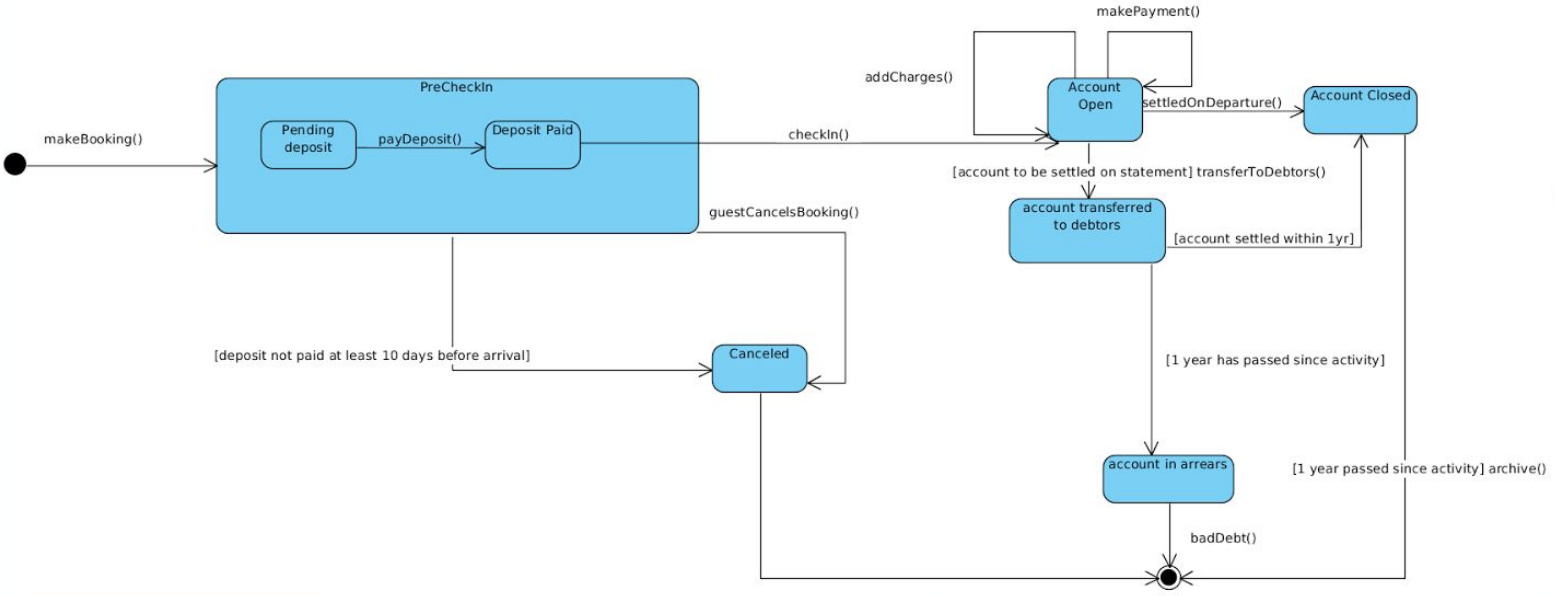
Data dictionary:

Class	Attributes	Description
Payment	● paymentID ● amount ● date	Contains information needed for each payment to be processed
Person	● personID ● name ● contactDetails	Person in an abstract class where a person can either be a staff or guest and holds attributes that both the aforementioned classes inherit
Guest	● guestID ● active	Contains the unique guestID and whether the guest is active(currently checked in) or not. Inherits from Person.
Receptionist	● staffID	Contains information pertaining to the receptionist and inherits from Person
Company	● companyID ● name ● contactDetails	Contains the details of the company making the booking for the guest. (If applicable)

Account	• accountID • bookingID • chargeID • balance • status	Account is associated with charges and booking and contains the account balance and whether the account is closed, settled, in arrears or archived.
Charge	• chargeID • amount	This contains information regarding the charges to the guest account: The amount charged and the unique identifier of charge
Service_till	• tillID • Description	Service_till is associated with charge as a charge is occurred at a service till.
Hotel	• hotelID • name • location	Contains information about each hotel
Booking	• bookingID • guestID • roomNo • checkIn • checkOut • accountID	Contains information for each booking made for guest and is associated with Hotel, Receptionist, Guest, Account and Room.

3.2. **State Machine Diagram**

Below is a state machine diagram of the Guest Account, depicting all the states that the Guest Account class can be in within the lifetime of the system.



4. NON-FUNCTIONAL REQUIREMENTS

Below are few non-functional requirements are depicted that the system will need.

Functional requirements are requirement specifying the behavior of the system, that is specifications on what the system is supposed to do. Non-functional requirements are the requirements of how good the system should do something or the goal of requirement of the system.

These non-functional requirements are discussed in more detail below:

4.1. Performance requirements

- The system needs to run in real time so that there are no problems with overbooking
- The booking system must be fast enough to ensure guests can conveniently choose an available room without delay.
- Communication via networks should be fast and have low ping to ensure processes like server and client communication is fast to ensure the above mentioned real time implementation of the system.
- The accessing of files should be fast to insure no delayed processing of bookings or bills, this can be done via using file caching systems to keep customer waiting times short and therefore avoid frustrated customers.
- Main systems should either be always on to insure that there is no delay when business opens or be stored on fast mediums like SSD's to insure they can boot fast so that there is no loss of income due to the business not being up and running.
- The hotels internet connection should be fast enough to sustain internet usage of new systems to ensure that the online booking system and interface is smooth, fast and fluid.

4.2. Usability requirements

- The system must be easy to use and therefore not have an overly complicated GUI.
- Notifications should be shown when a processes is active or done to insure better usability and to keep the customer in the know.
- The systems should use appropriate and descriptive error messages when one occurs to insure the problem can be identified and fixed easily, e.g if the user enters a non-number character instead of a number, the system should tell the users which field and what they

entered incorrectly.

- Errors messages should not be blamed on user and be messages that encourage them to fix the errors.
- The system should be user friendly and cater to all levels of computer literacy

4.3. Security requirements

- Rooms should all be protected by an RFID lock linked to a keycard provided to the guest upon check-in
- Hotel security should be employed to mitigate crime and unwelcomed guests
- All systems must have a login based protocol to insure no unauthorized usage by staff or guests who should not have access.
- The systems must use encryption to ensure guests that confidential information is kept safe.
- The system should be secured with state of the art data protection and anti-malware software
- The system should have redundancies set in place (backups) for potential data loss due to uncontrollable risk (natural disasters)
- All necessary files should be password protected.
- All necessary files should have correct read/write permissions.

4.4. Volume and storage requirements

- The systems should use compression to save space on storage mediums.
- The system should have enough storage for all the data
- Old files should be archived to save space on main systems

4.5. Configuration / compatibility requirements

- The systems shouldn’t require high end hardware or additional software to run to ensure it can easily be integrated.
- The system should be build from most popular development systems and environments, if applicable, to

4.6. Reliability requirements

- Data on servers should be mirrored over multiple disks to insure data redundancy and to insure data integrity.

4.7. Backup / recovery requirements

- All files should regularly be backed up.
- Backups should be mirrored on different disks to ensure data redundancy.

4.8. Training requirements

- Staff will be required to be trained to use the new system, this can be done by an after hours training session.
- There should be weekly or monthly training sessions available for new staff or staff struggling to understand the system.

5. SUMMARY

5.1. Project status to date

In this section we summarise the work process followed so for and the artefacts that have been produced from following the process.

Market research was done on RestEasy and the following fact finding techniques were used:

- Interviewing Saratoga staff to outline the RestEasy user-requirements and organisational culture
- Post a questionnaires to customers to identify shortfalls in the system

The first two phases of the waterfall approach is now complete.

5.2. Project planning

Below is a short description of the remaining project phases and deliverables yet to be delivered.

The remaining phases include:

1. Design
2. Construction
3. Testing
4. Implementation

These phases result in delivering the following:

1. Technical specification
2. Online solution
3. Test pack (test plans, test cases, test results)
4. Implementation or change in management plan or implemented solution (Final software package)